





**NORTH DAKOTA
STATE
COLLEGE
OF SCIENCE**

ACADEMIC PROGRAMS

Agriculture (A.A.S. degree)		Liberal Arts - Transfer Curriculum Plans (A.A. or A.S. degrees)	
• Animal Science	44	• Agriculture (A.S.)	84
• Crop Production Sales and Technology	45	• Biotechnology (A.S.)	85
• Farm Management	46	• Business Administration (A.A.)	86
• Ranch Management	47	• Chemistry (A.S.)	87
Architectural Drafting and Estimating Technology		• Chiropractic (A.S.)	88
(A.A.S. degree)	48	• Clinical Laboratory Science (A.S.)	89
Auto Body Repair and Refinishing Technology		• Computer Science (A.S.)	90
(Certificate, Diploma, A.A.S. degree)	49-50	• Criminal Justice - Transfer (A.A.)	91
Automotive Technology (Certificate, Diploma, A.A.S. degree)	51	• Dental (A.S.)	92
• Automotive Alignment and Brake Technician (Certificate)	52	• Early Childhood Education (A.A.)	93
• Automotive Engine Technician (Certificate)	53	• Education (A.A.)	94
• Automotive Transmission and Driveline Technician (Certificate)	54	• Emergency Management (A.A.)	95
• Automotive and Diesel Master Technician (A.A.S. degree)	55	• Engineering (A.S.)	96
Building Construction Technology (A.A.S. degree)	56	• General Liberal Arts (A.A., A.S.)	97
Business Management (Certificate, A.A.S. degree)		• General Studies (A.S.)	98
• Business Technology Management (third-year option)	57	• Health, Physical Education and Recreation (A.A.)	99
• General Business Management (A.A.S. degree)	58	• Law (A.A.)	100
• Marketing Management (A.A.S. degree)	59	• Management Information Systems (A.S.)	101
• Restaurant Management (third-year option)	60	• Mathematics (A.S.)	102
• Business Management – Business Pro Curriculum Options	61	• Medical (A.S.)	103
▪ Entrepreneurship (Certificate)		• Music (A.A.)	104
▪ Finance (Certificate)		• Natural Science (A.S.)	105
▪ Management/Supervision (Certificate)		• Nursing (A.S.)	106
▪ Sales (Certificate)		• Optometry (A.S.)	107
Caterpillar Dealer Service Technician (A.A.S. degree)	62	• Pharmacy (A.S.)	108
Computer Information Systems		• Physical Science (A.S.)	109
(See Information and Communications Technology)	78-81	• Psychology (A.A.)	110
Construction Management Technology (A.A.S. degree)	63	• Social Work (A.A.)	111
Culinary Arts (Diploma, A.A.S. degree)		• Wildlife Management (A.S.)	112
• Chef Training and Management Technology		Mechanical Systems (A.A.S. degree)	113
(Diploma, A.A.S. degree)	64	Microelectronics Technology	
• Restaurant Management (third-year option)	60	(Certificate, Diploma, A.A.S. degree)	114
Dental Assisting (Certificate, A.A.S. degree)	65-66	Nanoscience Technology (Certificate, Diploma, A.A.S. degree)	115
Dental Hygiene (A.A.S. degree)	67	Nursing (A.A.S. degree, A.S.N. degree)	
Dialysis Technician (Certificate) <i>pending approval</i>	68	• Practical Nursing (A.A.S. degree)	116
Diesel Technology (Diploma, A.A.S. degree)		• Associate in Science in Nursing (Registered Nurse)	
• Case IH (A.A.S. degree)	69	(A.S.N. degree)	117
• General Diesel (Diploma, A.A.S. degree)	70	Occupational Therapy Assistant (A.A.S. degree)	118
• Komatsu (A.A.S. degree)	71	Paramedic (EMT) Technology (Certificate, A.A.S. degree)	
Electrical Technology (A.A.S. degree)		• Emergency Medical Technician (Certificate)	119
• Electrical Construction	72	• Advanced Emergency Medical Technician (AEMT) (Certificate)	
• Industrial Electrical	73	<i>pending approval</i>	120
• Electrical Master Technician (third-year option)	74	• Paramedic Technology (Certificate, A.A.S. degree)	121-122
Health Information (Certificate, A.A.S. degree)		• Community Paramedic (Certificate) <i>pending approval</i>	123
• Health Information Technician (A.A.S. degree)	75	Pharmacy Technician (Certificate, A.A.S. degree)	124-125
• Medical Coding (Certificate)	76	Plumbing (Certificate)	126
HVAC/R Technology (Certificate, A.A.S. degree)	77	Powersports Technology (Certificate, Diploma, A.A.S. degree)	127
Information and Communications Technology		Precision Machining Technology	
(Certificate, A.A.S. degree)		(Certificate, Diploma, A.A.S. degree)	128
• Information Systems Administrator (A.A.S. degree)	78	Robotics, Automation and Mechatronics Technology	
• Information Technology Support (Certificate)	78	(A.A.S. degree)	129
• IT Forensics (Certificate)	79	Technical Studies (Certificate, Diploma, A.A.S. degree)	130
• Mobile Application Developer (Certificate)	80	• Journeyworker Track (A.A.S. degree)	131
• Web Design (Certificate)	81	Welding Technology (Certificate, Diploma, A.A.S. degree)	132-133
• Web Developer (A.A.S. degree)	81		
John Deere Tech (A.A.S. degree)	82		
Land Surveying and Civil Engineering Technology			
(A.A.S. degree)	83		

CONTENTS

History of NDSCS	4	• Diversity Statement and Policy	30
Accreditations	4	• Harassment	30
Equal Opportunity Policy	5	• Student Sexual Harassment Policy and Procedures	30
Notice of Disclaimer	5	• Sexual Assault Policy	30
Family Educational Rights and Privacy Act (FERPA)	5	• Attendance Policy	31
2015-2016 Academic Calendar	6	• North Dakota University System Computer and Network Usage Policy	31
Mission/Vision/Values/Goals	7	• Consumer Information	31
Admission Information	8	• Student Complaints and Grievances	32
• Admission Requirements and Procedures	8	• Distance Learning Student Complaints and Grievances Process for Out-of-State Students	32
• Selective and Limited Admission Programs	9	• Complaints to the North Dakota University System Office	32
• Criminal Background Check Requirements	9	• NDSCS Policy and Procedures Crosswalk	33-34
• English and Mathematics Course Placement	9	Distance Education	35
• Financial Obligation Agreement	9	• General Information	35
• Full-time or Part-time Status	9	• NDSCS-Fargo	35
• Academic Advisement	10	• Online Options	35
• Student Responsibilities	10	• Registering for Online Courses	35
• Advisor Responsibilities	10	• Tuition and Fees for Online Courses	35
• Servicemembers Opportunity Colleges (SOC)	10	• Buying Textbooks	35
Tuition and Fees	11	• Attendance Policy	36
• 2015-2016 Estimated Average Costs	11	• State Authorization for Out-of-State Students	36
• Out-of-state Discount for Living on Campus	11	• Early Entry (Dual Credit)	36
• Additional Costs by Program	11	• Early College Program	36
• Laptop Computers	12	• Institutional Registration in Other States	36
• Application and Other Special Fees	12	College Outreach, Related Study and TrainND Southeast	37
• Special Course Fees	12-15	• General Information	37
• Fees (per semester)	15	• Related Study Program	37
• Residency for Tuition Purposes	15	• NDSCS-Fargo	37
• Non-Resident Students Seeking Resident Status	16	• TrainND Southeast	37
• Reciprocity for Minnesota Residents	16	Student Services	38
• Payment of Fees	16	• Library Resources	38
• Outstanding Bills	16	• Library Services	38
• Refunding of Tuition and Fees	17	• Student Success Center	38
Financial Aid	18	▪ Accessibility Services	38
• Financial Aid	18	▪ Academic Guidance and Support	38
• Dropping Out of College and Repaying Financial Aid	18	▪ Career Services	38
• Gainful Employment	18	▪ Career Exploration and Counseling	39
Academic information	19	▪ Developmental Education	39
• Classification of Students	19	▪ FLEXtime	39
• Semester System	19	▪ Orientation	39
• Unit of Credit	19	▪ Test Center	39
• Advanced Standing	19	▪ Tutoring	39
• Credit for Life and Work Experience	19	▪ Veterans Assistance	39
• Challenge Examinations	19	• Student Activities, Organizations and Volunteer Opportunities	39
• Transfer of NDSCS Credit	20	▪ Athletics	39
• Excess Load	20	▪ Clubs and Organizations	39
• Library Resources	20	▪ Spiritual Organizations	40
• Final Examination Policy	20	▪ Fine Arts	40
• Grading System	20	▪ Community	40
• Satisfactory/Unsatisfactory	20	• Campus Activity Facilities	40
• Semester Grades	20	▪ Harry Stern and Ella Stern Cultural Center	40
• Grade Transcripts	20	▪ Clair T. Blikre Activities Center	40
• Grade Change	20	• Campus Living Facilities	40
• Repeating Courses	20	• Campus Community Facilities	40
• Dropping or Adding Courses/Changing Curriculums	20	▪ Student Center	40
• Auditing Courses	21	▪ Bookstore	40
• Academic Warning, Probation, Suspension and Reinstatement Policy	21	▪ Customer Service Desk	40
• Student Eligibility to Participate in Activities	21	▪ Dining Services	40
• Absences	22	▪ Information Technology Service Desk	41
• Withdrawing from College	22	▪ Mail Center	41
• Petition for Graduation	22	▪ Student Life	41
• Graduation Requirements	22-23	▪ Campus Parking	41
• Posthumous Degree Award Procedure	23	▪ Community Child Care Options	41
• General Education Outcomes	24	▪ On-campus Living Policy	41
• General Education Transfer Agreement (GERTA)	24	Academic Program Matrix	42-43
• Liberal Arts Transfer Program Purposes	24	Academic Programs	44-133
• General Education and GERTA Course Matrix	26-28	Course Descriptions	134-187
Academic and College Policies and Procedures	29	Directory	188-191
• College Code of Conduct Policies and Standards for Students	29	Selected Campus Phone Numbers	192
• Basic Regulations of Conduct	29	Wahpeton Campus Map	193
• Disciplinary Sanctions	30	NDSCS-Fargo Room Directory	194
• Student Alcohol/Drug Policy	30	Placement Report	195
• Tobacco Free Campus Policy	30		
• Weapon Policy	30		

HISTORY OF NDSCS

In 1903, NDSCS was provided for in the Constitution of the State of North Dakota and began actual operation, making it one of the oldest public two-year colleges in the United States.

In 1905, the Arts and Science Division was the first division to be organized, and the Business Division began operation shortly after.

In 1922, the first trade and technical programs were offered, and since that time, NDSCS has become widely accepted by employers from across the United States.

Since 1922, NDSCS has followed the basic principles of the Babcock Plan and the North Dakota Plan. The original plan of four interacting curriculum divisions was the result of a survey conducted in 1921 by Dean Earl J. Babcock of the School of Mines of the University of North Dakota. In 1922, the North Dakota State College of Science was named the central trade and technical institution for the state of North Dakota. Under the North Dakota Plan, all trade-technical training in the state for many years was centralized in this institution — a method which proved very satisfactory in a state with sparse population and where agriculture continues to be the primary industry.

In 1987, North Dakota State School of Science changed its name to North Dakota State College of Science, and converted from the quarter system to the semester system in 1992 as part of a North Dakota University System initiative.

In 1997, NDSCS established the Skills and Technology Training Center (STTC) as a regional workforce training center located in Fargo.

In 2002, The North Dakota State Board of Higher Education officially recognized NDSCS as a Centennial College.

In 2005, NDSCS expands the Welding Technology program to NDSCS-Fargo. NDSCS kicks off the Center for Nanoscience Technology at NDSCS-Fargo.

In 2007, a \$1.5 million renovation began on the Earl "Skip" Bute Alumni Stadium and Frank Vertin Field.

In 2008, NDSCS and West Fargo Public Schools join together to offer the Early College Program which allows 11th and 12th grade students to take college classes and earn credit toward an associate's degree while in high school.

In 2009, Wilbur A. Lunday, an NDSCS alumnus, and his wife Betty, both deceased, donated more than \$10 million to the college. NDSCS launches the first Give Kids a Smile Day and, along with several area dentists, provided \$11,000 in free dental services to 50 qualifying area children. In January, NDSCS announced the journey worker track program that offers college credit for completed federally-approved apprenticeship training. NDSCS launches social media initiatives including Facebook and Twitter.

In July 2010, a \$5.7 million renovation of Horton Hall was completed. The building, originally constructed in 1927 for \$65,000, is LEED certified.

In 2012, in April a \$10.5 million Bisek Hall diesel building expansion project breaks ground, and in May a \$9 million renovation begins on Forkner and Riley Halls.

2013 - In July, the \$9 million renovation of both Forkner and Riley halls was completed, and in September the \$10.5 million Bisek Hall diesel expansion project was finalized. We also said goodbye to two historical buildings on campus – Hektner and Birch halls. In November, the \$6.7 renovation of Old Main began. The NDSCS Ambassadors was developed, a new student group that serves as a resource for NDSCS and the Wahpeton community.

For more than 100 years, NDSCS has provided a wide range of education for thousands of students who, upon graduation, become available to meet business, professional and industrial needs. Today, we continue our mission as a comprehensive college encompassing liberal arts transfer programs, career and technical education and workforce training.

ACCREDITATIONS

The North Dakota State College of Science is accredited by The Higher Learning Commission of the North Central Association of Colleges and Schools, 230 South LaSalle Street, Suite 7-500, Chicago IL 60604-1413; phone, 312-263-0456 or 1-800-621-7440; fax, 312-263-7462.

NDSCS also holds the following accreditations by program or academic emphasis:

- Academic Services Center – National Association of Developmental Education (NADE), 170 Kinnelon Road, Ste. 33, Kinnelon, NJ 07405, Phone: 877-233-9455
- Auto Body Repair and Refinishing Technology – National Automotive Technicians Education Foundation, Inc. (NATEF), 101 Blue Seal Drive SE, Suite 101, Leesburg, VA 20175, Phone: 703-669-6650
- Automotive Technology – National Automotive Technicians Education Foundation, Inc. (NATEF), 101 Blue Seal Drive SE, Suite 101, Leesburg, VA 20175, Phone: 703-669-6650
- Dental Hygiene and Dental Assisting – Accredited by the Commission on Dental Accreditation of the American Dental Association, 211 East Chicago Ave., Chicago, IL 60611-2678, Phone: 312-440-4653
- Diesel Technology – Associated Equipment Distributors, Inc., 600 22nd Street, Suite 220, Oak Brook, IL 60523, Phone: 630-574-0650
- Health Information Technician/Medical Coding – Accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM), in cooperation with American Health Information Management Association (AHIMA), 233 N. Michigan Ave., 21st Floor, Chicago, IL 60601-5809, Phone: 312-233-1100
- Occupational Therapy Assistant – Accredited by Accreditation Council of Occupational Therapy Education (ACOTE), % Accreditation Department, American Occupational Therapy Association (AOTA), 4720 Montgomery Lane Suite 200, Bethesda, MD 20814-3449, Phone: 301-652-6611
- Paramedic (EMT) Technology - Commission on Accreditation of Allied Health Education (CAAHEP), 1361 Park Street, Clearwater, FL 33756, Phone: 727-210-2354
- Pharmacy Technician – American Society of Health-System Pharmacists, 7272 Wisconsin Ave., Bethesda, MD 20814, Phone: 866-279-0681
- Practical Nursing – Accreditation Commission for Education in Nursing (ACEN), 3343 Peachtree Road NE, Suite 850, Atlanta, GA 30326, Phone: 404-975-5020
- Associate in Science in Nursing (Registered Nursing) and Practical Nursing programs have full approval by the North Dakota Board of Nursing, 919 South 7th St., Suite 504, Bismarck, ND 58504, Phone: 701-328-9777

EQUAL OPPORTUNITY POLICY

The North Dakota State College of Science is an equal opportunity employer and equal opportunity educator. NDSCS is fully committed to equal opportunity in employment decisions and educational programs and activities, in compliance with all applicable federal and state laws, for all individuals without regard to race, color, national origin, religion, sex, disability, age, sexual orientation or status with regard to marriage or public assistance.

Inquiries regarding non-discrimination policies at NDSCS should be directed to the Director of Human Resources, Haverty Hall 136, North Dakota State College of Science, 800 Sixth St. North, Wahpeton, ND 58076-0002, 701-671-2904 or to the U.S. Department of Education's Office of Civil Rights North Dakota contact, Office for Civil Rights, Chicago Office, U.S. Department of Education, Citigroup Center, 500 W. Madison Street, Suite 1475, Chicago, IL 60661, 312-730-1560 or TDD 800-877-8339, fax: 312-730-1576, e-mail OCR.Chicago@ed.gov

NOTICE OF DISCLAIMER

The North Dakota State College of Science reserves the right to make changes in curriculums, policies, rules and fees whenever such changes are deemed necessary. A special notice from the State Board of Higher Education requires the following announcement be published in all catalogs and bulletins issued by state educational institutions of North Dakota: Catalogs and bulletins of educational institutions are usually prepared by faculty committees or administrative officers for the purpose of furnishing prospective students and other interested persons with information about the institutions that issue the same.

Announcements contained in such printed material are subject to change without notice and may not be regarded in the same nature of binding obligations on the institutes and the State.

Institutional Liability — North Dakota State College of Science disclaims liability of any kind for injury or illness of any student as a result of participation in athletics, physical education, field trips, shop or laboratory work, or classroom activities. Every reasonable effort is made to provide safe conditions for the conduct of these activities.

FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT (FERPA)

FERPA is a federal law which was passed in 1974. The law protects the privacy of student educational records and provides rights to students for access to and amendment of those records. FERPA applies to any higher education institutions receiving federal funds administered by the Department of Education (DOE).

FERPA also affords students certain rights with respect to their educational records. Students have the right to:

- be informed about their educational records;
- inspect their educational records;
- request an amendment to their educational records;
- challenge the accuracy of their educational records;
- prevent unauthorized disclosure of their educational records;
- complain to DOE about a violation of FERPA; and
- waive these rights in writing.

Under FERPA, some information in a student's record is considered public (directory information) and may be released without the student's written permission. This information includes: (a) name (all names on record); (b) address (all addresses on record); (c) e-mail address (all electronic addresses on record); (d) phone number (all phone numbers on record); (e) height, weight and photos of athletic team members; (f) date and place of birth; (g) major field of study (all declared majors); (h) class level; (i) dates of attendance; (j) enrollment status (full-time or part-time); (k) names of previous institutions attended; (l) participation in officially recognized activities and sports; (m) honors/awards received; (n) degree earned (all degrees earned); (o) date degree earned (dates of all degrees earned); (p) photographic, video or electronic images of students taken and maintained by the institution.

Everything else is generally considered to be confidential.

Students have the right to restrict the release directory information. When a student chooses to restrict the release of information, that information will not be released to any source, including publications such as telephone directories or other institutional publications. To restrict information please contact Enrollment Services in Haverty Hall 101.

NDSCS may receive many inquiries for "directory information" from a variety of sources including, but not limited to prospective employers, other colleges and universities, graduate schools, licensing agencies, government agencies, media, parents, friends and relatives. Students

should consider very carefully the consequences of their decision to withhold release of any or all directory information items. NDSCS has no responsibility to contact students for subsequent permission to release directory information after it is restricted. NDSCS will honor student requests to withhold directory information until the student specifically and officially requests the lift of these restrictions.

Educational records are those records which are directly related to a student and maintained by this institution or by a party acting for this institution. These records include any information from which students can be individually identified, and have not been previously defined as public directory information.

Under the laws of FERPA, NDSCS may not disclose information about current or former students nor permit inspection of their educational records without the expressed, written consent of the student.

Deceased students' records will also be protected under NDUS Policy 1912. Records of deceased students may be released or disclosed only at the request of a parent, personal representative, or other qualified representative of the student's estate, or pursuant to a court order or subpoena.

Current and former students will be permitted to inspect and review their own educational records, to the exclusion of their parents and/or guardians. This applies to all students enrolled at NDSCS, regardless of age.

Specific exemptions do apply to the release of educational records. These exemptions include the situations that follow. Parents of students who are dependents, as defined under tax code, must be permitted to inspect and review the educational records of the student.

Educational records must be disclosed pursuant to lawfully issued subpoenas or court orders. Educational records may be disclosed if knowledge of personal information contained in these education records is, in fact, deemed necessary by institutional personnel to protect the health or safety of the student or other person.

Upon request, NDSCS discloses education records without consent to officials of another NDUS institution in which a student seeks or intends to enroll.

See the Academic and College Policies and Procedures section of this catalog for additional information regarding the Grievance/Appeal Procedures.

2015-2016 ACADEMIC CALENDAR

FALL SEMESTER 2015

August

- 19 Fall Opening Meeting for Faculty and Staff
- 23 NDSCS-Wahpeton New Student Orientation
- 24 NDSCS-Wahpeton New Student Departmental Orientation
- 24 Classes Begin at 4 p.m.
- 25 First Full Day of Classes
- 28 1st 8-weeks Final Day to Add a Class
- 28 1st 8-weeks Final Day to Drop a Class without Transcript Record*

September

- 1 Student Advising Day (No classes 1-5 p.m.)
- 2 Full Semester Final Day to Add a Class
- 2 Full Semester Final Day to Drop a Class without Transcript Record*
- 7 Holiday – Labor Day (No classes/offices closed)

October

- 2 Homecoming Pep Rally (No classes 11 a.m.-1 p.m.)
- 2 1st 8-weeks Final Day to Drop a Class*
- 6 Assessment Day (No classes 8 a.m.-12 noon)
- 16 1st 8-Week Session Ends
- 19 2nd 8-Week Session Begins
- 21 1st 8-Week Final Grades Must Be Entered By 9 a.m.
- 23 2nd 8-weeks Final Day to Add a Class
- 23 2nd 8-weeks Final Day to Drop a Class without Transcript Record*

November

- 2-6 Registration Begins for Spring and Summer Semesters
- 6 Faculty Professional Development Day (No classes)
- 11 Holiday – Veterans' Day (No classes/offices closed)
- 13 Full Semester Final Day to Drop a Class*
- 13 Full Semester Final Day to Withdraw from all Classes
- 26 Holiday – Thanksgiving (No classes/offices closed)
- 27 Holiday – Day after Thanksgiving (No classes/offices open)
- 27 2nd 8-weeks Final Day to Drop a Class*

December

- 14-18 Final Exams
- 22 Final Grades Must Be Entered By 9 a.m.
- 24 Holiday (Offices closed at Noon)
- 25 Holiday (Offices closed)

SPRING SEMESTER 2016

January

- 1 Holiday - New Years Day (Offices closed)
- 11 NDSCS-Wahpeton New Student Orientation Activities
- 11 Classes Begin at 4 p.m.
- 12 First Full Day of Classes
- 15 1st 8-weeks Final Day to Add a Class
- 15 1st 8-weeks Final Day to Drop a Class without Transcript Record*
- 18 Holiday – Martin Luther King (No classes/offices closed)
- 21 Full Semester Final Day to Add a Class
- 21 Full Semester Final Day to Drop Class without Transcript Record*

February

- 15 Holiday – President's Day (No classes/offices closed)
- 19 1st 8-weeks Final Day to Drop a Class*

March

- 4 1st 8-Week Session Ends
- 7 2nd 8-Week Session Begins
- 9 1st 8-Week Final Grades Must Be Entered By 9 a.m.
- 11 2nd 8-weeks Final Day to Add a Class
- 11 2nd 8-weeks Final Day to Drop a Class without Transcript Record*
- 14-18 Spring Break (No classes/offices open)
- 25 Holiday Begins (No classes/offices closed)
- 28 Holiday Break (No classes/offices open)
- 29 Classes Resume

April

- 4-7 Registration Begins for Fall Semester
- 8 Full Semester Final Day to Drop a Class*
- 8 Full Semester Final Day to Withdraw from all Classes
- 22 2nd 8-weeks Final Day to Drop a Class*

May

- 5 Agawasih Day (No classes 12-7 p.m.)
- 9-13 Final Exams
- 13 Graduation (3 p.m.)
- 16-17 Academic Departmental Work Days
- 18 Final Grades Must Be Entered By 9 a.m.
- 30 Holiday - Memorial Day (Offices closed)

SUMMER SEMESTER 2016

June

- 6 Summer Semester Registration and Testing
- 7 Classes Begin
- 9 1st 4-weeks Final Day to Add a Class
- 9 1st 4-weeks Final Day to Drop a Class without Transcript Record*
- 13 Full Semester Final Day to Add a Class
- 13 Full Semester Final Day to Drop a Class without Transcript Record*
- 24 1st 4-weeks Final Day to Drop a Class*

July

- 1 1st 4-week Session Ends
- 4 Holiday (No classes/offices closed)
- 5 Classes Resume
- 5 2nd 4-week Session Begins
- 7 2nd 4-weeks Final Day to Add a Class
- 7 2nd 4-weeks Final Day to Drop a Class without Transcript Record*
- 15 Full Semester Final Day to Drop a Class*
- 15 Full Semester Final to Withdraw from all Classes
- 22 2nd 4-weeks Final Day to Drop a Class*
- 28-29 Summer Semester Final Exams
- 29 Summer Session Ends

August

- 5 Final Grades Must Be Entered By 9 a.m.

*This date does not reflect the last day to drop a class for a 100% refund. For information regarding refund dates, please go to www.NDSCS.edu/Refund.

Mission Statement

The North Dakota State College of Science is a comprehensive, associate degree-granting college founded on a tradition of quality and integrity. We deliver learner-focused education through a unique and evolving collegiate experience. Using innovative delivery strategies, NDSCS anticipates and responds to statewide and regional needs by providing access to occupational/technical programs, transfer programs and workforce training.

Vision Statement

To enrich people's lives through responsive lifelong learning in a dynamic educational and technological environment.

Values

The North Dakota State College of Science acts in accordance with a set of shared values that complement the college's vision and mission statement.

The people of NDSCS – students, employees, alumni and friends – hold learning, integrity, flexibility and excellence in the highest regard. These values are intended to foster an environment conducive to lifelong learning and to encourage behaviors that fulfill the college's mission and meet the needs of its students.

As members of the NDSCS community, we are stewards for many constituents – students, parents and citizens. They have entrusted us with their resources and their aspirations, and we respond with personal attention, professional conduct and vibrant enthusiasm for our vocation. Each of us contributes to the success of the college, its students and its alumni. Our shared values embrace our decisions and our daily actions.

Our Values

Learning: We engage the campus community in a lifelong learning environment inside and outside the classroom.

Integrity: We work with others and conduct ourselves in a respectful, ethical, honest and trusting manner.

Flexibility: We consider ideas from all sources and adapt to the needs of our patrons.

Excellence: We deliver superior programs and services that distinguish the college from its peers.

Strategic Goals

The North Dakota State College of Science will use a culture of continuous improvement that advances, supports and rewards successful learning by students, faculty and staff as it addresses the following goals:

1. Enhance student learning and success
2. Meet the workforce and educational needs of the Fargo/West Fargo region
3. Utilize technology to enhance the student's collegiate experience
4. Develop stronger relationships with K-12 partners with a focus on the southeast region
5. Secure external resources

Quality Pledge

It is the commitment of the North Dakota State College of Science to provide quality instruction and service, consistent with the highest standards of education.

We will provide precise, prompt and courteous service to our students, to the employers who hire them, to one another and to all we serve.

Program Guarantee

North Dakota State College of Science offers education and training designed to enable students to acquire the entry-level vocational/technical competencies necessary to enter the workforce. NDSCS stands behind the training provided and will guarantee to provide at least six additional credits of retraining under the following conditions:

- Your employer certifies that you lack the target job competencies normally expected of an entry-level employee who has graduated from your vocational/technical program, or
- You have not secured employment within six months following graduation.

To be eligible for retraining, you must have graduated from a technical certificate program, technical diploma program, or associate in science or associate in applied science degree program. In addition, you must have registered for services provided through the NDSCS Student Success and Career Services office and actively pursued employment in your occupational field or a related field. This guarantee does not imply that you will pass any licensing or qualifying examination for a particular occupation. Other guidelines also may apply. For more information on the NDSCS Guaranteed Retraining Policy, contact the Student Success and Career Services office at 1-800-342-4325.

Assessment of Student Learning

Assessment of student academic achievement is an accreditation requirement of the Higher Learning Commission. Student learning outcomes have been established for general education and for each program of study. They reflect what the student should know, think or be able to do at the successful conclusion of the program of study. Data is collected for each outcome and is analyzed by faculty to determine to what extent each outcome is being achieved. The goal is to continuously improve student learning. Assessment data will assist in determining the extent to which students are attaining the technical, transfer and general education objectives throughout the curriculum, as well as success in utilizing those skills after graduation. Advisory committees assist departments in keeping their plans of study current by identifying skills students will need to be successfully employed and to stay current in their field. It is the intent of NDSCS that all students will participate in planned assessment activities appropriate to their programs of study.

ADMISSION INFORMATION

Admission Requirements and Procedures

First Year or Freshman Student

You are a new student if you have not attended a post-secondary institution since completing high school and you are planning to be degree seeking and/or applying for financial aid. Also, you would be considered a new student if you enrolled in college level coursework prior to graduating from high school. Complete the application form found at www.NDSCS.edu/Apply. Refer to admission procedures for completing your admission/registration requirements.

Early Entry Student

A student who is still in high school and is pursuing college courses during the summer, or simultaneously with high school, is considered an early entry student. Complete the application form found at www.NDSCS.edu/Apply. Refer to admission procedures for completing your admission/registration requirements. Visit with your high school official before beginning this process.

Home Educated Student

A student who has been home educated must submit:

- a high school diploma and a transcript listing classes completed, performance or grade with a key in each class in grades nine through twelve, which must be verified by the parent or other instructor;
- a state's equivalent of a high school diploma.

Transfer Student

You are a transfer student if you have attended one or more postsecondary institutions after high school graduation other than NDSCS. **If you have earned college credit(s) while in high school, you are considered a new student and are required to send in coursework from ALL colleges.

Complete the application form found at www.NDSCS.edu/Apply. Refer to admission procedures for completing your admission/registration requirements.

Returning Student

If you have previously applied for admission or taken classes at NDSCS, you are a returning student. Complete the re-application form found at www.NDSCS.edu/Apply. Any returning student who was placed on academic warning, probation or suspension should refer to the Academic Warning, Probation, Suspension and Re-Admission Policy in the *NDSCS Catalog* or online at www.NDSCS.edu/Catalog. Applicants will be contacted by the Enrollment Services office for further instruction. Refer to admission procedures for completing your admission/registration requirements.

International Student

Admission Requirements for International Students:

- International Application for Admission; Official Transcripts (Secondary and Postsecondary) must be evaluated by an approved evaluation service; Documented proof of immunity to measles, mumps, and rubella (2 doses of MMR vaccine). Tuberculosis Screening may also be applicable. TOEFL test for those whose native language is not English. For a complete listing of all requirements please refer to our website www.NDSCS.edu/International-Students.
- All documents submitted must be official, translated into English and certified as to their authenticity and accuracy. The I-20 Immigration Form will not be issued by North Dakota State College of Science until the admissions file is complete.

Permanent Resident/Refugee/Non-native English Speaking Student

Admission Requirements for Permanent Residents, Refugees and Non-Native English Speaking Students:

- Refer to admission procedures for completing your admission/registration requirements.
- Photocopy of I-94, I-551 or I-494.
- Non-Native English speaking students are required to demonstrate proficiency in the English language. Applicants can demonstrate this by meeting any of the requirements outlined in NDSCS Procedures 402.9 Admission Procedures - New Applicants with International Coursework found at ndus.edu/makers/procedures/ndus.

Non-degree Seeking Student

A non-degree or transient student is any student who has not met the necessary admission requirements, is not pursuing a degree or vocational program or is wishing to enroll in a limited number of credits (12) at NDSCS. Non-degree/transient students are not eligible to receive financial aid. Complete the application form found at www.NDSCS.edu/Apply. Refer to Step 1 and 2 of admission procedures.

Admission Procedures

Step 1. Complete the application for admission - Complete the application form found at www.NDSCS.edu/Apply.

Step 2. Submit \$35 non-refundable application fee.

Step 3. Submit high school and/or college transcripts or GED test scores.

Current high school student:

- Submit an official high school transcript/GED test scores. An in-progress high school transcript is required prior to attending any registration sessions. A high school transcript with final grades and graduation date is required upon completion of high school, or
- Official GED test scores, or other authorized high school equivalencies.
- High school students currently taking college coursework, including dual credit, PSEO, etc., need to request an official in-progress college transcript(s). Final official, college transcript(s) will be required once all course work has been completed.

Current college student attending a college/university:

- Submit an official final high school transcript, GED or authorized high school equivalent.
- Submit official, in-progress college transcript(s).
- Submit official, final college transcript(s) after grades/graduation details have been posted from ALL colleges previously attended (include college credits earned while in high school).
- Submit official final high school transcript/GED test scores.

Returning students:

- Submit official, final college transcript(s) for ALL colleges if you have attended other institutions after leaving NDSCS and other official documents, if not previously submitted.

NDSCS does not accept faxed or emailed transcripts.

Step 4. Submit test scores:

Associate in Applied Science, Diploma or Certificate Program Applicants

If you are applying for an associate in applied science, diploma or certificate program, you will need to obtain minimum entrance scores in order to meet the program admission requirements for your selected program. Approved exams include the ACT, SAT

and Compass. For more information including the required scores for your selected program, visit www.NDSCS.edu/Academics.

Liberal Arts/ Transfer Applicants

If you are applying for an associate in arts, Liberal Arts/Transfer program, you must submit an ACT or SAT score unless:

- You are 25 years of age or older or
- You have 24 or more credits transferable into a degree program

Step 5. Submit Proof of Immunization.

Submit medical records with proof of two MMR immunizations (measles, mumps and rubella) and proof of meningitis immunization. Go to www.NDSCS.edu/Immunizations for more information.

Selective and Limited Admission Programs

Admission to a number of academic programs is selective and/or limited. Admission to the college does not guarantee entrance to a specific program. For a complete list of programs and admission criteria visit www.NDSCS.edu/Requirements.

Criminal Background Check Requirements

1. Beginning July 1, 2008, all applications, including common application, reapplication and continuing application, will include the following questions:
 - a) Have you ever pled guilty to or no contest or been convicted of any felony? Yes/No
 - b) Within the past 10 years, have you pled guilty to or no contest or otherwise been convicted of a misdemeanor crime involving violence or the threat of violence in any court? Yes/No
 - c) Are you currently required to register as a sex offender in any state? Yes/No
 - d) Have you been dismissed or suspended from a college or university for disciplinary reasons within the last 5 years ("Dismissed for disciplinary reasons" means a permanent separation from an institution due to conduct or behavior. "Suspended for disciplinary reasons" means a sanction imposed for disciplinary reasons that results in a student leaving school for a fixed period but not permanently.) Yes/No
2. All applications are received in Enrollment Services. Those students who indicate "yes" to any of the above, will receive a letter stating that the applicant must provide NDSCS with a criminal history record including any pending adult charges. If sanctions were imposed, an official copy of letter(s) or documents which indicate the nature of the sanctions imposed and which confirm the completion of all sanctions imposed is required.
3. All documentation (criminal history checks and letters or documentations) must be received 30 days prior to the start of the term for the applicant to be considered for admission. The documentation will be retained for 30 working days after the beginning of the semester, at which time the record will be shredded by an NDSCS employee. If a student does not choose to attend after being admitted, and then wishes to be reconsidered for admission for a following term, the applicant must resubmit a current criminal history check and letters or documentation.
4. A committee chaired by the director of financial aid, will be established to determine if a student will be admitted to NDSCS and/or determine if any conditions will be imposed. The committee will consist of the college judicial officer and/or associate vice president for academic and student affairs, a member from enrollment services, director of residence life, mental health

program coordinator, a member from campus police and a member from human resources. Participation of over 50 percent of the membership is required to meet quorum. The chair will vote only if a tie decision occurs.

5. If the student is admitted, an addendum to the letter of admission will be sent to the student and placed in the student's admission file. The addendum will note conditions under which the student will be admitted, and the student will be required to meet with the college judicial officer and/or associate vice president for academic and student affairs by a scheduled date.
6. If the student is not admitted, the student will be informed via letter.
7. A student who is denied admission, or chooses to appeal the conditions under which admission is allowed, may appeal by providing a written statement to the vice president for academic and student affairs within five working days of receiving the committee's decision. The student may appeal the vice president's decision within 10 working days to the NDSCS president. The president's decision is final.
8. Copies of the student's criminal history check and letters or documentation cannot be shared with other non-NDSCS agencies, offices or departments, and the criminal history check and letters or documentation will be maintained in a file separate from the official student file until it is destroyed.
9. A number of curriculums require various types of criminal background checks. Please check with the NDSCS Admissions office for further information.

English and Mathematics Course Placement

Placement of students in courses that most closely match their abilities results in a greater likelihood that these students will be successful in pursuing and completing their programs. All students are required to follow English and mathematics placement recommendations based on standardized test scores. Students under the age of 25 must present ACT scores and students age 25 and over will complete Compass placement testing.

Students will be placed in the appropriate college English composition course according to their ACT English and reading test scores, and students will be placed in the appropriate mathematics course according to their ACT mathematics test scores. Students must take the Compass placement test if ACT test scores are not available on the date of registration. Students may elect to take the Compass placement test to challenge their course placement. If there is a difference between the ACT and Compass placement, the best scores will be used.

Financial Obligation Agreement

Prior to registering each semester, students will need to complete a Financial Obligation Agreement (FOA) through CampusConnection. By completing the FOA, the student acknowledges that they are aware of the financial responsibilities associated with enrolling for classes at the institution(s) they will be registering at. For more information, go to: www.NDSCS.edu/CC-Help or contact the Business Affairs office.

Full-time or Part-time Status

A full-time student is one who enrolls for 12 or more semester credits during fall or spring term. The normal load for full-time students is 12 to 18 semester credits, depending on the program, not including activity credit. Students must have special permission to enroll in excess of 20 credit hours except where more than 20 hours are required in a specific curriculum. A student desiring to have 12 or more semester credits recorded in a given semester will be considered a full-time student. A full-time student cannot, by taking

examinations for credit, cause a reduction of status to a part-time student.

A part-time student is one who enrolls for less than 12 semester credits during fall or spring term.

A full-time student for summer term is one who enrolls in six or more semester credits. Since the summer is the equivalent of half a regular semester, a reasonable student load is no more than nine semester credits.

Academic Advisement

Upon enrollment, each student at NDSCS is assigned an academic advisor in his or her instructional area.

The primary purposes of the academic advising program are to:

- Assist students in the development of meaningful education and career plans, which are compatible with their life goals;
- Help students accept responsibility for their own education;
- Aid students' professional development by providing guidance in curricular and professional choices; and
- Provide accurate information about NDSCS policies, procedures, resources and programs.

An academic requirements report is available in your CampusConnection – Degree Progress/Graduation to assist you in meeting your program requirements.

The ultimate responsibility for making informed decisions about life goals and educational plans rests with the individual student. An academic advisor assists by helping to identify and assess alternatives and consequences of decisions.

Student Responsibilities

- Clarify personal values, interests, abilities and career goals. For assistance in the process of career exploration and planning, students should schedule an appointment with a division academic counselor.
- Become knowledgeable and adhere to NDSCS policies, procedures and curriculum requirements.
- Make an appointment and meet with the academic advisor during each registration period for schedule planning purposes and at other times as needed or required by college policy.
- Prepare for advising sessions and bring appropriate resources and materials.
- Follow through on actions identified during each advising session.
- Notify academic advisor and course instructors of difficulties in completing course work and seek their assistance in resolving issues.
- Be diligent in attending class and meeting class objectives and assignments.
- If special academic accommodations are needed due to a documented disability, students must inform their advisors and course instructors in order to receive assistance. To receive assistance, students must document their disability with the Accessibility Support office located in the Academic Services Center and request assistance. Students who have a disability are strongly encouraged to contact the Academic Services Center to inquire about available services.
- Accept final responsibility for all decisions.

Advisor Responsibilities

Although students have the primary responsibility for planning their programs, an academic advisor's responsibilities include:

- Helping students define education and career goals;
- Providing accurate information about NDSCS policies, resources and programs;
- Helping students select courses for degree requirements;
- Assisting students who are academically at risk;
- Offering advice;
- Encouraging student involvement;
- Making referrals to campus support services; and
- Maintaining confidentiality standards.

Together, the student and advisor can make well-informed decisions to ensure a student's success at NDSCS.

Servicemembers Opportunity Colleges (SOC)

NDSCS is a member of the SOC Degree Network System.

NDSCS and SOC have developed an articulated degree plan for MOS 68Q Pharmacy Specialists to complete online (from NDSCS) for an Associate in Applied Science degree in Pharmacy Technician. A soldier meeting the requirements set forth in the degree plan and upon transcript review and approval will have classes waived which are equivalent to their MOS Pharmacy training.

Soldiers in other MOS areas may also take classes toward an NDSCS program, online or on the NDSCS campus. For additional information, call 800-342-4325 ext. 3-2189 or 701-671-2189.

SOC Degree Network System

NDSCS is a member of the SOC Degree Network System (DNS), a subgroup of SOC Consortium member institutions selected by the military services to deliver specific associate and bachelor's degree programs to servicemembers and their families. As a member of the DNS we have agreed to adhere to academic policies intended to support military students in their academic endeavors towards degree completion.

NDSCS is approved for membership in SOCAD at the associate degree level. SOC operates the 2- and 4-year Degree Network System for the Army (SOCAD), Navy (SOCNAV), Marine Corps (SOCMAR) and Coast Guard (SOCCOAST). Refer to the SOC Degree Network System-2 and -4 Handbooks to view associate and bachelor's degree programs, location offerings and college information. An electronic version of the handbook can be found at www.soc.aascu.org and on the SOCAD, SOCNAV, SOCMAR and SOCCOAST home pages.

TUITION AND FEES

2015-16 Estimated Average Costs

NDSCS is on the semester system. This means the student will pay major expenses at the beginning of each semester – September, January and June.

Students pay tuition and mandatory fees at the following rates:

- North Dakota resident, \$151.04 per credit
- Minnesota resident with reciprocity, \$165.77 per credit
- South Dakota, Montana, Saskatchewan and Manitoba residents, \$181.72 per credit
- MSEP3 or WUE2 resident, \$212.40 per credit
- Other Non-Residents and Other Canadian Provinces, \$355.99 per credit
- Online and other distance education students, \$190.00 per credit
- NDSCS-Fargo students, \$190.00 per credit

The following information highlights estimated average on-campus direct costs, based on 16 credits per semester. For current tuition, fees, housing and dining plan costs, please contact Business Affairs or check the NDSCS website at www.NDSCS.edu.

On-Campus with Meal Plan

Residents of all states and countries will be charged in-state tuition if living on-campus with meal plan of 160 meals or greater

Residency	Tuition/Fees*	Room/Board**	Books/Supplies	Personal***	TOTAL
All States/Countries	\$4,571	\$6,030	\$1,000	\$3,339	\$14,940

Off-Campus or On-Campus without Meal Plan

Residency	North Dakota	¹ Border States/Provinces	MN with Reciprocity	² WUE & ³ MSEP States	Other States and Countries
Tuition/Fees*	\$4,571	\$5,553	\$5,042	\$6,535	\$11,129
Room/Board**	\$6,030	\$6,030	\$6,030	\$6,030	\$6,030
Books/Supplies	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Personal***	\$3,339	\$3,337	\$3,338	\$3,335	\$3,331
TOTAL	\$14,940	\$15,920	\$15,410	\$16,900	\$21,490

At Home (living with parents)

Residency	North Dakota	South Dakota	MN with Reciprocity	³ MSEP
Tuition/Fees*	\$4,571	\$5,553	\$5,042	\$6,535
Room/Board	\$3,015	\$3,015	\$3,015	\$3,015
Books/Supplies	\$1,000	\$1,000	\$1,000	\$1,000
Personal***	\$3,334	\$3,332	\$3,333	\$3,330
TOTAL	\$11,920	\$12,900	\$12,390	\$13,880

* The average amount for fees is \$644 for all states. The remainder is tuition for an average of 16 credits per semester.

***PERSONAL EXPENSES	
Medical/Dental	(\$84/Mo.) \$756
Clothing	(\$60/Mo.) \$540
Toiletries	(\$45/Mo.) \$405
Entertainment/Misc.	(\$56/Mo.) \$504
Transportation	(\$120/Mo.) \$1,080
Loan Fees	\$54
Total	\$3,339

¹ Border States and Provinces: Manitoba, Montana, Saskatchewan, South Dakota

² WUE States: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Nevada, New Mexico, Northern Marianas Island, Oregon, Utah, Washington, Wyoming (All programs except for A.S. In Dental Hygiene)

³ MSEP States: Illinois, Indiana, Kansas, Michigan, Minnesota without reciprocity, Missouri, Nebraska, Wisconsin

** Room/board amount is the average between a double room (\$2,558) and double suite (\$3,182) cost with a 225 meal plan (\$3,160). All rates are for two semesters.

Out-of-state Discount for Living on Campus

NDSCS offers out-of-state students a substantial discount on their tuition when they live on campus and subscribe to a 160 Dining Plan or larger from Dining Services. Under this plan, students from other states and countries pay the same tuition rate as North Dakota residents.

For more information about the out-of-state tuition discount, contact the Business Affairs office.

Additional Costs by Program

Students in a number of academic programs should plan for additional expenses as part of their education. These added expenses include professional-quality tools and equipment such as laptop computers, required supplies such as uniforms and special books. Many departments also carry a program fee and special course fees that help offset instructional costs specific to that academic discipline.

Students enrolled in the following programs should add the corresponding amounts to their estimated expenses. The (1) indicates the first year of a program, and a (2) indicates the second year.

Agriculture (1)	\$352
Architectural Drafting and Estimating Technology (1)	\$1,675
Associate in Science in Nursing (1)	\$1,950
Auto Body Repair and Refinishing Technology (1)	\$4,160
Auto Body Repair and Refinishing Technology (2)	\$1,035
Automotive and Diesel Master Technician	\$240
Automotive Technology (1)	\$6,712
Automotive Technology (2)	\$960
Building Construction Technology (1)	\$1,441
Caterpillar Dealer Service Technician (1)	\$5,898
Construction Management Technology (1)	\$1,550
Culinary Arts (1)	\$1,248
Culinary Arts (2)	\$1,040
Dental Assisting (1)	\$1,098
Dental Assisting (2)	\$500
Dental Hygiene (1)	\$2,854
Dental Hygiene (2)	\$2,075
Diesel Technology (1)	\$6,388
Diesel Technology (2)	\$700

Electrical Technology (1)	\$2,246
Electrical Technology (2)	\$900
Emergency Medical Technician	\$404
HVAC/R Technology (1)	\$3,241
Information and Communications Technology	\$1,550
John Deere Technology (1)	\$5,888
Land Surveying and Civil Engineering Technology (1)	\$1,850
Land Surveying and Civil Engineering Technology (2)	\$300
Occupational Therapy Assistant (1)	\$950
Occupational Therapy Assistant (2)	\$930
Paramedic Technology (1)	\$3,484
Paramedic Technology (2)	\$2,950
Pathway - On Campus	\$2,874
Pathway - At Home	\$1,958
Pharmacy Technician (1)	\$550
Plumbing	\$737
Powersports Technology (1)	\$4,645
Powersports Technology (2)	\$600
Practical Nursing (1)	\$2,900
Practical Nursing (2)	\$500
Precision Machining Technology (1)	\$3,492
Precision Machining Technology (2)	\$1,325
Robotics, Automation and Mechatronics Technology (1)	\$2,151
Robotics, Automation and Mechatronics Technology (2)	\$300
Welding Technology (1)	\$1,858
Welding Technology (2)	\$640

These amounts are estimates used for financial aid budgets and are based on 2015-2016 anticipated costs. The totals are subject to change. Please contact the Enrollment Services office for more information about program fees. Specific course fees, as outlined for 2015-2016, are listed later in this section of the catalog.

For a complete list of tools and supplies, contact the Bookstore. Estimates for laptop computer leases are based on rates from a vendor. Students retain the option of buying any books, tools and supplies — including laptop computers — from vendors other than the Bookstore or those recommended by NDSCS.

Laptop Computers

NDSCS requires notebook computers in some of the academic programs. The costs vary from one program to another. Most students have the option of leasing or purchasing the computers. For financial aid purposes, an allowance of \$2,100 is budgeted for the first year in a program that requires a computer.

Application and Other Special Fees

In addition to the regular costs described, the following fees are assessed when and as they apply:

Application fee: \$35

When an applicant files an application to enroll at NDSCS, it must be accompanied by \$35, a non-refundable fee. This includes matriculation and ID. The only condition under which this fee will be refunded is if the applicant does not qualify for enrollment.

Registration/Orientation fee: \$48

Auditing fee (per semester hour):

50 percent of the tuition rate, plus applicable fees.

Credit by challenge exam fee:

50 percent of the tuition rate, additional fee will apply for a challenged online class

Parking fee: \$57.75 per year

On-campus students enrolled in online courses:

Additional \$25 per credit

Special course fees are recommended by the various departments and approved by their respective deans. They also are subject to change without further notice. Please see the course fees section in this catalog for a full listing of course fees.

Special Course Fees

A number of NDSCS classes assess special course fees to offset the cost of specific materials or technology needs. This is a list of special course fees for the 2015-2016 academic year. These fees are subject to change without further notice. Updated lists of course fees are available from individual departments or Business Affairs.

Course	Purpose/use of fee	Fee
ABOD 101	Repair supplies	\$100
ABOD 102	Lab supplies/Mask fit test	\$50
ABOD 103	Lab supplies	\$50
ABOD 104	Lab supplies/custom painting supplies	\$75
ABOD 120	Rod/gas/steel	\$50
ABOD 200	Lab fee	\$45
ABOD 201	Lab supplies	\$50
ABOD 202	Lab supplies	\$50
ABOD 203	Repair/paint supplies	\$100
ABOD 204	Lab supplies	\$50
ABOD 205	Lab supplies	\$50
ABOD 206	Lab supplies	\$50
ABOD 251	Supplies	\$40
ABOD 252	Supplies	\$40
ABOD 253	Supplies	\$40
ABOD 254	Supplies	\$40
ABOD 261	Supplies	\$20
ABOD 262	Supplies	\$20
ABOD 263	Supplies	\$20
ABOD 264	Supplies	\$20
ACCT 118	Special fees	\$30
AGEC 145	Software	\$40
AGEC 244	Special fees	\$20
AGRI 275	Software upgrades	\$20
ANSC 116	ANSC fee	\$20
ANSC 118	ANSC fee	\$20
ANSC 192	ANSC fee	TBD
ANSC 220	ANSC fee	\$20
ANSC 292	ANSC fee	TBD
ARCT 101	Plotting/printing expenses	\$25
ARCT 102	Plotting/printing expenses	\$25
ARCT 110	Technical manual and tool usage	\$15
ARCT 110	Online technical manual and tool usage	\$25
ARCT 121	Plotting/printing expenses	\$15
ARCT 134	Handouts	\$10
ARCT 144	Estimating manuals, forms	\$10
ARCT 201	Plotting/printing expenses	\$25
ARCT 202	Plotting/printing expenses	\$25
ARCT 212	Art supplies	\$10
ARCT 223	Plotting/printing expenses	\$10
ARCT 241	Blueprints and forms	\$10
ARCT 242	Blueprints, specs and forms	\$10
ASC 082	Special fees	\$9
ASC 084	Special fees	\$26
ASC 087	Special fees	\$9
ASC 087L	Special fees	\$3
ASC 088	Special fees	\$6
AUTO 103	Lab supplies	\$30
AUTO 143	Lab supplies	\$30
AUTO 165	Lab supplies	\$30
AUTO 188	Lab supplies	\$30
AUTO 207	Lab supplies, scan tool equipment, mechanical parts	\$40

AUTO 209	Lab fee	\$40	CIS 241	Special fees	\$4/credit
AUTO 217	Lab supplies, scan tool equipment, mechanical parts	\$40	CIS 242	Special fees	\$4/credit
AUTO 219	Lab fee	\$40	CIS 244	Special fees	\$4/credit
AUTO 227	Lab supplies, scan tool equipment, mechanical parts	\$40	CIS 267	Special fees	\$4/credit
AUTO 229	Lab fee	\$40	CIS 268	Special fees	\$4/credit
AUTO 287	Lab supplies, scan tool equipment, mechanical parts	\$40	CIS 279	Special fees	\$4/credit
AUTO 289	Lab fee	\$40	CIS 280	Special fees	\$4/credit
BADM 103	Special fees	\$100	CIS 281	Special fees	\$4/credit
BADM 110	Supplies	\$25	CIS 282	Special fees	\$4/credit
BADM 201	Special fees	\$25	CIS 283	Special fees	\$4/credit
BADM 202	Special fees	\$25	CIS 284	Special fees	\$4/credit
BADM 203	Special fees	\$100	CIS 290	Special fees	\$4/credit
BADM 217	Special fees	\$25	CIS 292	Special fees	\$4/credit
BADM 234	Special fees	\$12	CMT 120	Surveying and safety supplies	\$80
BADM 240	Special fees	\$25	CMT 265	RCMC travel	\$200
BADM 244	Special fees	\$30	CSCI	On-campus classes with online component; potentially charged on CSCI classes	\$25/credit
BADM 250	Special fees	\$25	CSCI 101	Special fees	\$4/credit
BADM 281	Supplies	\$35	CSCI 102	Special fees	\$4/credit
BCT 110	Safety fee	\$20	CSCI 116	Special fees	\$4/credit
BCT 111	ACI certification tests	\$70	CSCI 122	Special fees	\$4/credit
BCT 210	Safety fee	\$20	CSCI 125	Special fees	\$4/credit
BCT 220	Construction manual	\$10	CSCI 133	Special fees	\$4/credit
BCT 240	Construction manual	\$15	CSCI 134	Special fees	\$4/credit
BIOL 110L	Lab materials	\$15	CSCI 135	Special fees	\$4/credit
BIOL 111L	Lab fees	\$35	CSCI 160	Special fees	\$4/credit
BIOL 115L	Lab fees	\$35	CSCI 161	Special fees	\$4/credit
BIOL 124L	Lab fees	\$35	CSCI 162	Special fees	\$4/credit
BIOL 150L	Lab fees	\$35	CSCI 172	Special fees	\$4/credit
BIOL 151L	Lab fees	\$35	CSCI 175	Special fees	\$4/credit
BIOL 220L	Lab fees	\$35	CSCI 183	Special fees	\$4/credit
BIOL 221L	Lab fees	\$35	CSCI 230	Special fees	\$4/credit
BOTE 146	Flextime - special fees	\$4/credit	CSCI 231	Special fees	\$4/credit
BOTE 171	Special fees	\$25/credit	CSCI 263	Special fees	\$4/credit
BOTE 277	Special fees	\$25/credit	CSCI 290	Special fees	\$4/credit
BOTE 299	Special topics	TBD	CSCI 292	Special fees	\$4/credit
BUSN 170	Special fees	\$25	CT 113	Plotting/printing expenses	\$25
BUSN 282	Special fees	\$100	CT 121	Surveying supplies	\$80
CAD 120	Plotting/printing expenses	\$25	CT 122	Surveying supplies	\$25
CAD 120	Online—Plotting/printing expenses	\$15	CT 132	Chemicals and materials/ACI exam	\$175
CHEM 115L	Lab fees	\$35	CT 214	Plotting/printing expenses	\$25
CHEM 116L	Lab fees	\$35	CT 215	Plotting/printing expenses	\$25
CHEM 121L	Lab fees	\$35	CT 221	Surveying supplies	\$20
CHEM 122L	Lab fees	\$35	CT 222	Surveying supplies, exam fee	\$130
CHEM 241L	Lab fees	\$35	CT 223	Professional surveyor conference	\$100
CHEM 242L	Lab fees	\$35	CT 232	Chemicals, lab supplies	\$15
CIS	On-campus classes with online component; potentially charged on CIS classes	\$25/credit	CULA	Uniform deposit	\$100/year
CIS 101	Special fees	\$4/credit	CULA	Uniform cleaning fee	TBD
CIS 105	Special fees	\$4/credit	CULA 101	Lab supplies	\$150
CIS 128	Special fees	\$4/credit	CULA 102	Lab supplies	\$150
CIS 129	Special fees	\$4/credit	CULA 201	Lab supplies	\$150
CIS 164	Special fees	\$4/credit	CULA 203	Lab supplies	\$150
CIS 165	Special fees	\$4/credit	DAST 105	Pin fee	\$5.50
CIS 180	Special fees	\$4/credit	DAST 111	Professional dues/presentation kit/hybrid fee	\$100
CIS 181	Special fees	\$4/credit	DAST 115	Lab fee/hybrid fee	\$129
CIS 182	Special fees	\$4/credit	DAST 120	Lab supplies	\$52
CIS 188	Special fees	\$4/credit	DAST 132L	Lab supplies	\$52
CIS 191	Special fees	\$4/credit	DAST 133	Mock board exam	\$10
CIS 197	Special fees	\$4/credit	DCAT	Uniform deposit	\$100/year
CIS 212	Special fees	\$4/credit	DCAT	Uniform cleaning fee	TBD
CIS 215	Special fees	\$4/credit	DCAT 110	Lab supplies	\$20
CIS 216	Special fees	\$4/credit	DCAT 115	Lab supplies	\$20
CIS 219	Special fees	\$4/credit	DCAT 117	Lab supplies	\$20
CIS 220	Special fees	\$4/credit	DHYG 101L	Lab supplies/dues/presentation kit	\$205
CIS 232	Special fees	\$4/credit	DHYG 102L	Clinic fees	\$130
CIS 233	Special fees	\$4/credit	DHYG 103L	Lab fees	\$65
			DHYG 114	Special fees	\$104
			DHYG 201L	Lab fees/presentation kit	\$85

DHYG 202L	Lab fees	\$78	HIT 281	Online/On-campus	\$29/credit
DHYG 202	Pin fee	\$5.50	HIT 282	Online/On-campus	\$29/credit
DHYG 220	Dental association dues	\$65	HIT 284	Online/On-campus	\$29/credit
DHYG 242	Lab fees	\$55	HIT 285	Online/On-campus	\$29/credit
DHYG 243	CRDTS exam	\$200	HIT 286	Online/On-campus	\$29/credit
DHYG 299	Lab fees	TBD	HIT 287	Online/On-campus	\$29/credit
DTEC	Uniform cleaning fee	TBD	HIT 288	Online/On-campus	\$29/credit
DTEC	Uniform deposit	\$100/year	HIT 297	Special fees	\$229
DTEC 109	A/C refrigerant, dyes, refrigerant recovery and certification test	\$40	HPER 101	Ice Fishing	\$60
DTEC 115	Lab supplies	\$30	HPER 101	Snowboarding	\$90
DTEC 125	Lab supplies	\$30	HPER 101	(Trapshooting) Shells, shot, powder	\$90
DTEC 155	Lab supplies	\$30	HPER 101	(Camping and Canoeing) Transportation, site fee and other trip expenses	\$50
DTEC 164	Lab supplies	\$30	HPER 101	(Tenting and Canoeing) Transportation, site fee and other trip expenses	\$65
DTEC 185	Lab supplies	\$30	HPER 101	(Camping and Hiking) Transportation, site fee and other trip expenses	\$55
DTEC 215	Lab supplies	\$30	HPER 101	(Camping and Biking) Transportation, site fee and other trip expenses	\$55
DTEC 225	Lab supplies	\$30	HPER 101	(Downhill Skiing) Lift ticket and ski rental	\$90
DTEC 255	Lab supplies	\$50	HPER 101	(Darts and Billiards) Maintenance	\$6.50
DTEC 265	Lab supplies	\$50	HPER 150	Training supplies	\$90
ECAL 111	Lab supplies	\$50	HPER 192	Special fees	TBD
ECAL 133	Lab supplies	\$50	HPER 210	Lab supplies	\$7
ECAL 137	Lab supplies	\$50	HPER 250	Training supplies	\$90
ECAL 205	(As needed)	TBD	JDAT 106	Computer and software usage	\$200
ECAL 211	Lab supplies	\$50	JDAT 165	Lab supplies	\$30
ECAL 223	Lab supplies	\$50	JDAT 215	Lab supplies	\$20
ECAL 224	Lab supplies	\$50	JDAT 255	Computer and software usage	\$200
ECAL 233	Lab supplies	\$50	MATH 125	Lab manual fee	\$3
ECAL 237	Lab supplies	\$25	MATL 111	Supplies, tool steel, tooling	\$40
ECAL 238	Lab supplies	\$25	MATL 112	Supplies, tool steel, tooling	\$40
ECAL 241	Lab supplies	\$50	MATL 213	Supplies, tool steel, tooling	\$40
ECAL 242	Lab supplies	\$50	MATL 214	Supplies, tool steel, tooling	\$40
ECAL 243	Lab supplies	\$50	MATL 299	Special topics	TBD
ECAL 245	Lab supplies	\$50	MFGT 101	Supplies	\$120
ECAL 246	Lab supplies	\$50	MFGT 110	Supplies	\$60
ECAL 292	Experimental course	TBD	MFGT 120	Welding gas, supplies	\$40
ECAL 299	Special topics	TBD	MFGT 121	Welding gas, supplies	\$40
ELEC 100	Online - special fees	\$80	MFGT 123	Supplies	\$25
ELEC 100	NDSCS-Fargo - special fees	\$40	MFGT 124	Supplies, mechanical parts	\$10
ELEC 101	NDSCS-Fargo - special fees	\$25	MFGT 208	Supplies	\$10
ELEC 140	NDSCS-Fargo - special fees	\$100	MICR 202L	Lab supplies	\$35
ELEC 181	Special fees	\$40	NANO 207	NDSCS-Fargo - materials	\$90
ELEC 182	NDSCS-Fargo - special fees	\$25	NANO 208	NDSCS-Fargo - materials	\$90
ELEC 241	NDSCS-Fargo - special fees	\$40	NANO 209	NDSCS-Fargo - materials	\$90
ELEC 242	Lab supplies	\$25	NANO 210	NDSCS-Fargo - materials	\$90
ELEC 248	Lab supplies	\$25	NANO 211	NDSCS-Fargo - materials	\$60
ELEC 253	Lab supplies	\$50	NANO 212	NDSCS-Fargo - materials	\$60
ELEC 254	Electrical fee	\$50	NANO 297	NDSCS-Fargo - materials	\$35
ELEC 255	Electrical fee	\$50	NANO 297B	NDSCS-Fargo - materials	\$35
EMS 110	Textbooks/FISDAP/ NREMT practical test	\$404.15	NANO 299	NDSCS-Fargo - materials	TBD
EMS 231	Lab fee	\$155	NURS 101	Linen fee, lab kit, background check	\$205
EMS 232	Lab fee	\$155	NURS 101	NDSCS-Fargo - Nursing fee/ linen fee/lab kit/background check	\$100/credit & 185
EMS 233	Lab fee	\$155	NURS 102	NDSCS-Fargo - Nursing fee/ lab kit/background check renewal	\$100/credit & \$130
EMS 241	Clinical binder/liability insurance/ FISDAP account/clinical fee	\$510	NURS 102	Lab kit/background check renewal	\$85
EMS 242	Clinical fee	\$200	NURS 231	NDSCS-Fargo - Nursing fee	\$100/credit
EMS 243	Test fee/clinical fee	\$400	NURS 232	NDSCS-Fargo - Nursing fee	\$100/credit
ENGL 105	Special fees	\$9	NURS 233	NDSCS-Fargo - Nursing fee/ lab kit	\$100/credit & \$60
ENGL 110	Special fees	\$9	NURS 233	Lab kit/background check renewal	\$105
ENGL 120	Special fees	\$9	NURS 245	Pinning/ATI exam fee	\$100
ENGL 125	Special fees	\$9	NURS 245	NDSCS-Fargo - Nursing fee/ pinning/ATI exam fee	\$100/credit & \$100
ENGL 211	Special fees	\$9	NURS 246	NDSCS-Fargo - Nursing periodicals/background check renewal	\$100/credit & \$45
ENGL 220	Special fees	\$9	NURS 248L	Lab/Sim kit	\$70
ENGL 232	Special fees	\$9	NURS 248L	Hybrid fee	\$25
FYE 101	Supplies	\$12			
HIT 176	Online/On-campus	\$29/credit			
HIT 180	Online/On-campus	\$29/credit			
HIT 181	Online/On-campus	\$29/credit			
HIT 184	Online/On-campus	\$29/credit			
HIT 185	Online/On-campus	\$29/credit			

NURS 250	NDSCS-Fargo - IVN	\$100/credit
NURS 255	NCLEX review course/presentation kit	\$330
NURS 256	ATI testing	\$480
NURS 257	Simulation kit/background check	\$140
NURS 261	Hybrid	\$25
NURS 263	Graduation/pin fee/NCLEX review course	\$315
OTA 101	Professional journals/dues	\$75
OTA 102	Presentation kit/background check	\$130
OTA 111	Media kit	\$50
OTA 113	Splinting kit	\$75
OTA 114	Peds handwriting assessment kit	\$20
OTA 214	Peds assessment kit	\$50
OTA 216	Professional journals/dues	\$75
OTA 218	Aging assessment kit	\$10
OTA 252	Background check	\$75
OTA 253	AOTA's NBCOT exam prep	\$125
OTA 256	NBCOT & OTKE practice exams/ graduation fee	\$395
PHRM 205	NDSCS-Fargo - Nursing fee	\$100/credit
PHYS 120L	Lab supplies	\$35
PHYS 211L	Lab supplies	\$35
PHYS 212L	Lab supplies	\$35
PHYS 251L	Lab supplies	\$35
PHYS 252L	Lab supplies	\$35
PLMB	Uniform cleaning fee	TBD
PLMB	Uniform deposit	\$100/year
PLMB 111	Lab supplies	\$100
PLMB 112	Lab supplies	\$100
PLSC 110	Computer costs, DTN annual fee	\$10
PLSC 115	Lab supplies	\$10
PLSC 225	Computer costs, DTN annual fee	\$10
PLSC 235L	Lab fees	\$20
PRMT 101	Background check	\$75
PRMT 215	Software/labeling system and presentation kit	\$105
PRMT 216	Compounding supplies	\$50
PRMT 231	Background check	\$75
PST 111	Lab supplies	\$30
PST 112	Lab supplies	\$30
PST 113	Lab supplies	\$30
PST 114	Lab supplies	\$30
PST 203	EETC Certification Test	\$40
PST 211	Lab supplies	\$60
PST 212	Lab supplies	\$30
PST 213	Lab supplies	\$30
REFG	Uniform cleaning fee	TBD
REFG	Uniform deposit	\$100/year
REFG 104	Manual and test fee for EPA handling of refrigerants	\$50
REFG 111	Lab supplies	\$75
REFG 112	Lab supplies	\$35
REFG 113	Lab supplies	\$50
REFG 122	Lab supplies	\$25
REFG 124	Lab supplies	\$25
REFG 201	Industry manuals	\$20
REFG 202	I.C.E. test	\$60
REFG 211	Lab supplies	\$50
REFG 212	Lab supplies	\$50
REFG 226	Lab supplies	\$75
REFG 254	Lab supplies	\$85
REFG 255	Lab supplies	\$105
REFG 292	Experimental course	TBD
SOIL 210	Lab supplies	\$10
TECH	NOCTI testing	\$15
TECH 109	A/C refrigerant, dyes, refrigerant recovery and certification test	\$40
TECH 121	Solvents, cleaners and lab supplies	\$40
WELD 153	Welding gas, supplies	\$60
WELD 154	Welding gas, supplies	\$60
WELD 211	Welding gas, supplies	\$80

WELD 212	Welding gas, supplies	\$80
WELD 213	Welding gas, supplies	\$80
WELD 299	Special topics	TBD

Fees (per semester)

The following departments carry a program fee each semester that helps offset instructional costs specific to that academic discipline. These fees are also included in the Additional Costs by Program amounts.

Agriculture	\$150
AS Nursing	\$250
Auto Body Refinishing and Repair	\$200
Automotive Technology	\$200
Building Construction Technology	\$50
Culinary Arts	\$250
Dental Assisting	\$250
Dental Hygiene	\$250
Diesel Technology	\$150
Electrical Technology	\$200
Health Information	\$50
Land Surveying and Civil Engineering	\$150
Mechatronics Technology	\$150
Occupational Therapy Assistant	\$100
Pharmacy Technician	\$150
Powersports Technology	\$100
Practical Nursing	\$250
Precision Machining Technology	\$250
Welding Technology	\$200

Residency for Tuition Purposes

- NDCC Section 15-10-19.1 governs determination of residency for tuition purposes. Pursuant to section 15-10-19.1, a resident student for tuition purposes means:
 - A person whose custodial parent, guardian, or parents have been a legal resident of North Dakota for 12 months immediately prior to the beginning of the academic term;
 - A person 18 years of age or older who has been a legal resident of North Dakota for 12 months immediately prior to the beginning of the academic term;
 - A person who graduated from a North Dakota high school;
 - A full-time active duty member of the armed forces or a member of a North Dakota national guard unit;
 - A spouse or a dependent of a full-time active duty member of the armed forces or a member of a North Dakota national guard unit;
 - A spouse or dependent of an employee of any institution of higher education in the state;
 - The spouse of any person who is a resident for tuition purposes;
 - Any other person who was a legal resident of this state for at least three consecutive years within six years prior to the beginning of the academic term; or
 - A child, spouse, widow or widower of a veteran as defined in NDCC section 37-01-40 who was killed in action or died from wounds or other service-connected causes, was totally disabled as a result of service-connected cause, died from service-connected disabilities, was a prisoner of war or was declared missing in action.
- Definitions.
 - "Dependent" means only a person claimed as a dependent on the most recent federal tax return.
 - "Member of the armed forces" means only full-time active duty members of the armed forces, and not national guard or reserve members.

- c) "Spouse" means both parties to a marriage recognized by the state of North Dakota including those subject to an order of legal separation, but not divorced persons.
3. NDCC Section 54-01-26 governs determination of legal residency. Legal residence must be based on an actual physical residence in North Dakota plus an intent to consider this state as a home and legal residence for a substantial period of time. Physical residence in the state for only the special or temporary purpose of attending an institution of higher education, without any assumption of the general responsibilities of legal residency, does not qualify one for legal residency. Nevertheless, a student attending a North Dakota institution of higher education is not precluded from proving legal residency simply because that is the student's primary or exclusive pursuit for a period of time. It is not necessary to show gainful employment or an off-campus residency to prove legal residency, although they may be helpful; what is more important is a showing that some of the significant responsibilities or rights of legal residency enumerated in subsection 4 have been assumed or exercised, or even more importantly, that they have not been countered during a period of legal residency claimed in North Dakota by express acts indicating a legal residency in another state. Generally, because making false statements in a residency application is a crime, an applicant's signature is sufficient guarantee that information in the application is accurate. However, university system employees may, at their discretion, require additional documentation.
4. Legal residence in the State of North Dakota includes, but is not necessarily limited to the following responsibilities and rights:
- To vote in general or special elections in the State after 30 days of residence in the precinct (and assuming U.S. citizenship). See NDCC Section 16-01-03;
 - To obtain a North Dakota driver's license before operating any motor vehicle in this State after more than 60 days of residency. See NDCC Section 39-06-02;
 - To obtain a North Dakota license for any motor vehicle owned or operated after beginning residency in this State. See NDCC Section 39-04-18;
 - To file a North Dakota resident's income tax return with the State Tax Department reporting any income derived from within this State. See NDCC Sections 57-38-01-(10) and 57-38-31;
 - To obtain a North Dakota resident game or fishing license after 6 months of residency in the State. See NDCC Sections 20.1-01-02(4) and 20.1-03-05.
5. Given the academic tradition of recess or vacation periods for holidays, between terms and during the summer, a student's visits to other states during these periods are not indicative of a lack of legal residency in North Dakota; in fact, NDCC Section 54-01-26 expressly allows absences for "special or temporary purposes." A student's return from North Dakota to a former state of residence for a period of several months (such as an entire summer), however, when combined with the abandonment of a place of residency in this State indicates abandonment of legal residency in North Dakota. Proof of either the retention of a place of residence in North Dakota during the absence (e.g., by rent receipts), or of a special or temporary purpose for the absence, is required in the event of such a prolonged absence. For example, participation in an internship experience or an exchange program in a state of origin that was an acceptable part of the student's academic program at a North Dakota institution of higher education is considered a special or temporary purpose.
6. International Students.
- To qualify as a North Dakota resident, international students who are not refugees must have an Alien Registration Receipt Card (Green Card) proving permanent residency or immigrant status and must meet all other North Dakota residency requirements for tuition purposes.
 - Refugees holding I-94 visas bearing endorsement by the Immigration and Naturalization Service and showing they have been paroled indefinitely, or have been granted indefinite

voluntary departure or conditional entry, shall be treated as residents of the United States when applying for North Dakota residency for tuition purposes. In all other respects they must meet the requirements of NDCC Section 15-10-19.1. Time spent in North Dakota prior to being granted I-94 status shall not be counted towards the one year requirement for residency status for in state tuition.

Non-Resident Students Seeking Resident Status

Non-resident students seeking to declare residence for tuition fee purposes must file such a request with the Enrollment Services office.

Students must apply for residency change within 30 days of the first class of the semester. If student applies for residency after the first 30 days of the semester and before the 60th day of the semester, a student can petition to have residency reviewed by notifying the director of admissions and records. After the 60th day of the semester, no reviews/appeals will be considered.

Reciprocity for Minnesota Residents

Action by the Minnesota and North Dakota legislatures allows residents of either state to attend state-supported institutions of higher education and have most of the non-resident tuition waived. Approval by the authorized agency of the student's home state is required. Minnesota residents may obtain the Application for Reciprocity form by accessing the website www.mheso.state.mn.us. Students can print an approved letter and retain it for their records.

Reciprocity is granted to a student for a one-year period ending each July and is automatically granted for the remaining years unless the student drops out for a 12-month period. In that case, the student would have to re-apply.

NOTE: Reciprocity applications are not required of students who have graduated from Minnesota high schools within the same calendar year that they are entering NDSCS.

Payment of Fees

The student's current balance is available 24 hours a day by going to www.NDSCS.edu and selecting CampusConnection then Student Center. Payments may be made and financial aid refund checks can be picked up during the Wildcat Payment and Refund Days, which are held in conjunction with the semester payment due date. All tuition, fees, bookstore charges, and room and board charges are due in full on or before the 12th day of the semester. All billing notifications are sent electronically to the student's NDSCS email address. Since students can make changes that affect their balance up to and after the 12th day, electronic statement notifications will not be sent prior to this due date.

Registration may be cancelled if payment is not received by the 12th semester day unless signed arrangements have previously been made with the Business Affairs office. All financial aid files must be complete and accepted prior to the 12th semester day in order for the funds to be considered towards the student's balance. Students will not be allowed to enroll in subsequent semesters and transcripts will not be released until all financial obligations to the college have been paid in full.

Outstanding Bills

If the student does not pay in full by the semester due dates, a late fee may be assessed for each month that the charges are past due (per section 830.1 of the SBHE Policy manual).

If acceptable arrangements are not made with the Business Affairs office regarding an outstanding bill, the account may eventually be forwarded to a collection agency. Costs incurred in the collection

process will be the responsibility of the student. The unsatisfied obligation may also be reported to a credit bureau.

For additional information go to the Paying for College section at www.NDSCS.edu.

Refunding of Tuition and Fees (per SBHE Policy 830.2-Refund Policy)

Refunds for total withdrawals

A total withdrawal occurs when **all** classes are dropped during the period of enrollment. The applicable refund percentage is based on the calendar date of when the Division Dean's office receives and approves the completed withdrawal paperwork from the student.

Percent of Enrollment Period Completed (actual calendar day including weekends)	Tuition and Fees Refund %
0-8.999%	100%
9.000-34.999%	75%
35.000-59.999%	50%
60.000-100.000%	0%

Refunds for dropping individual classes

A class that is dropped prior to the completion of 9 percent of the period of enrollment shall receive a 100 percent refund of tuition and fees for the number of credits attributable to the dropped class. After the completion of 9 percent of the period of enrollment for a class, no refund shall be given for tuition and fees for a dropped class.

FINANCIAL AID

Financial Aid

NDSCS is a state-supported college. This state support covers a very significant portion of all instructional costs to the student and is the largest form of financial support. To help students pay their costs for tuition and fees, room, board, books and supplies, students and/or parents receive financial aid. Approximately 94 percent of NDSCS students receive some type of financial aid. Four different types of financial aid are offered: (1) grants, (2) loans, (3) employment and (4) scholarships.

Students attending NDSCS must apply for admission to be considered for financial aid. All aid applicants are expected to submit the Free Application for Federal Student Assistance (FAFSA). To be considered for the maximum number of financial aid sources, the FAFSA should be submitted by April 1 to meet the priority deadline date of April 15. Students are encouraged to complete the FAFSA online at www.FAFSA.ed.gov. Once application is made, please allow 6-8 weeks for processing. Official financial aid awards are emailed to students in June.

More information, policies and applications on financial aid can be found under the Paying for College section at www.NDSCS.edu.

Dropping Out of College and Repaying Financial Aid

The federal government requires all colleges and universities to monitor the academic progress of all students, whether or not they receive federal aid. This involves more than maintaining the quality standard of a minimum GPA of 1.75 after the first year, or a 2.0 by the end of the second year. It also involves monitoring the quantity standard set to insure students are completing the academic work at an acceptable pace. Students on financial aid should be careful about dropping classes. At minimum, a student should complete at least 67 percent of the course work assigned during an academic year.

To drop a class or drop out of college, the first step is to stop at the respective Dean's office in the Tech Center. If it is not possible to stop in at the Dean's office, it is important to contact the office via phone or in writing. A withdrawal notice will be issued, requiring a number of signatures from across campus notifying the respective offices of the student's intent to leave school. Failure to follow this formal process easily can result in serious consequences to the student in the form of receiving all "F" grades on your permanent record for the work not completed. This also may result in unnecessary cost to you in other ways, such as not having certain costs credited on a timely basis.

For all students receiving U.S. Department of Education Title IV funds, — Federal Pell grants, SEOG grants, State Incentive grants, Federal Stafford, Perkins or PLUS funds — the federal government has detailed policies on the return of these funds. The policy as summarized here only relates to students completely dropping out of college (dropping all classes not yet completed). A withdrawal date first must be established. For NDSCS, that date is considered to be the day NDSCS learns about the withdrawal by the student and/or the parent of the student, provided that date is still during the term. If the term is over and if the Enrollment Services office has not been informed of a drop date by the student and/or parent, the Enrollment Services office has the option of using the midpoint of the term or the last date of actual class attendance, as researched by contacting instructors.

It does not normally enter into the formal return of funds calculations. After determining the drop date for those students completely dropping out of college, one of the next steps is to determine what fraction of the term the student attended. For example, if the term included 120 calendar days, and the student withdrew during the 60th day of the term, 50 percent of the term would be considered

to have been earned, and the remaining 50 percent would have to be returned. Likewise, if one dropped on the 30th day of a 120-day term, the student would have earned 25 percent of the aid, and the rest would have to be returned. After the 60 percent point in time of the semester, or after 72 days if the term had 120 calendar days, no return of Title IV funds is required. Therefore, the aid is returned to the federal programs based on the percent of unearned aid.

The responsibility for returning the unearned aid is shared by both the college and the student. Both aid that was disbursed and aid that could have been disbursed, are included. The college must return its portion first. The student's account is charged for it, and the respective Title IV account is credited for the same amount. Therefore, the student may end up with an amount due to the college. Of course, in most cases, NDSCS would first have credited a student's account for the charges involved. (The actual refund percentages on these charges will be covered later.) That credit on an account may be enough to satisfy the required return of the unearned aid. The college's share of the unearned and/or earned aid is computed using the same percentage process already covered above. For example, if a student attended 25 percent of the term, NDSCS would consider he or she earned 25 percent of the institutional charges and would return up to 75 percent towards the student's unearned financial aid amount. Again, this goes through 60 percent of the term.

After the college takes care of its share of the financial aid repayment, the student is responsible for the rest. If the aid program is a loan, the amount due from the student is considered to be repaid later when the loan is repaid. If the aid program is a grant, the amount due is reduced by 50 percent. The college will inform the student of any amount still due and arrangements must be made for payment.

Gainful Employment

Gainful employment provides students and consumers with the information they need to make good education choices. Providing an eligible program of training to prepare students for gainful employment in a recognized occupation is one of the criteria an institution must meet to qualify to award federal financial aid in postsecondary vocational education.

Please visit www.NDSCS.edu/Gainful-Employment to view our gainful employment data.

ACADEMIC INFORMATION

Classification of Students

A full-time student carries 12 or more semester credits. A part-time student carries fewer than 12 semester credits. Students who have earned fewer than 30 semester credits either in transfer or on campus are classified as freshmen.

Semester System

- NDSCS operates under the semester system with two 16-week semesters and a summer session.
- Fall and spring term schedules provide specific information regarding the term calendar; course offerings, fees and meeting times; final exam schedule; guidelines for changes in registration; and instructions for using CampusConnection, the online registration system.
- A summer session schedule provides specific information regarding the summer term calendar; course offerings, fees and meeting times; enrollment procedures; and instructions for using CampusConnection.

Unit of Credit

A unit of credit is three hours of student instruction and learning, which may be represented by:

- one class hour per week for lecture, discussion, seminar, or workshop, or a combination thereof, and two hours of preparation outside of class;
- two class hours per week for laboratory, shop, or field experience, or a combination thereof, and one hour of preparation outside of class; or
- three class hours per week for laboratory, shop, internship, supervised occupational work experience, or other comparable field experience, or a combination thereof.

Advanced Standing

NDSCS recognizes off-campus learning experiences and translates these experiences into college credit where appropriate. Application for advanced standing should be made to the director of admissions and records. Advanced standing may be obtained through the following methods:

Credits received at other recognized educational institutions

Credits earned at regionally accredited colleges are accepted in transfer. Courses will be applied to program requirements as appropriate. An official, final transcript from the institution(s) attended must be presented.

NDSCS will transcript all coursework from regionally accredited colleges and universities including equivalent for international institutions previously attended. The student's grade point average at NDSCS is an institutional grade point average for all residential credits only.

Transfer students must meet assessment criteria unless previous college records indicate satisfactory completion of first-year college English and math courses.

Credit by articulation agreement

Students enrolled in secondary schools that have an articulation agreement with NDSCS may utilize the processes to receive college credit. The grade earned may be recorded on the transcript as

an articulated course with either a satisfactory or a letter grade. Articulation agreements provide an opportunity for post-secondary credit based on competencies acquired while in high school. For further information, contact Enrollment Services.

Students scoring satisfactorily on the subject examinations of the College-Level Examinations Program (CLEP) may receive college credit as adopted according to SBHE Policy 403.7 (3)(c).

Military service experiences

Admitted enrolled students who have earned additional or college level work for credit in a United States Armed Forces Institute program may request their scores be presented to the Enrollment Services office. The credit will be evaluated by the director of admissions and records using the Guide to the Evaluation of Educational Experiences in the Armed Services. Credit will be allowed only for those courses equivalent to those offered at NDSCS. Credits may also be earned from military experience and/or through challenge exams with departmental approval. The Enrollment Services office will be responsible for credit entry

No cost is assessed for this service.

Credit for Life and Work Experience

Credit for Prior Learning Program

This program is designed to offer the adult learner an opportunity to apply learning earned through life and work experiences toward graduation. Individuals may receive college credit for prior learning experiences from a variety of work, military, volunteer, and other activities. These non-college activities must be evaluated to determine if college credit may be granted. The process requires students to enroll in the ASC 180 Prior Learning Assessment portfolio course. For specific questions, contact an academic counselor.

Credit for Apprenticeship Training

Individuals who have completed a United States Department of Labor (USDOL) approved apprenticeship training program of at least 6000 hours, including a minimum of 400 related study hours, qualify for advanced standing in the Technical Studies-Journeyworker Track program. This flexible program provides students the opportunity to earn an Associate in Applied Science degree by receiving 32 college credits for their apprenticeship training and completing 32 additional general education, technical or business credits. Students will work with an advisor to design their own plan of study based on their personal career goals. For further information, see the Technical Studies – Journeyworker information in the curriculum section of this catalog and contact the Technologies and Services Division Dean's office by calling 1-800-342-4325, ext. 3-2257.

Challenge Examinations

A student may seek credit by challenging a course if available by department. Students intending to challenge courses are strongly encouraged to do so the semester prior to when the class would normally be taken. Students may not challenge a course in which they are actively enrolled or have completed previously. The course challenge fee is 50 percent of the regular tuition charge, must be paid in advance of taking the challenge exam, and is nonrefundable. Students challenging online classes will be charged an additional online access fee.

Successful challenge grades must be a "C" or better and will be posted to the student's transcript as test credits. Students should be aware that challenge grades may not be accepted in transfer by some other colleges. Unsuccessful challenges are not recorded.

Application forms and the complete Challenge Exam Policy and Procedure are available in each Division Dean's office.

Transfer of NDSCS Credit

Transfer of credits is always determined by the institution to which the student plans to transfer. Students planning to transfer should take the Liberal Arts transfer curriculum plan, which consists of courses most commonly required for preparation to another college or university. For specific bachelor's degree requirements, students should consult the catalog of the campus to which they intend to transfer.

Excess Load

To enroll for more than 20 credits during any semester, a student must have a grade-point average of 3.0 or better and file a request for excess load at the appropriate dean's office, except where more than 20 hours are required in a specific curriculum.

A request for excess load must be approved by both the student's advisor and the division dean.

Library Resources

The Mildred Johnson Library enhances learning and success for providing information services, which support both academic goals and lifelong learning for students, staff, and community members. In this modern age the library seeks to serve the students in all venues from brick and mortar to online and distant students. The resources consist of the tried and true books, magazines, academic journals, newspapers and numerous computer and technological resources. Patrons have access to global resources. We also have conference rooms for group collaborations, meetings, and projects and a plethora of engaging tools.

Additional information is available in the Student Services section of this catalog at www.ndscs.edu/Library or by calling the Library Service Desk at 1-800-343-4325, Ext. 3-2618 or direct at 701-671-2618.

Final Examination Policy

End-of-term examinations are held according to the published examination schedule. If a student has more than two exams scheduled the same day, the student may contact his or her instructor(s) to establish a mutually acceptable time to reschedule one or more of the exams.

Grading System

A letter grade is used to indicate the quality of a student's work in a course. Grade points are assigned for each letter grade so a grade-point average can be calculated. The system is as follows:

Grade	Explanation	Grade Points Per Credit
A	Excellent	4.0
B	Good	3.0
C	Average	2.0
D	Poor	1.0
F	Failure	0.0
Au	Audit	
S	Satisfactory	
U	Unsatisfactory	
I	Incomplete	
W	Withdrawal	
WV	Waive	
X	In Progress	
NR	Not Reported	

- The grade of "Incomplete" must be removed no later than the end of the mid-term examination week in the next college term, excluding the summer sessions. If the "Incomplete" is not removed by this time, it will automatically be changed to "F" or "U" by the Enrollment Services office.

- The grade of "Incomplete" is given at the instructor's discretion and is dependent on missing work and attendance.
- The summer session is not considered in determining the time allowed for make-up of "I" grades.
- It is the student's responsibility to see that "I" grades are made up.
- The term "Withdrew" is to be used when a student officially drops a course.

Satisfactory/Unsatisfactory

Students must perform a minimum of average work (at the discretion of the instructor) in order to receive a "Satisfactory." Anything less is considered "Unsatisfactory."

Semester Grades

Grades are available to students as soon as possible after the close of a semester. Grades will be available to the student via the NDSCS website, the CampusConnection link. Students making a 3.5 GPA or higher and completing at least 12 credits with letter grades will be listed on the President's Honor Roll for the semester. Courses with S/U grades do not count in academic standing. Students making less than a 2.0 GPA may be placed on academic warning, probation or suspension.

Grade Transcripts

Students may request their official transcript through the National Student Clearinghouse which can be found at www.getmytranscript.com or through their CampusConnection account. Students will be charged a fee to have a transcript sent.

Grade Change

In the event a grade is recorded incorrectly, a change must be made by the instructor no later than the conclusion of the semester immediately following the semester in which the grade was issued, excluding the summer sessions.

Repeating Courses

When a course in which a student has previously received a grade is repeated, both grades show on the permanent record, but only the last grade received is used in the grade-point average.

Dropping or Adding Courses/Changing Curriculums

Students desiring to drop or add classes or change curriculums are strongly advised to seek the approval of the division dean, advisor and the instructor. Appropriate forms are available in the Division Dean's offices.

Students should review the current academic calendar for specific drop and add dates.

A grade of "F" will be recorded for any course not formally dropped.

A change in registration may affect your tuition charges and/or your financial aid. In order to fulfill financial aid requirements, a student must successfully complete 67 percent of the attempted courses. Check with the Enrollment Services office for any changes resulting in a change of schedule or dropping to the status of part-time student. Information regarding refunding of tuition and fees for withdrawing from college or dropping individual classes may be found in the tuition and fees section of this catalog.

Auditing Courses

A student may wish to take a course for no credit. This is completed by auditing the course. A student who wishes to enroll in a course as an “audit” must seek prior consent from the instructor. To earn an audit, the student is not required to complete daily assignments or take examinations; however, is expected to maintain satisfactory attendance in order to have an “AU” recorded on the transcript. While a student cannot fail an audit course, an instructor may file a “W” (withdrawn) for non-attendance. A student may not later establish credit in an audited course by taking a special examination; the course must be repeated in residence to earn credits. Additionally, auditing a course will not be used to satisfy a prerequisite for another course. A course initially registered as an audit will be charged 50 percent of tuition, plus applicable fees.

A student may drop a graded course and add it as an audit. This must be completed by the last day to drop a course for the period of enrollment attributable to the course. If this change is completed after the first 8.99 percent of an 8-week or 16-week course, there will be no refund.

Financial aid is not awarded for audited course work for either a full or part-time status.

Academic Warning, Probation, Suspension and Reinstatement Policy

The academic warning, probation and suspension policy is designed to give a student every possible opportunity to be successful in a college program.

The student is expected to maintain the following cumulative grade-point average:

GPA Units	Institutional GPA
9-16	1.50
17-33	1.75
34-50	1.85
51+	2.00

Academic Warning

Failure to maintain the indicated grade point average will result in the student being placed on academic warning. Students and their advisors are notified in writing that the quality of the student’s work has fallen below acceptable standards and should this unsatisfactory condition continue during the subsequent semester, the student may be placed on academic probation.

Academic Probation

After one semester on academic warning, students may be placed on academic probation if their cumulative grade-point averages are not within the limits previously stated.

If the student achieves at least a 2.0 GPA during the subsequent semester(s) of enrollment but still does not achieve the required cumulative grade point average, he/she continues on probation until that requirement is satisfied. (Summer session is equivalent to one semester.)

Any student who is on academic probation and transfers from one department or division to another will continue to be on probation in the new program until the probationary terms are met.

Academic Suspension

Students who fail to achieve at least a 2.0 grade point average for each of the subsequent semesters while on probation will be placed on academic suspension. Students who are suspended will not be readmitted until a lapse of one regular semester (fall or spring) has occurred. Suspended students are not eligible to attend summer school.

Students who choose to appeal their academic suspension may do so by following the Academic Reinstatement Process listed below.

If a reinstatement is granted and the student does not meet the required GPA the semester they are reinstated, the student will be suspended for one academic year with no appeals.

Note: All students placed on academic warning, academic probation, continued on probation or reinstated on suspension will be contacted by a Student Success staff member.

Academic Reinstatement Process

A student, who is notified they are on academic suspension, may appeal the suspension by completing the Appeal for Academic Reinstatement Form and filing it with the Enrollment Services office by the Wednesday prior to the start of the next regular semester. Appeals received after the required submission date will only be considered if significant extenuating circumstances exist. Students appealing their suspension must provide supporting documentation explaining the compelling circumstances they wish to have considered. Examples of compelling evidence may include: documented medical conditions, death of a family member, divorce and/or dependent support issues, legal problems and other extenuating circumstances that have affected the student’s ability to meet required academic standards. This form is available through the Records office, Haverty Hall, Room 101 or by calling 701-671-2202.

The director of admissions and records or other designated academic official will gather the appeal request and academic information from the student. The Academic Review Committee will review provided documentation, meet with the student and make a decision to lift the suspension or uphold the suspension.

If the suspension is not lifted, the student may advance a written appeal to the vice president for academic and student affairs within five working days of the response. The vice president shall assemble the necessary documents and input for the decision to be made. The vice president shall inform the student and other required staff members within two working days.

The student may appeal the vice president’s decision to the president of the college within ten calendar days. If the student chooses to appeal to the vice president for academic and student affairs and/or president, the student is allowed to register and attend classes pending a decision of the committee. The student is responsible for any charges (tuition, fees, housing, dining services, tools, etc.) incurred during the review process. In addition, the student must follow the rights and responsibilities of NDSCS and the policies and procedures of the division and department.

Upon reinstatement, a student will be contacted by a Student Success staff member. If academically reinstated due to suspension and the student does not meet the required GPA the semester they are reinstated, the student will be suspended for one academic year. The student will not be granted a second appeal.

All students have the right to present an appeal in accordance to the steps outlined in this policy and are assured freedom from discrimination, coercion, restraint or reprisal in presenting appeal.

Student Eligibility to Participate in Activities

- To participate in music or drama, a student must meet established NDSCS standards of academic progress. Eligibility for participation in intercollegiate athletics is established by the National Junior College Athletic Association.
- Only regular, full-time students not on probation (academic or disciplinary) are permitted to participate in extracurricular activities other than intramural or residence hall programs. Extracurricular activities are organized college-related student activities outside the regular curriculum requirements, in which students participate voluntarily.

3. Any student who files for an elective position or applies for an appointed position must meet the requirements stated in the foregoing item at the time of filing or applying and must have the intention of being enrolled and on campus during the entire period of the elected or appointed term for which he or she has filed or applied.
4. A student must have a 2.0 GPA in the semester preceding election or appointment and must have a cumulative average of 2.0 to hold any of the following positions:
 - a) Chair of any all-college event;
 - b) Homecoming Queen, Campus Sweetheart or similar honor;
 - c) Campus Activities Board;
 - d) Editor or staff member of a publication;
 - e) President of an organization; or
 - f) Member of a Faculty-Student Standing Committee.
5. Should a student fail to maintain a 2.0 GPA for any given semester, he or she shall immediately forfeit the right to any position held as listed in the preceding paragraph.

Absences

Students are required to regularly attend all classes and shops for which they are scheduled. In general, absences are excused only when due to illness or official representation of the college. For more detailed information concerning this matter, the student should consult the general regulations which will be found in the *NDSCS Guide to Student Rights and Responsibilities* or department policies. For more information see Attendance Policy in the Academic and College Policies and Procedures section of the *NDSCS Catalog*.

Withdrawing from College

A student who desires to withdraw from college must originate a request and obtain a withdrawal slip from the division academic counselor before the last day to withdraw from college. Dates are available in the Academic Calendar online or in the Student Planner. Students planning to withdraw from college should contact the Financial Aid office.

Petition for Graduation

Graduation procedures are as follows:

1. Formal application for graduation should be made by the candidates prior to the semester during which they expect to complete requirements for graduation.
2. Petition for Graduation forms may be obtained at the Enrollment Services office, dean's office or on the NDSCS website www.NDSCS.edu/Graduation.
3. The award will be sent to the graduate.
4. Students are requested to participate in graduation exercises in order to have their degrees, diplomas or certificates conferred.

Graduation Requirements

Students enrolled at the North Dakota State College of Science become candidates for a graduation award when it is determined they have or will have successfully completed the requirements for graduation.

All program requirements must be completed as outlined in the official *NDSCS Catalog* for the year in which the applicant matriculated. Any exceptions to this requirement must have written approval of the division dean.

If the NDSCS graduation requirements change during a student's period of enrollment at NDSCS, the following will apply.

1. Students who are enrolled continuously will follow the graduation requirements in effect at the time of their initial enrollment.
2. Students who are not enrolled as a continuous student will follow the graduation requirements in effect during the academic year they reinitiate enrollment.
3. At least 16 of the final 24 credits of the curriculum must be taken through NDSCS.

The applicant's record must show an institutional grade-point average of at least 2.0 for all work completed that applies to the curriculum from which the applicant is graduating.

Students returning to NDSCS to complete a program that they were previously enrolled in will follow the guidelines of the program when they re-enroll. Additional documentation may be required for proof of current skills, employment and certifications.

If a student in a vocational program possesses a current and approved First Aid and CPR certification, a waiver of HPER 210 First Aid/CPR may be requested. To determine eligibility, contact the NDSCS Enrollment Services office. This will be a waiver of the course requirement only and no credits will be awarded. Students must still earn the minimum credits required for graduation for an associate degree, diploma or certificate.

Courses or credits that are waived by NDSCS are an institutional waiver only and may not be recognized at other colleges.

All students who have completed 90 days or more of active military service are excused from the wellness requirements. These requirements will be waived. Proof of military service must be filed in the Enrollment Services office to waive the requirement.

The requirements for graduation are as follows:

Associate in Arts Degree

The Associate in Arts degree is conferred upon recommendation of the faculty and satisfactory completion of the following requirements:

1. The student must have completed a curriculum with a minimum of 64 credits, or more, if specified in the specific curriculum, with a minimum cumulative GPA of 2.0 (C) or higher.
2. The student must have completed the following minimum general education requirements:
 - a) six credits in ND:ENGL
 - b) three credits in ND:COMM
 - c) six credits in ND:HUM or ND:HIST (must have courses from two prefixes)
 - d) 13 credits in ND:MATH, ND:LABSC, ND:COMPSC or ND:SCI
 - i. All students must complete one lab science (ND:LABSC), one mathematics course (ND:MATH) and one ND:COMPSC
 - e) eight credits in ND:SS (must have courses from two prefixes)
 - f) two credits in wellness
 - g) remaining credits will emphasize arts, humanities and social sciences
 - h) attendance at designated campus and/or community activities that support the general education learning outcomes
 - i) GERTA requirements, 36 credits

In planning a program to meet these requirements, a student upon advisor approval, may substitute general education courses in order to meet requirements of the institution to which the student plans to transfer.

Associate in Science Degree

The Associate in Science degree is conferred on recommendation of the faculty upon satisfactory completion of the following requirements:

1. The student must have completed a curriculum with a minimum of 64 credits, or more, if specified in the specific curriculum, with a minimum cumulative GPA of 2.0 (C) or better.

2. The student must have completed the following minimum general education requirements:
 - a) six credits in ND:ENGL
 - b) three credits in ND:COMM
 - c) six credits in ND:HUM or ND:HIST (must have courses from two prefixes)
 - d) 13 credits in ND:MATH, ND:LABSC, ND:COMPSC or ND:SCI
 - i. All students must complete one lab science (ND:LABSC), one mathematics course (ND:MATH) and one ND:COMPSC
 - e) eight credits in ND:SS (must have courses from two prefixes)
 - f) two credits in wellness
 - g) remaining credits will emphasize business, science and/or mathematics transfer courses
 - h) attendance at designated campus and/or community activities that support the general education learning outcomes
 - i) GERTA requirements, 36 credits

In planning a program to meet these requirements, a student, upon advisory approval, may substitute general education courses in order to meet requirements of the institution to which the student plans to transfer.

Associate in Applied Science Degree

The Associate in Applied Science degree is conferred upon recommendation of the faculty and satisfactory completion of the following requirements:

1. The student must have completed a curriculum with a minimum of 64 credits, or more, if specified in the specific curriculum, with a minimum cumulative 2.0 (C) GPA or higher.
2. The student must complete the following minimum general education requirements:
 - a) six credits in English and/or speech communication (with a minimum of 3 credits in English composition)
 - b) three credits in mathematics and/or science
 - c) four credits in social and behavioral sciences, humanities, history and/or computer
 - d) two credits in wellness
 - e) three elective credits in general education, and
 - f) attendance at designated campus and/or community activities that support the general education learning outcomes

Total General Education requirements, 18 credits.

Associate in Science in Nursing Degree

The Associate in Science in Nursing Degree is conferred on recommendation of the faculty upon satisfactory completion of the following requirements:

1. The student must have completed the specified curriculum with a minimum of 72 credits, with a minimum cumulative grade-point average of 2.0 (C) or better, and completed all required program courses with a "C" or higher grade.
2. The student must have completed the following minimum general education requirements:
 - a) six credits in ND:ENGL
 - b) three credits in ND:COMM
 - c) six credits in ND:HUM or ND:HIST (must have courses from two prefixes)
 - d) 13 credits in ND:MATH, ND:LABSC, ND:COMPSC or ND:SCI. All students must complete one lab science (ND:LABSC), one mathematics course (ND:MATH) and one ND:COMPSC
 - e) eight credits in ND:SS (must have courses from two prefixes)
 - f) two credits in wellness
 - g) remaining credits will emphasize nursing
 - h) attendance at designated campus and/or community activities that support the general education learning outcomes
 - i) GERTA requirements, 43 credits

Diploma

The diploma is conferred upon recommendation of the faculty and satisfactory completion of the following requirements:

1. The student must have completed a curriculum with a minimum of 37 credits, or more if specified in the specific curriculum, with a minimum cumulative GPA of 2.0 (C) or higher.
2. The student must have completed the following minimum general education requirements:
 - a) three credits in English
 - b) three credits in mathematics and/or science
 - c) four credits in social and behavioral sciences, humanities, history and/or computer
 - d) one credit in wellness
 - e) one elective credit in general education
 - f) attendance at designated campus and/or community activities that support the general education learning outcomes

Total General Education requirements, 12 credits.

Certificate

A certificate is awarded to qualified students who successfully complete an approved program of study of one year or less. If a program is two academic semesters in length, it cannot exceed 36 credits. If a summer semester is included, a maximum of eight additional credits may be required.

1. The student must have completed a curriculum with a minimum of 16 credits with a minimum cumulative GPA of 2.0 (C) or higher.
2. The student must have completed the following minimum general education requirements:
 - a) three credits of general education in certificate programs of 16-23 credits, or
 - b) five credits of general education in at least two disciplines for programs of 24-36 credits or more, and
 - c) attendance at designated campus and/or community activities that support the general education learning outcomes

Total General Education requirements, three or five credits as indicated above.

Certificate programs of 24 credits or greater must also have general education student outcomes embedded in the curriculum.

Certificate of Completion

A certificate of completion is awarded to qualified students who successfully complete an approved program of 15 credits or less, or an approved non-credit course of study. There are no general education requirements.

NOTE: See the General Education and GERTA Course Matrix for a list of courses accepted in the various disciplines.

Posthumous Degree Award Procedure

The North Dakota State College of Science may award degrees posthumously under the following conditions:

1. A request must be received on behalf of the deceased student;
2. The student must have been in good academic standing with the institution at the time of death;
3. The student must have satisfied the institution's requirements for earned credits in residence;
4. The student must have substantially completed the degree requirements as determined by the institution.

General Education Outcomes

Definition

General education is defined as a set of educational experiences that forms a core of common knowledge, skills and attitudes fundamental to all curriculums of substantial length (24 credits or more).

The NDSCS general education component is offered to address the following needs:

1. The employment market requires technically competent graduates who communicate effectively, practice teamwork skills and adapt to changing situations.
2. Today's dynamic society requires skills which will foster continuing formal and informal education and lifelong learning.
3. Personal growth requires exposure to diverse culture and value systems, expansion of critical thinking and development of personal life management skills.

Philosophy

The goal of general education at NDSCS is to assist students in meeting the above needs. To meet this goal, students are provided with a variety of credit and non-credit educational experiences, both inside and outside the classroom.

Involvement of students in campus and/or community life is a part of the general education philosophy of the college. There exists a wide spectrum of extracurricular campus-life situations in which all students are urged to actively participate. Research tells us that students who are involved in campus activities are more satisfied with their college experience and more likely to complete their college goals. Examples of activities NDSCS provides include instrumental and vocal musical groups, intramural and intercollegiate athletic programs, social events, student clubs, lectures, lyceums, dramatic productions, residence hall/apartment living and student government.

Objectives

- To develop skills necessary for creative problem-solving, critical thinking and analysis of values.
- To develop communication skills necessary for effective listening, speaking, reading and writing.
- To strengthen students' interpersonal and personal life management skills.
- To prepare students with skills and attitudes necessary for the pursuit of lifelong learning in a changing society.
- To provide opportunities for cultural enrichment and a developing awareness of a culturally diverse society.
- To provide a campus environment that promotes a lifestyle of mental and physical wellness.

Student Learning Outcomes

1. Communication: Students will demonstrate effective communication skills.
2. Information Technology: Students will be able to utilize information using existing technologies.
3. Social and Cultural Awareness: Students will gain knowledge of diverse cultures and value systems.
4. Wellness: Students will gain skills in mental and physical wellness and leisure activities.
5. Problem-Solving/Critical Thinking: Students will be able to use reasoning skills to analyze and solve applied problems.

General Education Transfer Agreement (GERTA)

General education courses in the areas of communications, arts and humanities, social sciences, mathematics, science and technology taken at any North Dakota University System institution or any other participating colleges/universities count upon transfer toward the general education requirements at all NDUS institutions in one of the following two ways:

1. If the general education coursework includes courses from each of these areas totaling at least 36 semester credits and completes the general education requirements of the institution from which the student transfers, then the student is deemed to have completed the lower division general education requirements of the institution to which the courses are transferred.
2. In all other cases the general education courses from the indicated areas are applicable to an appropriate general education requirement of the institution to which they are transferred. In these cases the number of credits required to complete the general education requirement in each area is determined by the policies of the institution to which the courses are transferred.

Within the stipulated areas each institution shall indicate in its catalog and other student advisement materials its courses which are approved for general education. NDUS institutions may establish program/institution specific requirements. A student should consult the institution to which he or she intends to transfer relative to these program/institution requirements.

NDSCS GERTA Requirements

The following NDSCS requirements have been approved by the North Dakota University System for the purposes of meeting general education requirements for transfer to other NDUS institutions:

1. Communication (nine credits: six credits English and three credits communications): Any course marked ND:ENGL may apply to the six credits English requirement. Any course marked ND:COMM may apply to the speech requirement.
2. Humanities/history (six credits): From two different prefixes within the categories marked ND:HUM or ND:HIST.
3. Social and behavioral sciences (eight credits): From two or more prefixes within the category marked ND:SS.
4. Math, science and computer information systems (13 credits): Any course marked ND:LABSC, ND:MATH, ND:COMPSC, ND:SCI. All students must complete one lab science (ND:LABSC) course, one mathematics (ND:MATH) course and one CIS (ND:COMPSC) course.

NOTE: NDSCS also has a wellness requirement. Please consult specific transfer degree programs for more information.

The NDSCS courses listed in the GERTA column in the General Education and GERTA Course Matrix have been approved by NDUS to meet general education requirements in certain categories.

Liberal Arts Transfer Program Purposes

Within the Liberal Arts transfer curriculum plans, students can choose from numerous emphases areas and receive an associate in science or associate in arts degree in Liberal Arts.

Depending on the emphasis selected, students will receive either an associate in science or associate in arts degree upon completion of the required curriculum.

The purposes of the Liberal Arts transfer curriculum plans are:

1. To provide two-year programs of general education for students who will transfer to a senior college or university.

2. To provide courses that meet established professional, accrediting, NDUS standards for two-year colleges.
3. To provide two-year programs for those students who are undecided about their choice of a career.
4. To provide general education courses for personal enrichment.

Curriculums for each emphasis are presented in the Academic Program section of the *NDSCS Catalog*.

GENERAL EDUCATION AND GERTA COURSE MATRIX

COURSE		CREDITS	GERTA (NDUS)	DEGREE	
				AA/AS	AAS/Dipl./Cert.
* ENGLISH					
ENGL 105	Technical Communications	3			X
ENGL 110	College Composition I	3	ND:ENGL	X	X
ENGL 120	College Composition II	3	ND:ENGL	X	X
ENGL 125	Introduction to Professional Writing	3	ND:ENGL	X	X
* COMMUNICATION					
COMM 110	Fundamentals of Public Speaking	3	ND:COMM	X	X
COMM 212	Interpersonal Communication	3		X	X
* COMPUTER TECHNOLOGY					
CIS 101	Computer Literacy	2	ND:COMPSC	X	X
CSCI 101	Introduction to Computers	3	ND:COMPSC	X	X
CSCI 116	Business Use of Computers	3-4	ND:COMPSC	X	X
CSCI 122	Visual Basic	3	ND:COMPSC	X	X
CSCI 125	Beginning COBOL (II)	3	ND:COMPSC	X	X
CSCI 160	Computer Science I (Java)	4	ND:COMPSC	X	X
CSCI 161	Computer Science II (Java)	4	ND:COMPSC	X	X
* HISTORY					
HIST 101	Western Civilization I	3	ND:HIST	X	X
HIST 102	Western Civilization II	3	ND:HIST	X	X
HIST 103	United States History to 1877	3	ND:HIST	X	X
HIST 104	United States History Since 1877	3	ND:HIST	X	X
HIST 207	United States and Current World Affairs	3	ND:HIST	X	X
HIST 220	North Dakota History	3	ND:HIST	X	X
HIST 260	Women in America	3	ND:HIST	X	X
* HUMANITIES					
ENGL 207	Lang. Studies: Convers. English & Amer. Studies	3		X	X
ENGL 211	Introduction to Creative Writing	3	ND:HUM	X	X
ENGL 220	Introduction to Literature	3	ND:HUM	X	X
ENGL 232	Mythology	2-3	ND:HUM	X	X
ENGL 240	World Literature Masterpieces	3	ND:HUM	X	X
HUM 250	Norwegian Cultural Studies	3	ND:HUM	X	
MUSC 100	Music Appreciation	3	ND:HUM	X	X
MUSC 101	Fundamentals of Music	3	ND:HUM	X	X
MUSC 207	History of Rock and Roll Music	3	ND:HUM	X	X
PHIL 210	Ethics	3	ND:HUM	X	X
PHIL 213	Societal and Ethical Implications of Technology	3			X
RELS 203	World Religions	3	ND:HUM	X	X
SPAN 101	First Year Spanish I	4	ND:HUM	X	X
SPAN 102	First Year Spanish II	4	ND:HUM	X	X
* MATHEMATICS					
BOTE 108	Business Mathematics	3			X
MATH 102	Intermediate Algebra	3			X
MATH 103	College Algebra	3	ND:MATH	X	X
MATH 104	Finite Mathematics	3	ND:MATH	X	X
MATH 105	Trigonometry	2	ND:MATH	X	X
MATH 107	Pre-Calculus	4	ND:MATH	X	X
MATH 120	Basic Mathematics I	2			X
MATH 123	Basic Mathematics II	2			X
MATH 125	Basic Mathematics III	2			X
MATH 130	Technical Mathematics	2			X

COURSE		CREDITS	GERTA (NDUS)	DEGREE	
				AA/AS	AAS/Dipl./Cert.
MATH 132	Technical Algebra I	2			X
MATH 134	Technical Algebra II	2			X
MATH 135	Applied Mathematics	2			X
MATH 136	Technical Trigonometry	2			X
MATH 137	Applied Algebra	3			X
MATH 138	Applied Trigonometry	3			X
MATH 146	Applied Calculus I	4	ND:MATH	X	X
MATH 147	Applied Calculus II	4	ND:MATH	X	X
MATH 165	Calculus I	4	ND:MATH	X	X
MATH 166	Calculus II	4	ND:MATH	X	X
MATH 210	Elementary Statistics	3	ND:MATH	X	X
MATH 227	Applied Linear Algebra	3		X	X
MATH 265	Calculus III	4	ND:MATH	X	X
MATH 266	Introduction to Differential Equations	3	ND:MATH	X	X
* SCIENCE					
BIOL 111/L	Concepts of Biology/Lab	3/1	ND:LABSC	X	X
BIOL 115/L	Human Structure and Function/Lab	3/1	ND:LABSC	X	X
BIOL 124/L	Environmental Science/Lab	3/1	ND:LABSC	X	X
BIOL 150/L	General Biology I/Lab	3/1	ND:LABSC	X	X
BIOL 151/L	General Biology II/Lab	3/1	ND:LABSC	X	X
BIOL 170/L	General Zoology/Lab	3/1	ND:LABSC	X	X
BIOL 213	General Pathology	3		X	X
BIOL 220/L	Anatomy and Physiology I/Lab	3/1	ND:LABSC	X	X
BIOL 221/L	Anatomy and Physiology II/Lab	3/1	ND:LABSC	X	X
CHEM 115/L	Introductory Chemistry/Lab	3/1	ND:LABSC	X	X
CHEM 116 /L	Introduction to Organic and Biochemistry	3/1	ND:LABSC	X	X
CHEM 121/L	General Chemistry I/Lab	4/1	ND:LABSC	X	X
CHEM 122/L	General Chemistry II/Lab	4/1	ND:LABSC	X	X
CHEM 241/L	Organic Chemistry I/Lab	4/1	ND:LABSC	X	X
CHEM 242/L	Organic Chemistry II/Lab	4/1	ND:LABSC	X	X
CHEM 260	Elements of Biochemistry	4		X	X
MICR 202/L	Introductory Microbiology/Lab	3/1	ND:LABSC	X	X
MICR 204	Basic Immunology	3		X	X
NANO 101	Fundamentals of Nanoscience I	3	ND:SCI	X	X
NANO 102	Fundamentals of Nanoscience II	3	ND:SCI	X	X
PHYS 100	Concepts of Physics	3	ND:SCI	X	X
PHYS 110	Introductory Astronomy	3	ND:SCI	X	X
PHYS 120/L	Fundamentals of Physics/Lab	3/1	ND:LABSC	X	X
PHYS 211/L	College Physics I/Lab	3/1	ND:LABSC	X	X
PHYS 212/L	College Physics II/Lab	3/1	ND:LABSC	X	X
PHYS 251/L	University Physics I/Lab	4/1	ND:LABSC	X	X
PHYS 252/L	University Physics II/Lab	4/1	ND:LABSC	X	X
PLSC 110	World Food Crops	3	ND:SCI	X	X
SOIL 210	Introduction to Soil Science	3	ND:SCI	X	X
* SOCIAL AND BEHAVIORAL SCIENCES					
CJ 160	The Legal System	4		X	X
CJ 201	Introduction to Criminal Justice	3	ND:SS	X	X
CJ 232	Administration of Justice	3		X	X
COMM 216	Intercultural Communication	3	ND:SS	X	X
ECON 105	Elements of Economics	3	ND:SS	X	X
ECON 201	Principles of Microeconomics	3	ND:SS	X	X
ECON 202	Principles of Macroeconomics	3	ND:SS	X	X

COURSE		CREDITS	GERTA (NDUS)	DEGREE	
				AA/AS	AAS/Dipl./Cert.
POLS 103	Global Politics in a Multicultural World	3	ND:SS	X	X
POLS 115	American Government	3	ND:SS	X	X
POLS 116	State and Local Government	3	ND:SS	X	X
POLS 236	The American Constitution – Civil Liberties	3	ND:SS	X	X
PSYC 100	Human Relations in Organizations	2	ND:SS	X	X
PSYC 111	Introduction to Psychology	3	ND:SS	X	X
PSYC 210	Child Development	3	ND:SS	X	X
PSYC 230	Educational Psychology	3	ND:SS	X	X
PSYC 240	Industrial/Organizational Psychology	3	ND:SS	X	X
PSYC 250	Developmental Psychology	3	ND:SS	X	X
PSYC 270	Abnormal Psychology	3	ND:SS	X	X
SOC 110	Introduction to Sociology	3	ND:SS	X	X
SOC 115	Social Problems	3	ND:SS	X	X
SOC 220	Family	3	ND:SS	X	X
SOC 221	Minority Relations	3	ND:SS	X	X
SWK 255	Social Work in a Modern Society	3	ND:SS	X	X
SWK 256	Development of Social Welfare	3	ND:SS	X	X
* WELLNESS					
HPER 100	Concepts of Fitness and Wellness	2		X	X
HPER 101	Activity: Intro Level	1		X	X
HPER 102	Activity: Intermediate Level	1		X	X
HPER 110	Sports Officiating	2		X	X
HPER 150/250	Athletic Participation	1		X	X
HPER 200	Introduction to Parks and Recreation	2		X	X
HPER 201	Intro to Coaching	2		X	X
HPER 207	Prevention and Care of Injuries	3		X	X
HPER 208	Introduction to Physical Education	2		X	X
HPER 210	First Aid and CPR	2			X*
HPER 217	Personal and Community Health	3		X	X
MUSC 115	Concert Band	1		X	X
MUSC 117	Concert Choir	1		X	X
MUSC 138	Pop-Swing Band	1		X	X
MUSC 157	Pop-Swing Choir	1		X	X
NUTR 240	Principles of Nutrition (and Diet Therapy)	3		X	X
NUTR 255	Eating Disorders	1		X	X
THEA 201	Theatre Practicum	1	ND:FA	X	X
THEA 270	Stagecraft	1	ND:FA	X	X

Rev. 6/8/15

*HPER 210 may be used to fulfill the Wellness requirement for AAS, Diploma or Certificate programs.

ACADEMIC AND COLLEGE POLICIES AND PROCEDURES

The North Dakota State College of Science is committed to the principle that the affairs of the college shall be conducted in an orderly fashion to ensure the well-being of students and other constituent groups in pursuit of learning and academic achievement. This section contains complete and/or introductory statements for key policies and procedures necessary for the administration of learning and academic programming. It also contains information on where to locate complete and/or other relevant policies and procedures.

The *NDSCS Guide to Student Rights and Responsibilities* is a comprehensive guide to many of the official academic and college policies and procedures related to student rights and responsibilities of importance to NDSCS students, faculty, staff and administrators. Please refer to it for complete copies of these policies and procedures. It also includes procedures for addressing student sanctions, judicial actions and student complaint, appeal and grievance issues.

Copies of the *NDSCS Guide to Student Rights and Responsibilities* are available at the Customer Service Desk located in the Student Center and Residential Life office in Riley Hall, the Enrollment Services office in Haverty Hall and the Academic Dean's offices. It is also posted on the NDSCS website at www.ndscs.edu/Student-Rights.

The NDSCS Policy and Procedures Crosswalk located at the end of this section is provided as a reference guide to assist in locating key policies and procedures found in the *NDSCS Guide to Student Rights and Responsibilities*, the *NDSCS Catalog* and other campus publications.

College Code of Conduct Policies and Standards for Students

The North Dakota State College of Science is committed to the principle that the affairs of the college shall be conducted in an orderly fashion. Accordingly, NDSCS expects each student will abide by civil laws and college regulations. In order to be an effective citizen, every student has the responsibility to observe and maintain a code of personal behavior and social relationships which will contribute to his or her own welfare, educational experience and to the total educational effectiveness of the college. Rules and regulations exist so that persons living and working together may pursue individual goals effectively.

The following guidelines exemplify acceptable conduct for students attending NDSCS:

- **Appearance.** Personal cleanliness is expected at all times;
- **Attitude.** Students should develop a positive attitude regarding college life and educational objectives;
- **Attendance.** Attendance at scheduled classes, college events and extracurricular activities is a vital part of educational development; and
- **Application.** Good moral values, integrity, dependability and other high standards of conduct should be applied to daily living patterns in order to become a worthy and respected student at NDSCS and a citizen of the community.

Basic Regulations of Conduct

The policies and standards for students at the North Dakota State College of Science are considered to be a minimal code of behavior for students whose individual and collective goal is the pursuit of excellence in their chosen areas. NDSCS believes most students are rational, intelligent beings with an adult concept of the law who can conduct their daily lives within the spirit as well as the letter of the law.

The following conduct, being incompatible with the purposes of an academic community, is prohibited for all NDSCS students and shall constitute cause for discipline and may lead to disciplinary sanctions:

1. The use of, or threat to use, force or violence or verbally or physically threatening, abusive, intimidating, or harassing behavior, except when lawfully permissible.
2. Interference by force, threat or duress with the lawful freedom of movement of persons or vehicles on the college premises.
3. The intentional disruption of operations of the college, including but not limited to classes, convocations, housing facilities, lectures, meetings, recruiting interviews and social events, on or off the premises.
4. Any act prohibited by local, state or federal law that occurs on or off college premises that may have a negative impact on the campus community.
5. Willful damage, destruction, defacement, theft or misappropriation of equipment or property belonging to, in the possession of or on the premises occupied by the college.
6. Furnishing false or misleading information to any college official, on admission, registration, student ID or any other forms, or altering college records.
7. Making an accusation, that is intentionally false or is made with reckless disregard for the truth, against any member of the college community.
8. The repeated use of obscene or abusive language in a classroom, meeting room, or public area of the college where such usage is beyond the bounds of generally accepted good taste and which, if occurring in a class, is not significantly related to the subject matter.
9. Failure to discharge a just financial obligation to the college.
10. Failure to possess a valid student ID card.
11. Possession of keys to a college building by unauthorized persons. Duplication of keys issued to a student is prohibited.
12. Any act of unlawful discrimination based on race, creed, color, national origin, religion, sex, disability, age, sexual orientation or status with regard to marriage or public assistance or any act of retaliation against any person who has made a complaint about such discrimination.
13. Disorderly, lewd or indecent conduct.
14. Any act of harassment or bullying whether verbal, physical or of a sexual nature that has the effect of creating an intimidating, offensive or hostile environment.
15. Acts of academic dishonesty, including but not limited to cheating, plagiarism, falsifying research data or results or assisting others to do the same.
16. Willfully destroying, damaging, tampering with, altering, stealing, misappropriating or using without permission any college program or file.
17. Acts of hazing. Hazing is defined as any method of initiation into or affiliation with the college community, a student organization, a sports team, an academic association or other group engaged in by an individual that intentionally or recklessly endangers another individual.
18. The illegal use or possession of intoxicating liquors, alcoholic beverages, alcohol containers, and non-prescribed drugs.
19. Failure to conform to any applicable Board of Higher Education or institution policies or directives; or conduct that interferes with efficient administration of the college.

20. Willful incitement of persons to commit any of the acts herein prohibited.

It is assumed any student who enrolls at NDSCS is aware of the above expectations and responsibilities, and he or she will always abide by those realistic standards of achievement and citizenship that are conducive to self-growth and to the growth of the college.

Additional regulations, policies, and procedures are included in the *NDSCS Guide to Student Rights and Responsibilities*. All new and current students should become well acquainted with the regulations regarding student academic and behavioral codes of conduct at NDSCS.

Disciplinary Sanctions

Individual students who are found in violation of NDSCS policy may be subject to one or more of the sanctions, dependent upon the severity of the offense and the existence or absence of prior violations.

Please see the *NDSCS Guide to Student Rights and Responsibilities* for a complete copy of the Disciplinary Sanctions and College Judicial Committee Processes and Procedures.

Student Alcohol/Drug Policy

The North Dakota State College of Science in accordance with North Dakota State Board of Higher Education Policy 918, prohibits the possession, sale, dispensation, display, possession of alcoholic containers, empty or full, use or consumption of alcoholic beverages and/or drugs (including marijuana) upon land or in buildings owned by the Board or its institutions. The exceptions to this policy are (1) if the NDSCS president gives written permission prior to an event or (2) a physician prescribes medication for specific individual use, subject to North Dakota Law.

Students may also be subject to on campus sanctions for off campus alcohol/drug related behavior.

Parents or guardians of students under the age of 21 may be contacted by an NDSCS administrator following alcohol and/or other drug related policy violations.

Please see the *NDSCS Guide to Student Rights and Responsibilities* for a complete copy of the NDSCS Student Alcohol/Drug Policy and sanctions, and www.NDSCS.edu/Alcohol-Drug/Policies for more information.

Tobacco Free Campus Policy

NDSCS prohibits the use of tobacco on campus property at all times. This prohibition includes indoors, outdoors, college vehicles and/or personal vehicles while on campus. This policy applies to all employees, students and visitors.

Tobacco usage includes all tobacco products, including but not limited to: cigarettes, cigars, pipes, e-cigarettes, chewing tobacco, snuff, smokeless pouches and other forms of loose-leaf tobacco.

Please see the *NDSCS Guide to Student Rights and Responsibilities* for a complete copy of the NDSCS Tobacco Free Campus Policy and sanctions.

Weapon Policy

The NDSCS Police Department offers free, secured storage for hunting weapons to students and employees who possess a valid hunting license or weapons used for participation in academic courses offered for credit and are actively registered in an academic course requiring such weapon.

1. Ammunition will not be stored.

2. Only legal hunting weapons (Defined by the North Dakota Century Code) or weapons used for participation in academic programs offered for credit are eligible for storage.
3. Individuals must contact the NDSCS Police Department at least one hour in advance to arrange the release of their weapon.
4. The NDSCS Police Department will publish a fall and spring semester schedule for this service.

The campus judicial officer or their designee will determine student sanctions for violations of this policy that may include fines, eviction from NDSCS housing, suspension, expulsion, or other actions.

Possession of an unauthorized weapon in or on college property, including personal vehicles will result in disciplinary action up to and including expulsion (student) or termination (employee).

Concealed weapons permits are not valid on NDSCS property or at sanctioned events.

Please see the *NDSCS Guide to Student Rights and Responsibilities* for a complete copy of the NDSCS Weapon Policy and sanctions.

Diversity Statement and Policy

The campus community consists of students, faculty, staff and administrators. It is our belief that all community members have a responsibility, individually and collectively, to create a positive living environment that is respectful, supportive and inclusive of all people. All community members must share in the commitment to provide equal opportunity for all individuals regardless of, and including but not limited to age, race, national origin, mental or physical ability, physical appearance, gender, sexual orientation, disabilities, religious affiliation and economic or perceived social status.

Please see the *NDSCS Guide to Student Rights and Responsibilities* for a complete copy of the Diversity Statement and Policy.

Harassment

The North Dakota State College of Science prohibits harassment based on gender, race, color, religion, national origin, age, disability, sexual orientation or protected activity (such as reporting alleged harassment or providing information related to a grievance).

Harassment (based on an individual's membership in one or more of the groups identified above) is defined, for purposes of this statement, as unwelcome verbal or physical behavior which has the intent or effect of unreasonably interfering with the individual's employment or academic endeavors or creating a hostile, intimidating or offensive environment. Harassment may include (but is not limited to) jokes, derogatory comments, pictures and/or direct physical advances.

Student Sexual Harassment Policy and Procedures

North Dakota State College of Sciences strives to create a campus community free from interpersonal abuse including sexual misconduct. NDSCS commits its resources to the following threefold process: 1) to provide crisis intervention for victims, 2) to provide a disciplinary response for alleged offenders, and 3) to educate and promote discussion on interpersonal abuse and violence.

Please visit www.NDSCS.edu/Title9 to review more information regarding sexual misconduct, prevention and reporting and to view the full policy regarding sexual misconduct and Title IX compliance.

Sexual Assault Policy

North Dakota State College of Science is committed to creating a campus community free from interpersonal abuse, including sexual assault. NDSCS pledges its resources to the following two-fold process:

1. to provide crisis intervention and judicial response for alleged victims and alleged offenders; and
2. to educate and promote discussion on interpersonal abuse and violence.

Please see the *NDSCS Guide to Student Rights and Responsibilities* for a complete copy of the Sexual Assault Policy.

Attendance Policy

General

Regular attendance, promptness and participation in classes, laboratories and/or shops is expected of each student.

If a student must be absent for an extenuating circumstance, such must be communicated to the instructor(s). Individual departments and/or instructors may develop attendance policies to meet specific program or course needs. Refer to the *NDSCS Catalog*, student handbook and/or course syllabi for specific requirements.

It is the responsibility of the instructor to enforce the attendance policy as specified in the course syllabi, student handbook and/or *NDSCS Catalog*. The instructor shall refer to the department chair and/or Division Dean's office any case of absenteeism that might require special attention.

An online student who does not submit class work for 10 consecutive calendar days may be dropped from the course. Efforts to contact inactive students are attempted as soon as each semester begins; however, if there is no response from the student and inactivity continues, an administrative drop will be enacted.

The following action may be taken regarding irregular attendance:

1. Administrative drop from a course or program;
2. Course grade may be lowered;
3. Termination of financial aid assistance;
4. Cancellation of registration;
5. Restriction from extra-curricular activities; or
6. Any other judgments deemed necessary.

Attendance Policy for Technologies and Services Division

Attendance is critical to success in college, just as it is to future success at work. NDSCS wants students to succeed, and past experience has dictated that chances of success are best when a student makes every effort to attend class.

Attendance is especially critical in technology programs at NDSCS because learning environments are specialized. Because of the special equipment and facilities needed to provide students with a quality education, it is often impossible to make up work missed due to absences from class.

Therefore, the Technologies and Services Division has instituted a division attendance policy that applies to all courses offered by the division. The policy is as follows:

1. Any student absent more than 10 percent of a course's total contact hours automatically will have one letter grade deducted from his or her current grade;
2. Any student absent more than 14 percent of a course's total contact hours will have an additional letter grade deducted from his or her current course grade; or
3. Any student absent more than 18 percent of a course's total contact hours will be dropped from the course if that rate is reached before the last day to drop classes. If the 18 percent absence rate is reached after the drop date, the student will receive an "F."

Excused absences are allowed only for the following circumstances:

- a) Serious illness verified by a doctor's statement or the campus nurse;
- b) Participation in school-sponsored activities which are documented on official college field trip forms;
- c) Mandatory military duty (verified by the campus Veteran Certifying Official); or
- d) Verified family emergencies (verified by the division academic counselor).

Inclement winter weather that does not result in classes being canceled, but still provides hazardous driving conditions for commuters in certain areas, will be dealt with on a case-by-case basis;

Individual departments within the division have the option to impose stricter attendance policies than the above. The division policy sets a minimum standard for the departments to follow or adjust; or

As always, students are to be referred to an academic counselor after three consecutive absences.

Students receiving sanctions as a result of this policy can file a written appeal with an academic counselor. The appeal will be reviewed by the student's advisor, the appropriate department chair (or his or her designee), the academic counselor and the division dean.

North Dakota University System Computer and Network Usage Policy

NDSCS computing and networking resources are provided to support the academic, instructional, outreach and administrative objectives of the college. These resources are provided to accomplish tasks related to the individual's role within the North Dakota University System. Authorized users are: (1) current faculty, staff and students of NDSCS and the North Dakota University System; and (2) other individuals or organizations specifically authorized by NDSCS or the North Dakota University System.

Use of campus technology services for political purposes is prohibited (see section 39-01-04 of the ND Century Code). Use for private gain is prohibited. Other personal use not related to job duties or academic pursuits is prohibited, unless such use is incidental to job duties or limited in time and scope, and such use does not: (1) interfere with NDSCS or University System operation of information technologies or electronic mail services; (2) burden NDSCS or the University System with incremental costs; or (3) interfere with the user's obligations to NDSCS or the University System.

Please see the *NDSCS Guide to Student Rights and Responsibilities* for a complete copy of the North Dakota University System Computer and Network Usage Policy and related sanctions.

Consumer Information

The U.S. Department of Education has mandated that schools must provide currently enrolled students and/or prospective students a list of the information that must be disclosed with instructions for obtaining the full disclosure. The list must be provided annually. The schools are required to list all information that must be disclosed, briefly describe the disclosure information, and explain how students may obtain the disclosure information. Schools must promptly make the information available to any student upon request.

Please see the *NDSCS Guide to Student Rights and Responsibilities* for a complete copy of the NDSCS statement regarding the disclosure of U.S. Department of Education mandated Consumer Information.

Student Complaints and Grievances

General

A complaint or grievance exists when an enrolled student is dissatisfied with a decision or an aspect of his or her college experience over which the student has no control and on which remedial action is desired. A grievance may also include an apparent violation of equal opportunity laws, regulations, fair grading practices or behavioral concerns.

If a student feels unfairly treated, or has a complaint, the student shall first discuss it with the faculty member, department chair, staff member, director, student within the area or with the person with whom the perceived unfair treatment occurred. It may be a case of misunderstanding which can be resolved by thorough discussion.

Resolving Student Complaints or Grievances

Initially, the student, or complainant, who is considering submitting a complaint or grievance, should attempt to resolve the concern directly with the appropriate department chair, supervisor, faculty member, staff member or student. If the complainant is not satisfied, or is unwilling to address the issue at the individual or departmental level, the complainant should contact the dean's or associate vice president's office with administrative responsibility for the department or individual involved. These individuals may be able to provide assistance in resolving the issue in an informal manner at the individual or department level. If informal resolution is not successful or is deemed unrealistic, the dean will inform the complainant of the formal grievance process. As requested by the student, the dean's offices will provide the complainant with information needed to initiate and complete this process.

Filing a Student Grievance

Step 1. Students wishing to file a formal grievance shall do so to the dean with administrative responsibility for the department or individual involved by submitting the grievance in writing using the student complaint form, or other document approved by the dean. The grievance shall be submitted within five working days of the departmental decision or determination by the dean that informal resolution is not possible.

Step 2. The dean, either alone or in consultation with appropriate faculty, staff and students, will initiate the resolution process by investigating the complaint. An alternate resolution or decision will be reached by the dean within 10 working days of receipt of the grievance and communicated to the complainant in writing. If there is no appeal, the decision of the dean is final.

Filing an appeal

If the complainant is not satisfied with the resolution or decision, a written appeal may be submitted to the vice president for academic and student affairs within five working days of the dean's decision. The appeal must reasonably establish that

1. the established procedures were not properly followed; or
2. an adequate opportunity to present evidence was not allowed; or
3. the evidence was not substantial enough to justify the decision or resolution.

The vice president shall assemble a Student Grievance Committee within 10 working days of receipt of the written appeal. The Student Grievance Committee shall be composed of two students designated by the Student Senate, two faculty members designated by the Faculty Senate and the vice president for academic and student affairs. A prejudiced member may be removed or may voluntarily withdraw from the committee if the situation warrants such action.

The vice president shall inform the complainant and Student Grievance Committee of the specific time and place of the meeting. The committee shall review the written appeal provided by the

complainant and the record made by the dean, and reach a decision based upon these documents. The committee may, in its sole discretion, receive additional testimony or other evidence and make that information part of its record. Upon reaching a decision, the vice president shall, if possible, orally communicate the committee's decision to the student followed by a written statement within two days. If there is no appeal, the decision of the Student Grievance Committee is final. The complainant may appeal the decision within 10 working days to the president.

All students have the right to present grievances in accordance to the steps outlined in this policy and are assured freedom from discrimination, coercion, restraint or reprisal in presenting grievances.

All references to working days shall be actual days that college offices are open.

Distance Learning Student Complaints and Grievances Process for Out-of-State Students

The North Dakota State College of Science desires to resolve student grievances, complaints and concerns in an expeditious, fair and amicable manner. Students residing outside of the State of North Dakota while attending NDSCS who desire to resolve a grievance should follow the college's Student Complaints and Grievances procedure as found in the *NDSCS Guide to Student Rights and Responsibilities* and the *NDSCS Catalog*. However, if an issue cannot be resolved internally, you may file a complaint with your state. The Student Grievance Contact Information for Individual States provides phone numbers, emails and/or links to state education agencies. North Dakota State College of Science is accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools.

Complaints to the North Dakota University System Office

The North Dakota State Board of Higher Education has delegated to North Dakota University System (NDUS) college and university officials authority and responsibility to resolve student and other complaints. Absent applicable law or policy establishing another remedy, the first step in resolving student or other complaints or grievances is to attempt to resolve the matter directly with the administration of the involved institution under established institution complaint or grievance procedures. Every NDUS institution is required to establish, publish, and enforce policies related to redress of complaints and grievances. With limited exceptions, a student or other person who contacts the NDUS office regarding complaints regarding NDUS institutions will be referred to college or university officials responsible for resolving those matters.

With the exception of reporting fraud, waste or abuse as noted in NDUS Procedure 513, the NDUS does not review anonymous complaints or matters that are or have been in litigation. Further, matters concerning an individual's grades or examination results are the prerogative of the college/university faculty.

Please see NDUS Procedure 513 at www.ndus.edu/makers/procedures/ndus for a complete copy of this information.

NDSCS POLICY AND PROCEDURES CROSSWALK

There are additional NDSCS policies and procedures that pertain to students and are too numerous to include in this guide. Students may find information relevant to these policies and procedures at the locations noted below. NDSCS students are responsible for fully understanding and following the content of NDSCS policies and procedures.

Student Policies and Procedures	NDSCS Catalog	NDSCS Guide to Student Rights and Responsibilities	www.NDSCS.edu	Residence Life and Dining Services License/Contract
Academic Program Description and Requirements	x		x	
Academic Adding/Dropping Classes	x		x	
Academic Attendance Policy	x		x	
Academic Audit of Courses	x		x	
Academic Challenge Exams	x		x	
Academic Course Descriptions	x		x	
Academic Credit for Life and Work Experience	x		x	
Academic Grading System	x		x	
Academic Integrity Expectations	x	x	x	
Academic Transfer	x		x	
Academic Warning, Probation, Suspension & Re-admission	x		x	
Academic Withdrawal from College	x		x	
Accessibility Support Services	x	x	x	x
Accreditations	x		x	
Admissions Requirements and Procedures	x		x	
Alcohol/Drug Policy and Sanctions for Students	x	x	x	x
Assessment and Course Placement	x		x	
Basic Regulations of Conduct	x	x	x	
Behavioral Intervention Team			x	
Campus Security Report			x	
Child Care Center Availability	x		x	
Clery Act Report (Security Report)			x	
College Disciplinary Sanctions		x	x	
College Judicial Committee Appeal Process		x	x	
College Judicial Committee Process and Procedures		x	x	
Computer and Network Usage Policy	x	x	x	
Consumer Information	x	x	x	
Copyright Guidelines			x	
Crime Report			x	
Criminal Background Check Process	x	x	x	
Dining Services Policies, Procedures & Expectations	x	x	x	x
Directory Information	x	x	x	
Distance Education Procedures			x	
Diversity Statement and Policy	x	x	x	
Due Process (Suspension/Expulsion)			x	
Emergency Notification		x	x	x
Equal Opportunity Policy	x	x	x	
Family Educational Rights and Privacy Act (FERPA)	x	x	x	
Fees and Payments - Business Office	x		x	
Financial Aid Eligibility and Reinstatement	x	x	x	
Financial Aid HEOA Drug Regulation Notice and Policy		x	x	

Student Policies and Procedures	NDSCS Catalog	NDSCS Guide to Student Rights and Responsibilities	www.NDSCS.edu	Residence Life and Dining Services License/Contract
Financial Aid Preferred Lender Arrangements			x	
Financial Aid Process	x		x	
Financial Obligation Agreement			x	
Fire Safety Report (Crime Report)			x	
FLEXtime Courses	x		x	
General Education Transfer Policy/Agreement	x		x	
Graduation Requirements and Procedure	x		x	
Harassment Statement	x	x	x	
Immunization Record Requirements			x	x
Library Services and Policies	x		x	
Mailroom Policies and Procedures	x		x	x
Missing Persons Policy - Campus/Residence Life		x	x	x
Nondiscrimination Policy	x	x	x	
Notifind - Emergency Notification System		x	x	
Parking on Campus Policy	x		x	
Personal Emergency Procedure Policy		x	x	
Program Guarantee	x		x	
Public/Open Records Policy			x	
Quality Pledge/Program Guarantee	x		x	
Refund Schedule	x		x	
Reporting a Crime		x	x	
Residential Life Policies, Procedures & Expectations	x	x	x	x
Security Policy		x	x	
Service Animals at NDSCS		x	x	
Sexual Assault Policy	x	x	x	
Social Media Guidelines		x	x	
Solicitation, Distribution and Posting Policy			x	
Student Alcohol/Drug Disciplinary Sanctions in Classrooms, Labs, Shops		x	x	
Student Alcohol/Drug Policy and Sanctions	x	x	x	
Student Club/Organization Recognition Process			x	
Student Complaints and Grievances Process	x	x	x	
Student Eligibility to Participate in Activities		x	x	
Student Health and Counseling Services	x		x	x
Student Rights/Responsibilities	x	x	x	
Student Senate and Club/Organization Guidelines			x	
Student Sexual Harassment Policy and Procedures	x	x	x	
Testing Center Policy and Procedures	x		x	
Textbook Information			x	
Title IX Policy and Procedures			x	
Tobacco Free Environment Policy	x	x	x	x
Use of College Property Policy			x	
Use of NDSCS Name, Logo and Trademark			x	
Weapon Policy	x	x	x	
Wildcat Card Terms and Conditions			x	

DISTANCE EDUCATION

General Information

Distance Education at NDSCS utilizes technology and innovative delivery methods to reach students who are unable, for whatever reason, to make use of the complete college environment on the Wahpeton campus.

Distance Education students tend to be those who are place-bound, older than average or looking at new career options. NDSCS serves their needs through internet-based programming, classes taught via interactive video network (IVN) and courses taught at NDSCS-Fargo and other sites in the region.

NDSCS-Fargo

NDSCS-Fargo* is where businesses, college and high school students get ahead. Our customized and open-enrollment training programs make employees more efficient, effective and productive. NDSCS students can earn certificates and associate's degrees in multiple disciplines, from practical nursing to welding. For high school students, we provide a lead-in to a successful college career through advanced high school and college-level courses.

NDSCS provides on-site delivery of the following academic options at NDSCS-Fargo:

- Advanced Emergency Medical Technician (AEMT) (certificate)**
(*Pending Final Approval*)
- Business Management – Business Pro Curriculum Options
 - Sales (certificate)
 - Management/Supervision (certificate)
 - Entrepreneurship (certificate)
 - Finance (certificate)
- Community Paramedic (certificate)** (*Pending Final Approval*)
- Dialysis Technician (certificate) (*Pending Final Approval*)
- Emergency Medical Technician (certificate)**
- Business Management – General Business Management (A.A.S. degree)
- Information Technology Support (certificate)
- Information Systems Administrator (A.A.S. degree)
- IT Forensics (certificate)
- Liberal Arts (A.A. degree)
- Liberal Arts – Criminal Justice - Transfer (A.A. degree)
- Microelectronics Technology (A.A.S. degree)
- Mobile Application Developer (certificate)
- Nanoscience Technology (A.A.S. degree)
- Paramedic Technology (certificate, A.A.S. degree)**
- Practical Nursing (A.A.S. degree)
- Technical Studies (certificate, diploma and A.A.S. degree)
- Web Design (certificate)
- Web Developer (A.A.S. degree)
- Welding Technology (certificate, A.A.S. degree)

NDSCS-Fargo also offers the Pathway Program, which is a collaborative program between North Dakota State University and North Dakota State College of Science that prepares students for the academic rigors of college-level coursework. Students not fully admitted to NDSU may be invited to participate in the Pathway Program. This program is structured so students can enroll in academic readiness courses and a limited number of general education classes at NDSU and NDSCS-Fargo, located adjacent to the NDSU campus. Pathway students have access to all student services and activities at NDSU. Please contact the Admissions office at NDSU for additional information.

*NDSCS-Fargo is located at 1305 19th Avenue North in Fargo, just north of the FargoDome and one mile east of Hector International Airport and Interstate 29. This classroom facility includes a test center, computer labs, science labs and general classrooms. NDSCS-Fargo does not provide the option for housing or food contracts. The NDSCS-Fargo telephone number is 701-231-6900. More information can be found at www.NDSCS.edu.

**NDSCS partners with Sanford Health EMS Education/ F-M Ambulance Service to offer Paramedic (EMT) Technology degrees. Both certificate and A.A.S. degrees are available.

See the Academic Programs section of the *NDSCS Catalog* for more information on NDSCS-Fargo based academic options.

Online Options

NDSCS offers several academic emphases that can be completed entirely by internet-based delivery.

- Architectural Drafting and Estimating Technology (A.A.S. degree)
- Business Management – Business Technology Management (A.A.S. degree) (third-year option)
- Health Information Technician (A.A.S. degree)
- Health Information – Medical Coding (certificate)
- Information and Communications Technology – Mobile Application Developer (certificate)
- Information and Communications Technology – Web Design (certificate)
- Information and Communications Technology – Web Developer (A.A.S. degree)
- Liberal Arts (A.A. degree)
- Pharmacy Technician (certificate, A.A.S. degree)
(some classes have face-to-face components)
- Technical Studies (certificate, diploma, A.A.S. degree)

For more information on these academic options, please see the *NDSCS Catalog* or visit the website at www.NDSCS.edu.

For additional information about online programs and courses, co-/prerequisites, course descriptions, technical requirements or college services, visit www.NDSCS.edu or call the Distance Education office at 1-800-342-4325, ext. 3-2347.

Registering for Online Courses

Registration can be completed entirely online by logging into CampusConnection at www.NDSCS.edu. Students having any problems registering should call the Distance Education office at 1-800-342-4325, ext. 3-2347.

Tuition and Fees for Online Courses

Rates for online courses are slightly different than tuition and fees assessed on campus. NDSCS charges one flat rate of \$190 per credit hour (for the 2015-2016 academic year). This online rate applies to both in-state and out-of-state students. Books and supplies, which vary by course, are not included in the per-credit rate. Additional course and program fees may also apply.

Buying Textbooks

Most online courses use at least one textbook and some courses use additional resources which may require an access code. The required books may be purchased by calling the NDSCS Bookstore at 1-800-342-4325, ext. 3-2239, or going to www.NDSCSBookstore.com.

Attendance Policy

See the Policies and Procedures section of the *NDSCS Catalog*.

State Authorization for Out-of-State Students

State authorization requirements vary from state to state. To determine if NDSCS is authorized to offer courses in a particular state, please go to www.NDSCS.edu/Online and click on Out-of-state Students.

Early Entry (Dual Credit)

In 1997, the North Dakota Legislature passed a law allowing high school juniors and seniors to take college classes for both college and high school credit simultaneously. In 2009, this was expanded to include tenth grade high school students. Early Entry (Dual Credit) provides high school students with a more challenging curriculum option and the ability to earn both high school and college credit for a course completed while a high school student. Early Entry (Dual Credit) students can complete courses on their high school campus, on the NDSCS Wahpeton campus, NDSCS-Fargo, online or through ITV/IVN classes. Early Entry (Dual Credit) classes are coordinated through the Distance Education office.

Early College Program

The Early College Program is a unique approach, based on the principle that academic rigor, combined with the opportunity to save time and money, is a powerful motivator for certain students to work hard and meet serious intellectual challenges. The Early College Program blends high school and college in a rigorous yet supportive program, compressing the time it takes to complete the first two years of college. Students receive both high school and college credit for the early college courses completed in grades 10, 11 and 12. Courses can be taught by the high school faculty, college faculty, via face to face, ITV/IVN or online. Students who participate in the Early College Program will get a “jump start” on their college education.

Institutional Registration in Other States

Selected states may require registration by various government entities within their state. Such states often require disclosure of the status within their state. Following is a required statement by the State of MN: “North Dakota State College of Science is a public institution registered as a private institution with the Minnesota Office of Higher Education pursuant to Minnesota Statutes, sections 136A.61 to 136A.71. Registration is not an endorsement of the institution. Credits earned at the institution may not transfer to all other institutions.”

COLLEGE OUTREACH, RELATED STUDY and TrainND SOUTHEAST

General Information

The College Outreach Division includes the departments of Related Study and TrainND. The division provides apprenticeship correspondent study and incumbent worker training, enhancing business and individual performance and productivity.

College Outreach Division
North Dakota State College of Science
800 North Sixth Street
Wahpeton, ND 58076-0002
1-800-342-4325, ext. 3-2206 or 701-671-2206
www.NDSCS.edu

Related Study Program

The primary purpose of the related study program is to offer related study courses by the correspondence method to the “isolated” indentured apprentices and the “on-the-job” trainees who are not able to attend classroom training sessions because: travel distance is too great; no classes for their trade are offered at a time when they could attend; or no classes are available. Contact College Outreach for more information.

NDSCS-Fargo

NDSCS-Fargo has multiple roles regarding credit and non-credit offerings. Their role as related to non-credit is primarily dedicated to existing employees, helping businesses prepare employees for today’s high paced technological workplace. Through state-of-the-art facilities, experienced trainers and high quality training materials, NDSCS-Fargo is committed to helping businesses achieve their training goals. Contact College Outreach for more information.

NDSCS-Fargo
Skills and Technology Training Center
1305 19th Avenue North
Fargo, ND 58102
701-231-6915

* Also linked from www.NDSCS.edu and www.trainND.com

TrainND Southeast

As part of the North Dakota Workforce Training System, TrainND Southeast is committed to providing businesses and industries in our 15-county area with the most competitive workforce in the nation. This goal is accomplished through customized training, state-of-the-art facilities or enrolling employees in our workshops, seminars and classes. Tailored or customized employee training is available at the awareness level, skill building level and mastery level. Types of training available include: computer, technical, employee development and organization training.

The primary office is located within College Outreach at NDSCS with regional offices in Fargo, N.D., at NDSCS-Fargo and Oakes. Workforce Training can be reached through the NDSCS website, www.NDSCS.edu/Training will provide comprehensive contact information for the entire statewide system. Contact College Outreach for more information.

The North Dakota Workforce Training System provides responsive, accessible and flexible delivery of innovative world-class employee training.

STUDENT SERVICES

Library Resources

The vision of the library staff is to assist our customers in fulfilling their potential in an atmosphere of excellence through the continuously evolving collections of information and services of the library. All members of the NDSCS communities are welcome to use both the extensive collections of in-house resources as well as the online resources and services. Library cards are provided free to the NDSCS community, for fee to local community members and complementary to a selection of local colleges. Complete information is available at www.NDSCS.edu/Library or by calling the Service Desk at 1-800-342-4325, Ext. 3-2618 or direct, 701-671-2618.

In-house Resources

- Librarians and Library Staff – Assistance is available to guide students in locating materials, answering questions, assisting with research and otherwise supporting academic work. The library is open every day but Saturday and help is available by phone and email. Staff will help anyone use the resources from home as well as in the building.
- Physical Collection – Using our connections to the Online Dakota Information Network (ODIN), patrons can search for over 120,000 library books, periodicals and audio-visual materials. All are welcome to use any materials by coming to the library and those eligible for a library card may take home materials for outside use.
- Reserve Materials – Some materials may be placed for in-library use only; the faculty member who makes these arrangements determines by whom and when such materials can be used.
- InterLibrary Loan – Library staff can arrange to borrow books and obtain copies of periodical articles from other libraries. Ask at the Service Desk for details.
- Computers, printers, copiers, fax machine and scanner are available in the library. Copier and fax machine have a small charge for use.
- The college network is available through wireless access to the college community who bring in their laptop computers.
- Group and study rooms – Available on a first come, first served basis; all are provided with TVs and DVD/VHS players. A conference room may be reserved.

Online Resources

- Library Databases – Access to thousands of articles from magazines, journals and newspapers are provided free of charge through the Mildred Johnson Library and ND State Library purchases of databases. Online access is provided throughout campus and also to anyone who can use an Internet browser on any computer by using their library barcode and password on the Student ID or Mildred Johnson library card.
- Films On Demand – Access to an extensive collection of films and videos is available through streaming to a computer. Passwords are provided to the college community either from an instructor or from library staff. A library card is required to obtain the password.
- NDSCSLibrary2Go – This newest service from Overdrive provides downloads to audiobooks and ebooks on a checkout basis. A library card is required.
- Research Guides – Our Research Guides provide connections to materials related to several different programs on campus, the research process and other helps that a student may use to improve their skills in writing papers and projects.

Library Services

- Instruction – Class sessions may be set up by instructors for particular areas of their curriculum. A library staff member works with the instructor for a session, which will support the research problem that the class is developing or may give a general session on library services that are available.
- Distance Learning – All materials in the Mildred Johnson Library are intended for use by all students, whether in person or by remote access. Students may request mail delivery of many materials and access is available to the online resources from any Internet browser. Set-up of the library card and account are required in advance.
- Reference and Research Assistance – Staff members will work with any individual to provide assistance in locating the correct materials or the answers to their questions, although extensive research must be carried out by the individual. Phone, email and face-to-face assistance are possible.

Student Success Center

The Student Success Center is a one-stop place for students to go for assistance or concerns with a variety of academic resources to support our students as they work to achieve their academic goals.

Accessibility Services

Accessibility Services office provides access to accommodations based on a student's documented disability. Individuals with physical disabilities, hearing or visual impairments, speech or language impairments, learning disabilities (i.e. dyslexia, ADD/ADHD) or other health-related impairments may be eligible for accommodations.

To receive services, a student with a disability must contact the accessibility support office coordinator to:

- Self-disclose his or her disability;
- Fill out the Application for Services and Release of Information forms;
- Provide appropriate documentation regarding his or her disability; and
- Request services and/or accommodations.

The accessibility coordinator will determine eligibility for accommodations and send an eligibility notice to students. If a student with a disability visits campus prior to enrolling, contact the accessibility coordinator to schedule an appointment. The accessibility services coordinator works with the Academic Services Center, counseling services, housing, dining services and instructors to ensure equal access to academic programs and student life.

Academic Guidance and Support

- Provide guidance in choosing a major and/or career path
- Help with planning a class schedule and course registration
- Provide current information about course requirements (prerequisites, assessment exams, and deadlines)
- Follow-up and support students needing/requesting assistance or are struggling academically
- Refer students to additional campus and community services

Career Services

- Assistance with creating connections with employers
- Annual Career Fair (for all NDSCS students, 200+ employers visit campus)
- Help with job search skills (mock interviews, resume writing, etc.)

- Facilitation of Cooperative Education program
- Exclusive access to online job-posting site

Career Exploration and Counseling

Assist students with exploring occupations and selecting an academic program that best fits with their strengths and abilities.

Developmental Education

Reading/Writing/Math Science Academic Services Center

(ASC) Courses

The ASC courses are designed to develop skills in the above areas. Students will be placed in these required courses based on Compass and/or ACT or other approved placement scores.

ESL/ELL ASC Courses

These ASC courses are designed to develop language and speaking skills. Students will be placed in these courses based on need and placement scores.

FLEXtime

These courses are individually scheduled and self-paced courses designed to provide an opportunity for students to take college courses during hours that will not conflict with family or work schedules.

Orientation

An orientation session for new and transfer students is required at the beginning of the first semester so that students may become acquainted with services and programs at NDSCS. Information about the required orientation activities, specific to your program and/or delivery method, will be sent prior to the first semester you are enrolled. This is an addition to orientation activities that were conducted during the new student registration process.

Test Center

The following services are offered at the test center: Proctored testing for on campus, off campus and online students; Compass Placement testing; ACT, SAT, GED, DAT and WorkKeys testing.

Tutoring

- Free tutoring to all NDSCS students
- Individual and small group study sessions
- Tutoring requests are not guaranteed and are based on student need, ability to find qualified tutors and scheduling considerations

Wahpeton

Tutoring is located in the Student Success Center in Old Main. Requests can be made for areas not currently offered by contacting the academic support coordinator at 701-671-2443. Students wishing to gain employment as a tutor should contact the academic support coordinator.

Fargo

Tutoring is located in Room 147A. Requests can be made for areas not currently offered by contacting the tutoring coordinator at 701-231-6925. Students wishing to gain employment as a tutor should contact the tutoring coordinator.

Online

SMARTHINKING provides live, web-based tutoring in a variety of subjects. This service supplements our existing academic support services by offering real-time online tutoring and homework help for core courses and skills up to 24 hours a day, seven days a week. Students can access SMARTHINKING through their NDSCS online account.

TutorND offers FREE online tutoring and academic resources. NDSCS students can get help from a tutor in major subjects like math, science, social studies, English or even assistance with their

job search. This service can be accessed using your Student ID card after it has been activated by the NDSCS Library circulation desk in Wahpeton. Online or Fargo students may obtain a library card from the Library by sending a request to ndscs.library@ndscs.edu or calling 701-671-2611.

Veterans Assistance

- Complete VA Benefit Certification process
- Provide tuition assistance information

Student Activities, Organizations and Volunteer Opportunities

Students are encouraged to participate in campus activities outside the classroom. Such participation develops personal qualities in a way that cannot be accomplished in the classroom. Activities are of such a variety that every student should be able to select an activity or two that has appeal. A list of clubs and organizations can be found at www.NDSCS.edu/Clubs.

Athletics

- **Intercollegiate Athletics** – Intercollegiate athletic competition for women includes volleyball, softball and basketball. Intercollegiate competition for men includes football and basketball. An assortment of facilities are available for both indoor and outdoor competition.
- **Intramurals** – The intramural program for men and women offers competition in basketball, softball, flag football, volleyball, weightlifting, broomball and racquetball.
- **Open Gym** – The Clair T. Blikre Activities Center offers students many hours of free play and open recreation. Several hours each day are set aside for this purpose. Activities include swimming, racquetball, jogging, weightlifting, basketball and volleyball.

Clubs and Organizations

- **Social Life** – Social life includes movies, dances, seasonal activities, plays, educational speakers, concerts, organization events, department clubs and various other special events. To create a new club, contact Student Senate for a petition to organize.
- **Student Government** – The governing student body is the Student Senate, composed of elected representatives from each division. The Student Senate is the voice of the student body in campus affairs and regulates selected student activities.
- **Campus Activities Board** – Campus activities are selected, organized and funded by the Campus Activities Board, composed of students. These students work collaboratively with other departments and represent the institution. Any student can be elected to the Campus Activities Board. The board accepts new members each semester, as needed. For information about joining, call 701-671-2185.
- **Student Ambassadors** – Serving as a resource and familiar contact for visitors are the NDSCS Student Ambassadors. These students represent various academic areas at NDSCS. For more information about NDSCS Student Ambassadors call 701-671-2258.
- **Media Squad** – Spreading the word about campus events, important information and sometimes even the zaniest of useless knowledge is the NDSCS Media Squad informers. These students are often the faces you see sharing messages that are posted to the NDSCS Student Life facebook page found at www.facebook.com/NDSCSStudentLife. For more information about the Media Squad, please call 701-671-2109.

Spiritual Organizations

- **Churches** – Churches of various denominations are represented in Wahpeton and Breckenridge. All students are welcome to attend the denominations of their choice.
- **Faith Focused On-campus Clubs** – There are a variety of faith-focused clubs on campus which include Campus Crusade for Christ and Fellowship of Christian Athletes.

Fine Arts

- **Concert Band** – Students interested in instrumental music may join the Wildcat Stage Band and the Concert Band. From Concert Band, they may participate in pep band, marching band and various ensembles. Students may join during either the fall or spring semesters. NDSCS has many school instruments that can be borrowed. Credit is awarded.
- **Concert Choir** – Students interested in vocal music may join the Concert Choir and the Wildcat Singers. Various vocal ensembles perform for school functions throughout the year. Students may join during either semester. Credit is awarded.
- **Dramatics** – Students wishing to participate in dramatics may join the drama club. Credit is awarded in dramatics.

Community

- **Volunteer Internship Course (PSYC 290 and 291)**
NDSCS students have the opportunity to volunteer in agencies, organizations, healthcare facilities, and/or educational institutions to gain experience in civic duty, volunteerism, and the assistance of those in need. Students may also volunteer at a career-related site to evaluate and validate their vocational choice. The internship site may be in the Wahpeton-Breckenridge area, or in another community of the student's choice. All NDSCS students are eligible to participate and receive academic credit. Contact the Social and Behavioral Sciences Department Chair at 701-671-2370 for more information.
- **Service Learning Opportunities** – For a full list of regularly updated opportunities in the area to serve the community, visit the "Volunteer Opportunities" page under the Current Students section on the website.

Campus Activities Facilities

Music, Drama and Alumni – Ella Stern and Harry Stern Cultural Center Facilities

The privately-funded Ella Stern and Harry Stern Cultural Center has been designed specifically for the practice, performance and enjoyment of the fine arts. As a part of the full collegiate atmosphere, these music and drama facilities are centrally located on the campus. The 35,000-square-foot building features a 500-seat, semi-circular open theater auditorium using the latest sound and lighting technology. Public performances of college and community music and drama events often draw large audiences from the campus and community.

Athletic and Recreation Facilities – Clair T. Blikre Activities Center (BAC)

The Clair T. Blikre Activities Center houses the Ed Werre Arena, home for men's and women's basketball teams and women's volleyball. Other facilities include an auxiliary gym, dance studio, weight room and wellness center, classrooms, swimming pool, two racquetball courts and an indoor eight-lane track.

Staff offices for intramural, varsity athletics and physical education are also located in the building. Located adjacent to the Blikre Activities Center is the Gayle Miller softball complex and the Frank Vertin football complex along with recreation athletic facilities offering a lighted football field, eight softball diamonds and four practice football fields.

Recreation and intramural athletics are among the most popular activities for students. Varsity athletic teams compete within the National Junior College Athletic Association and qualify for national tournaments through NJCAA Region XIII competition.

Campus Living Facilities

Campus living is available at the NDSCS-Wahpeton campus. NDSCS has six traditional residence halls that offer a variety of supportive and engaging living environments.

The campus apartments and townhomes include options for family, roommates and single student living. Students must meet specific eligibility requirements to live in the campus apartments. Students who transition from renting with a roommate to renting as a single, will assume responsibility for the full rental rate.

Please visit www.NDSCS.edu/ResidenceLife for photos, videos, rates and a detailed list of amenities for each hall and apartment complex.

Campus Community Facilities

Student Center

The Student Center is the community center for NDSCS, hosting the major portion of social activities and numerous recreational activities, in addition to student government and organizations. The facility includes the Student Life/Customer Service Desk, reception and lounge areas, a snack bar, cafeteria, convenience store, a computer lab, TV lounge, meeting rooms, a game room including pool tables, The Alley (a student sponsored venue), NDSCS Campus Police, the Bookstore, a mailbox area and vending machines.

Bookstore

The Bookstore, located on the Wahpeton campus, carries much of what you need for college. They carry textbooks, tools, office supplies, software and a full line of NDSCS gear for you and your family. Textbooks, clothing and gift items may be ordered online at NDSCSBookstore.com. Textbook reservations are available online through the Bookstore website or by phone. Pick-up or mail out services are available.

NDSCS-Fargo students should visit with their advisor or the NDSCS-Fargo programs coordinator about getting books from the Bookstore. There is free delivery of books to Fargo at the beginning of each semester and free pickup for buyback at the end of each semester. Please visit www.NDSCSBookstore.com for more information.

Customer Service Desk

The Customer Service Desk serves as the campus switchboard and information center. Students can seek services such as scanning and faxing. They can check here for lost and found items. The customer service desk also serves as a resource for general information questions for students.

Dining Services – Flickertail Dining Room and Campus Connection

Located in the Student Center on the Wahpeton campus, Dining Services operates two locations: the Flickertail Dining Room (contract dining plans) and the Campus Connection (a quick service-restaurant and convenience store).

Dining Services provides a wide variety of food products and services at an economical cost. The facilities are completely self-funded with the income remaining within NDSCS. Additional information may be found at www.NDSCS.edu/Dining.

NDSCS-Fargo is served by the Wildgrounds Coffee Shop.

Information Technology Services (ITS) Service Desk

The walk-up ITS Service Desk is located in the Student Center Computer Lab near the bookstore in the north end of the building. The Service Desk provides assistance with passwords, email, Internet access and computer viruses. Students can also call the Service Desk at 701-671-3333 (3-3333 on campus).

Mail Center

The Mail Center is located in the Student Center. All full-time students living on the Wahpeton campus are required to have a campus Post Office box. This box may be used to receive personal mail and packages as well as college notices. A Post Office box is assigned when a student enrolls.

The Mail Center also offers UPS, Fed Ex and Spee-Dee.

Student Life

The Student Life office is contained within the Customer Service Desk office and serves as the organizational hub of Student Government and activities.

Campus Parking – NDSCS Campus

Students may park vehicles on campus as long as they observe parking rules, speed limits and other traffic regulations. Students are required to register vehicles with the NDSCS Police Department and obtain a parking permit for a fee. All vehicles must have a parking permit to park in any lots and streets on campus. Parking rules and permit information can be found on the NDSCS website at www.NDSCS.edu/Parking. All questions relating to vehicles and parking should be directed to NDSCS police at 701-671-2233.

Community Child Care Options

- Child Care Aware of North Dakota: www.ndchildcare.org
- Richland County Social Services - will provide a list of licensed providers in Richland County including phone numbers and addresses
- Wilkin County Social Services - will provide a list of licensed providers in Wilkin County including phone numbers and addresses
- Wahpeton Daily News - classifieds

On-Campus Living Policy

Students who have transferred in or completed fewer than 30 credits are **REQUIRED** to live on campus and purchase a qualifying dining plan (160, 225 or 300) unless the student:

- is 21 years of age or older;
- will be enrolled in nine or fewer credit hours during both the fall and spring semesters of the academic year;
- lives with a parent or legal guardian within a 50 mile radius of NDSCS;
- is married or has primary custody of a minor child; or
- has other extenuating circumstances, reviewed on a case-by-case basis.

A request for exemption from the on-campus living policy can be made by completing an Exemption Request form found at www.NDSCS.edu/ResidenceLife. Appropriate supporting documentation must be attached.

Academic Program Matrix

Academic Programs	AA	AS	AAS	ASN	Diploma	Certificate
Agriculture			X			
Animal Science			*			
Crop Production Sales and Technology			*			
Farm Management			*			
Ranch Management			*			
Architectural Drafting and Estimating Technology			X			
Auto Body Repair and Refinishing Technology			X		X	X
Automotive Technology			X		X	X
Automotive Alignment and Brake Technician						*
Automotive Engine Technician						*
Automotive Transmission and Driveline Technician						*
Automotive and Diesel Master Technician			X			
Building Construction Technology			X			
Business Management			X			X
Business Technology Management (third-year option)			*			
General Business Management			*			
Marketing Management			*			
Restaurant Management (third-year option)			*			
<i>Business Management - Business Pro Curriculum Options</i>						X
- Entrepreneurship						X
- Finance						X
- Management/Supervision						X
- Sales						X
Caterpillar Dealer Service Technician			X			
Construction Management Technology			X			
Culinary Arts			X		X	
Chef Training and Management Technology			*		*	
Restaurant Management (third-year option)			*			
Dental Assisting			X			X
Dental Hygiene			X			
Dialysis Technician (<i>pending final approval</i>)						X
Diesel Technology			X		X	
General Diesel			*		*	
Case IH			*			
Komatsu			*			
Electrical Technology			X			
Electrical Construction			*			
Industrial Electrical			*			
Electrical Master Technician (third-year option)			*			
Health Information			X			X
Health Information Technician			*			
Medical Coding						*
Heating, Ventilating, Air Conditioning and Refrigeration Technology			X			X
Information and Communications Technology			X			X
Information Systems Administrator			*			
Information Technology Support						*
IT Forensics						*
Mobile Application Developer						*
Web Design						*
Web Developer			*			
John Deere Tech			X			
Land Surveying and Civil Engineering Technology			X			

Academic Programs	AA	AS	AAS	ASN	Diploma	Certificate
Liberal Arts Transfer Curriculum Plans	X	X				
Agriculture		*				
Biotechnology		*				
Business Administration	*					
Chemistry		*				
Chiropractic		*				
Clinical Laboratory Science		*				
Computer Science		*				
Criminal Justice - Transfer	*					
Dental		*				
Early Childhood Education	*					
Education	*					
Emergency Management	*					
Engineering		*				
General Liberal Arts	*	*				
General Studies		*				
Health, Physical Education and Recreation	*					
Law	*					
Management Information Systems		*				
Mathematics		*				
Medical		*				
Music	*					
Natural Science		*				
Nursing		*				
Optometry		*				
Pharmacy		*				
Physical Science		*				
Psychology	*					
Social Work	*					
Wildlife Management		*				
Mechanical Systems			X			
Microelectronics Technology			X		X	X
Nanoscience Technology			X		X	X
Nursing (also A.S.N. Degree)			X	X		
Practical Nursing			X			
Associate in Science in Nursing (RN) (A.S.N. degree)				X		
Occupational Therapy Assistant			X			
Paramedic (EMT) Technology			X			X
Advanced Emergency Medical Technician (AEMT) (pending final approval)						*
Community Paramedic (pending final approval)						*
Emergency Medical Technician						*
Paramedic Technology			*			*
Pharmacy Technician			X			X
Plumbing						X
Powersports Technology			X		X	X
Precision Machining Technology			X		X	X
Robotics, Automation and Mechatronics Technology			X			
Technical Studies			X		X	X
Journeyworker Track			*			
Welding Technology			X		X	X

X = degree or award
 * = emphasis areas

Animal Science

▶ Contact Information

Craig Zimprich, assistant professor
 craig.a.zimprich@ndscs.edu
 701-671-2249
 Tech Center 45

▶ Delivery Methods

Face-to-Face: Wahpeton

The Agriculture Department mission statement is to “provide a foundation for an entrepreneurial agricultural spirit.”

Its philosophy statement is: “The Agriculture Department provides education for the present and future by incorporating leadership and career development, best management practices in crop and livestock production, mechanics, technology, natural resources, problem solving, internships and communication through a diverse program.”

Students who enroll in the Animal Science option in the Agriculture Department can choose between careers in diversified crop and livestock production, sales of livestock feed and supplies, and employment in a livestock operation. Students will find many challenging courses. These may include: Livestock Production, Feeds and Feeding, Livestock Health Management, Range Management and advanced production and nutrition courses. Hands-on application of learner outcomes will be used whenever possible.

Students will complete an internship relative to their chosen career goal during the summer between their first and second year of instruction.

Green technology is threaded through program outcomes which involve economic, ecological and environmental decision making. Examples include instruction in integrated pest management, precision application of production inputs, soil and water conservation applications, conservation tillage practices, crop rotation strategies, manure management plans, rotational grazing systems, understanding the nitrogen and carbon cycles and crop and livestock diversification.

Course Code	Course Title	Credits
AGEC 141	Introduction to Agribusiness Management (1 Credit/Sem.)	2
AGEC 242	Introduction to Agricultural Management	3
AGEC 244	Introduction to Agricultural Marketing	3
ANSC 114	Introduction to Animal Science	3
ANSC 116	Animal Reproduction	3
ANSC 118	Livestock Health Management	3
ANSC 123	Feeds and Feeding	3
ANSC 220	Livestock Production	3
ANSC 223	Large Ruminant Nutrition	3
ANSC 252	Large Ruminant Production	3
ANSC 236	Introduction to Range Management	2
AGRI 191	First Year Seminar	1
AGRI 291	Second Year Seminar	1
AGRI 197	Internship	3
AGRI 297	Internship	1

Related/General Education Courses

AGRI 135	Applied Mathematics	2
ENGL 110	College Composition I	3
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
COMM 110	Fundamentals of Public Speaking	
FYE 101	Science of Success	1
HPER 210	First Aid and CPR	2
PLSC 110	World Food Crops	3
SOIL 210	Introduction to Soil Science	3
Other electives (with advisor approval)		11
Social and Behavioral Science electives		4
ECON, HIST, POLS, PSYC, SOC, GEOG or CIS/CSCI electives		

Total Required Credits 69

Admission Requirements*

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this program are mathematics, physical science, biology, agricultural education, computer science and English. Courses that develop communication skills are important.

Required minimum placement scores:

ACT Reading – 15 or COMPASS Reading – 70

ACT English – 16 or COMPASS Writing – 38

Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Agriculture department chair at 701-671-2602 or the Arts, Science and Business Division Dean’s Office at 701-671-2108 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Agriculture with an emphasis in Animal Science.

Revised: June 2015

Crop Production Sales and Technology

► Contact Information

Brad Tews, department chair
brad.tews@ndscs.edu
701-671-2602
Tech Center 44

► Delivery Methods

Face-to-Face: Wahpeton

The Agriculture Department mission statement is to “provide a foundation for an entrepreneurial agricultural spirit.”

Its philosophy statement is: “The Agriculture Department provides education for the present and future by incorporating leadership and career development, best management practices in crop and livestock production, mechanics, technology, natural resources, problem solving, internships and communication through a diverse program.”

The Crop Production Sales and Technology curriculum is designed to provide instruction in crop production, soils, marketing, field crop scouting and business management. Cutting edge agricultural technology is infused into this curriculum wherever possible.

Students enrolled in this option will complete a 400-hour paid internship at a career related training facility during the summer between their first and second year of instruction.

Students graduating in Crop Production Sales and Technology are prepared to find employment in seed sales, fertilizer sales, plant protection, crop consulting or other agronomic careers. The regional employment outlook continues to be very positive for graduates.

Green technology is threaded through program outcomes which involve economic, ecological and environmental decision making. Examples include instruction in integrated pest management, precision application of production inputs, soil and water conservation applications, conservation tillage practices, crop rotation strategies, manure management plans, rotational grazing systems, understanding the nitrogen and carbon cycles, and crop and livestock diversification.

Course Code	Course Title	Credits
AGEC 141	Introduction to Agribusiness Management (1 cr./term)	2
AGEC 231	Professional Selling Skills	3
AGEC 236	Sales Presentation Techniques	2
AGEC 242	Introduction to Agricultural Management	3
AGEC 244	Introduction to Agricultural Marketing	3
AGRI 275	Introduction to Precision Agriculture	3
AGRI 191	First Year Seminar	1
AGRI 291	Second Year Seminar	1
AGRI 197	Internship	3
AGRI 297	Internship	1
PLSC 115	Crop Technologies	2
PLSC 138	Agronomic Technologies	3
PLSC 224	Introduction to Crop Protection	3
PLSC 225	Principles of Crop Production	3
PLSC 235	Field Scouting Techniques	3
PLSC 235L	Field Scouting Techniques Lab	1
SOIL 222	Soil Fertility and Fertilizers	3

Related/General Education Courses

AGRI 135	Applied Mathematics	2
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
FYE 101	Science of Success	1
HPER 210	First Aid and CPR	2
PLSC 110	World Food Crops	3
SOIL 210	Introduction to Soil Science	3
ANSC electives (with advisor approval)		3
Other electives (with advisor approval)		5
Social and Behavioral Science electives		4
ECON, HIST, POLS, PSYC, SOC, GEOG or CIS/CSCI electives		
Total Required Credits		69

Admission Requirements*

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this program are mathematics, physical science, biology, agricultural education, computer science, and English. Courses that develop communication skills are important.

Required minimum placement scores:

ACT Reading – 15 or COMPASS Reading – 70

ACT English – 16 or COMPASS Writing – 38

Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Agriculture department chair at 701-671-2602 or the Arts, Science and Business Division Dean's Office at 701-671-2108 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Agriculture with an emphasis in Crop Production.

Revised: June 2015

Farm Management

► Contact Information

Sheldon Schmiess, assistant professor
sheldon.schmiess@ndscs.edu
701-671-2273
Tech Center 44

► Delivery Methods

Face-to-Face: Wahpeton

The Agriculture Department mission statement is to “provide a foundation for an entrepreneurial agricultural spirit.”

Its philosophy statement is: “The Agriculture Department provides education for the present and future by incorporating leadership and career development, best management practices in crop and livestock production, mechanics, technology, natural resources, problem solving, internships and communication through a diverse program.”

The Farm Management curriculum is designed to provide the student returning to the family farm or entering a career in production agriculture with the management and production skills necessary to be successful.

This curriculum focuses on farm management, record keeping and other agricultural topics such as precision agriculture, ag marketing, crop production, computerized records and soil fertility.

Courses will incorporate up to date technology enabling students to acquire the skills necessary to manage and operate today’s farms. Students will keep records on their farms while completing their internship with home visits from instructors.

Classes conclude in mid-April each year so students are out of school for spring work both years. The majority of the program credits will transfer for students who decide to continue their studies for a bachelor’s degree.

Green technology is threaded through program outcomes, which involve economic, ecological and environmental decision-making. Examples include instruction in integrated pest management, precision application of production inputs, soil and water conservation applications, conservation tillage practices, crop rotation strategies, manure management plans, rotational grazing systems, understanding the nitrogen and carbon cycles, and crop and livestock diversification.

Course Code	Course Title	Credits
AGEC 145	Farm Records	3
AGEC 242	Introduction to Agricultural Management	3
AGEC 244	Introduction to Agricultural Marketing	3
AGEC 246	Introduction to Agricultural Finance	3
AGEC 248	Introduction to Risk Management and Insurance	3
AGRI 110	Rural Safety	2
AGRI 191	First Year Seminar	1
AGRI 291	Second Year Seminar	1
AGEC 247	Ag Land Resource & Acquisition	2
AGRI 197	Internship	4
AGRI 297	Internship	2
PLSC 225	Principles of Crop Production	3
SOIL 222	Soil Fertility and Fertilizers	3
	Animal Science elective	3
	Other electives (with advisor approval)	8

Related/General Education Courses

AGRI 135	Applied Mathematics	2
ECAL 132	Agricultural Wiring	2
ENGL 110	College Composition I	3
FYE 101	Science of Success	1
HPER 210	First Aid and CPR	2
MFGT 120	Basic Welding I	1
MFGT 121	Basic Welding II	1
PLSC 110	World Food Crops	3
SOIL 210	Introduction to Soil Science	3
	English/Communication elective (choose one)	3
	ENGL 105 Technical Communications	
	ENGL 120 College Composition II	
	ENGL 125 Introduction to Professional Writing	
	COMM 110 Fundamentals of Public Speaking	
	Social and Behavioral Science electives	4
	ECON, HIST, POLS, PSYC, SOC, GEOG or CIS/CSCI electives	
Total Required Credits		69

Admission Requirements*

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this program are mathematics, physical science, biology, agricultural education, computer sciences and English. Courses that develop communication skills are important.

Required minimum placement scores:

ACT Reading – 15 or COMPASS Reading – 70

ACT English – 16 or COMPASS Writing – 38

Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Agriculture department chair at 701-671-2602 or the Arts, Science and Business Division Dean’s Office at 701-671-2108 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Agriculture with an emphasis in Farm Management.

Revised: June 2015

Ranch Management

► Contact Information

Sheldon Schmiess, assistant professor
sheldon.schmiess@ndscs.edu
701-671-2273
Tech Center 44

► Delivery Methods

Face-to-Face: Wahpeton

The Agriculture Department mission statement is to “provide a foundation for an entrepreneurial agricultural spirit.”

Its philosophy statement is: “The Agriculture Department provides education for the present and future by incorporating leadership and career development, best management practices in crop and livestock production, mechanics, technology, natural resources, problem solving, internships and communication through a diverse program.”

The Ranch Management curriculum is designed to provide the student returning to the ranch or diversified livestock operation with the management and production skills necessary to be successful.

This curriculum focuses on ranch management, record keeping and other agricultural topics such as livestock production, feeds and feeding, livestock health, management, and marketing, crop production, and computerized records.

Courses will incorporate up to date technology enabling students to acquire the skills necessary to manage and operate today’s farms and ranches. Students will keep records on their farms while completing their internship with home visits from instructors.

Classes conclude in mid-April each year so students are out of school for spring work both years. The majority of the program credits will transfer for students who decide to continue their studies for a bachelor’s degree.

Green technology is threaded through program outcomes, which involve economic, ecological and environmental decision-making. Examples include instruction in integrated pest management, precision application of production inputs, soil and water conservation applications, conservation tillage practices, crop rotation strategies, manure management plans, rotational grazing systems, understanding the nitrogen and carbon cycles, and crop and livestock diversification.

Course Code	Course Title	Credits
AGEC 145	Farm Records	3
AGEC 242	Introduction to Agricultural Management	3
AGEC 244	Introduction to Agricultural Marketing	3
AGEC 246	Introduction to Agricultural Finance	3
AGEC 247	Ag Land Resource and Acquisition	2
AGEC 248	Introduction to Risk Management and Insurance	3
AGRI 110	Rural Safety	2
AGRI 191	First Year Seminar	1
AGRI 291	Second Year Seminar	1
AGRI 197	Internship	4
AGRI 297	Internship	2
ANSC 114	Introduction to Animal Science	3
ANSC 123	Feeds and Feeding	3
ANSC 220	Livestock Production	3
ANSC 236	Introduction to Range Management	2
Other electives (with advisor approval)		10

Related/General Education Courses

AGRI 135	Applied Mathematics	2
ENGL 110	College Composition I	3
FYE 101	Science of Success	1
HPER 210	First Aid and CPR	2
PLSC 110	World Food Crops	3
SOIL 210	Introduction to Soil Science	3
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
COMM 110	Fundamentals of Public Speaking	
Social and Behavioral Science electives		4
ECON, HIST, POLS, PSYC, SOC, GEOG or CIS/CSCI electives		
Total Required Credits		69

Admission Requirements*

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this program are mathematics, physical science, biology, agricultural education, computer sciences and English. Courses that develop communication skills are important.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 70
- ACT English – 16 or COMPASS Writing – 38
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Agriculture department chair at 701-671-2602 or the Arts, Science and Business Division Dean’s Office at 701-671-2108 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Agriculture with an emphasis in Ranch Management.

Revised: June 2015

Architectural Drafting and Estimating Technology

► Contact Information

Lisa Hauck, program coordinator
 lisa.a.hauck@ndscs.edu
 701-671-2339
 Horton Hall 237

► Delivery Methods

Face-to-Face: Wahpeton
 Online: All Classes
 Combination

The Architectural Drafting and Estimating Technology program is designed to prepare students for work as technicians in construction-related industries, allowing graduates to work in a broad range of jobs, such as drafting, revit modeler, estimating, sales, construction management and project coordination. General contractors, subcontractors, home builders, architectural and engineering firms, material suppliers, manufacturers and building centers all have specific areas of employment for graduates of this program.

Students are provided with classroom and laboratory experiences emphasizing computer-aided drafting (CAD) and Building Information Modeling (BIM) utilizing revit software for residential and commercial buildings, estimating, structural design, mechanical and electrical systems for buildings, presentation techniques and remodeling. Students will take courses in communications, technical mathematics and business, which will provide them with career-advancing skills.

While students are fully employable upon completion of this program, some may wish to return for an additional year and earn a second major in Construction Management Technology. This program also provides transfer options to four-year colleges and universities in related fields.

Green and/or sustainable construction is specifically covered in multiple courses. Leadership in Energy and Environmental Design (LEED) certification is covered extensively. Green/sustainable construction is also discussed across the rest of the curriculum.

NOTE: This program requires the purchase of a notebook computer. The cost will be approximately \$1,500. For further information, call Lisa Hauck the program coordinator, at 701-671-2339.

Delivery Option

The program is available in a traditional campus environment and online. Students who intend to take the entire program online should contact the College because there are minor differences in courses and sequencing. For further information, contact Paul Lekang, paul.lekang@ndscs.edu, online program coordinator, at 1-800-342-4325, ext. 3-2592.

Course Code	Course Title	Credits
ARCT 101	Architectural Drafting I	3
ARCT 102	Architectural Drafting II	5
ARCT 110	Graphic Communications	3
ARCT 121	Building Information Modeling	2
ARCT 133	Residential Methods and Materials	3
ARCT 134	Structural Wood Design	2
ARCT 144	Construction Estimating I	3
ARCT 201	Architectural Drafting III	4
ARCT 202	Architectural Drafting IV	4
ARCT 212	Architectural Presentation Techniques	3
ARCT 223	Renovation and Design	3
ARCT 231	Commercial Methods and Materials	2
ARCT 234	Structural Steel Detailing I	3
ARCT 241	Construction Estimating II	3
ARCT 242	Construction Estimating III	3
ARCT 120	AutoCAD for Architecture	3
or CAD 120	Introduction to AutoCAD (3)	

Business/Technical elective (choose one)

ARCT 297	Cooperative Education (2)	
BADM 240	Sales (3)	
BCT 222	Construction Safety (2)	
BUSN 120	Fundamentals of Business (3)	
CMT 130	Green Building Fundamentals (2)	
CMT 251	Construction Documents and Specifications (3)	
CMT 252	Project Management (3)	
CMT 253	Construction Scheduling (3)	

Related/General Education Courses

ENGL 110	College Composition I	3
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
COMM 110	Fundamentals of Public Speaking	
MATH 130	Technical Mathematics	2
MATH 132	Technical Algebra I	2
MATH 136	Technical Trigonometry	2
Wellness elective(s)		2
FYE 101	Science of Success	1
Social and Behavioral Science electives		4
ECON, HIST, POLS, PSYC, SOC, GEOG or CIS/CSCI electives.		

Total Required Credits 70

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- ACT Math – 17 or COMPASS Math – 21 (algebra domain)
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Technologies and Services Dean's Office at 701-671-2244 or the Construction and Design Technology department chair at 701-671-2116 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Architectural Drafting and Estimating Technology.

Revised: June 2015

Auto Body Repair and Refinishing Technology (Certificate)

► Contact Information

James Erdahl, department chair
james.erdahl@ndscs.edu
701-671-2163
Ballweber Hall 207

► Delivery Methods

Face-to-Face: Wahpeton

The Auto Body Repair and Refinishing Technology curriculum is designed to provide students with the education and training to enter the collision repair industry. The comprehensive program enables students to gain entry-level employment and with additional field experience, they can enjoy lifetime employment in this lucrative industry. Most graduates start in collision repair shops; however, graduates find opportunities in related fields such as equipment and material representatives, insurance adjusters, industry technical trainers and shop managers.

I-CAR, an industry non-profit national training organization, estimates the collision industry is short 50,000 technicians in the United States at this time, providing a wonderful opportunity for graduates.

Students are trained hands-on with the latest equipment found in the industry. All learning takes place primarily on live customer projects, with some classroom activities. Often students will bring their own vehicles to repair adding to their overall experience.

The program is NATEF Certified and accredited through PPG Partners in Education™, an exclusive partnership that assures high standards for curriculum and faculty training.

Course Code	Course Title	Credits
ABOD 101	Basic Auto Body Repair Techniques Lab	4
ABOD 102	Basic Auto Body Production Lab I	4
ABOD 103	Basic Auto Body Production Lab II	4
ABOD 104	Basic Auto Body Production Lab III	4
ABOD 113	Basic Auto Body Repair Techniques I	2
ABOD 115	Basic Auto Body Repair Techniques II	2
ABOD 116	Refinishing Equipment/Plastic Repair	2
ABOD 117	Refinishing Materials	2
ABOD 120	Applied Welding	3

Related/General Education Courses

CIS 101	Computer Literacy	2
MATH 120	Basic Mathematics I	2
FYE 101	Science of Success	1
PSYC 100	Human Relations in Organizations	2
Total Required Credits		34

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Technologies and Services Dean's Office at 701-671-2244 or the Auto Body department chair at 701-671-2163 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded a certificate in Auto Body and Refinishing Technology.

Revised: June 2015

Auto Body Repair and Refinishing Technology

► Contact Information

James Erdahl, department chair
james.erdahl@ndscs.edu
701-671-2163
Ballweber Hall 207

► Delivery Methods

Face-to-Face: Wahpeton

The Auto Body Repair and Refinishing Technology curriculum is designed to provide students with the education and training to enter the collision repair industry. The comprehensive program enables students to gain entry-level employment and with additional field experience, they can enjoy lifetime employment in this lucrative industry. Most graduates start in collision repair shops; however, graduates find opportunities in related fields such as equipment and material representatives, insurance adjusters, industry technical trainers and shop managers.

I-CAR, an industry non-profit national training organization, estimates the collision industry is short 50,000 technicians in the United States at this time, providing a wonderful opportunity for graduates. There are usually four employers to each available graduate each year.

Students are trained hands-on with the latest equipment found in the industry. This includes computer estimating, computer measuring systems, computer paint mixing, wheel alignment, refinishing, spot repair and custom painting. All learning takes place primarily on live customer projects, with some classroom activities. Often students will bring their own vehicles to repair adding to their overall experience.

The program is NATEF Certified and accredited through PPG Partners in Education™, an exclusive partnership that assures high standards for curriculum and faculty training.

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

ACT Reading – 15 or COMPASS Reading – 61

ACT English – 15 or COMPASS Writing – 26

Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Technologies and Services Dean's Office at 701-671-2244 or the Auto Body department chair at 701-671-2163 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded a diploma or Associate in Applied Science degree in Auto Body and Refinishing Technology.

Course Code	Course Title	Credits
Diploma and Associate in Applied Science		
ABOD 101	Basic Auto Body Repair Techniques Lab	4
ABOD 102	Basic Auto Body Production Lab I	4
ABOD 103	Basic Auto Body Production Lab II	4
ABOD 104	Basic Auto Body Production Lab III	4
ABOD 113	Basic Auto Body Repair Techniques I	2
ABOD 115	Basic Auto Body Repair Techniques II	2
ABOD 116	Refinishing Equipment/Plastic Repair	2
ABOD 117	Refinishing Materials	2
ABOD 120	Applied Welding	3
ABOD 200	Mechanical/Electrical Components	3
ABOD 201	Wheel Alignment and Measuring Systems	2
ABOD 202	Frame/Body and Structural Repairs	2
ABOD 203	Advanced Damage Analysis Lab I	8
ABOD 204	Estimating and Job Costing	2
ABOD 205	Aftermarket Accessories and Body Shop Planning	2
ABOD 206	Advanced Damage Analysis Lab II	8

Related/General Education Courses for Diploma

ENGL 105	Technical Communications	3
or ENGL 110	College Composition I (3)	
Mathematics and/or Science		3
Social and Behavioral Sciences, Humanities, History and/or Computer		4
Wellness elective		1
General Education (elective)		1
FYE 101	Science of Success	1
Total Required Credits for Diploma		67

A student must complete all required Auto Body courses and all general education courses as listed above.

Related/General Education Courses for Associate in Applied Science

ENGL 110	College Composition I	3
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
COMM 110	Fundamentals of Public Speaking	
Mathematics and/or Science		3
Social and Behavioral Sciences, Humanities, History and/or Computer		4
Wellness electives		2
General Education (electives)		3
FYE 101	Science of Success	1
Total Required Credits for Associate in Applied Science		73

A student must complete all required Auto Body courses and all general education courses as listed above.

Automotive Technology

▶ Contact Information

Luke Kasowski, department chair
luke.kasowski@ndscs.edu
701-671-2544
Schuett Hall 130

▶ Delivery Methods

Face-to-Face: Wahpeton

The Automotive Technology curriculum prepares students for employment in the vast and broad automotive technology industry.

Students are provided with experiences emphasizing diagnostic and repair skills with extensive shop time. Students test, diagnose, adjust and repair automotive systems including automatic transmissions, brakes, driveability, electrical and electronics, engine repair, heating and air conditioning, suspension and steering, and manual drivetrain and axles. Students' abilities in communications, human relations and other aspects of general education are also enhanced through coursework.

Graduates gain employment as automotive repair technicians in automotive dealerships, independent automotive shops or automotive service centers. Graduates may choose to specialize in automatic transmissions, brakes, driveability, electrical and electronics, engine repair, heating and air conditioning, suspension and steering, or manual drivetrain and axles. Many graduates have advanced from automotive repair technicians to team leaders, service writers, service managers, owners and automotive vocational teachers.

Students interested in pursuing additional education may return for advanced automotive classes or return for one additional year and earn a second major, Auto and Diesel Master Technician. Students interested in pursuing an advanced degree will find the Associate in Applied Science degree in Automotive Technology provides transfer options to four-year colleges and universities in related fields.

Going Green: With growing concern about environmental pollution, the automotive industry has responded by developing alternative drive and fuel systems such as electric, hybrid. Automotive Technicians will have to have knowledge of these systems to be a viable employee in this field.

The program is master certified by the National Institute for Automotive Service Excellence (ASE).

NOTE: This program requires a laptop computer. For further information please contact Peter Mandt at 701-671-2442.

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Technologies and Services Dean's Office at 701-671-2244 or the Automotive Technology department chair at 701-671-2544 for strategies to meet the admission requirements.

*Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.

Award

Upon successful completion of the required courses, students will be awarded a diploma or Associate in Applied Science degree in Automotive Technology.

Course Code	Course Title	Credits
Diploma and Associate in Applied Science		
AUTO 103	Power Trains/Brakes	3
AUTO 143	Steering, Suspension, and Wheel Alignment	3
AUTO 165	Automotive Electrical and Electronics	5
AUTO 188	Driveability Procedures I	5
AUTO 206	Chassis Repair/Body Electrical Theory	3
AUTO 207	Chassis Repair/Body Electrical Lab	4
AUTO 216	Engine Repair Theory	3
AUTO 217	Engine Repair Lab	4
AUTO 226	Automatic Transmission/Transaxles Theory	3
AUTO 227	Automatic Transmission/Transaxles Lab	4
AUTO 285	Light Duty Diesel	2
AUTO 286	Driveability Procedures Theory	3
AUTO 287	Driveability Procedures Lab	4
MFGT 110	Industrial Shop Practices	2
TECH 109	Air Conditioning	2

Related/General Education Courses

Diploma		
FYE 101	Science of Success	1
ENGL 105	Technical Communications	3
CIS 101	Computer Literacy	2
PSYC 100	Human Relations in Organizations	2
MATH 120	Basic Mathematics I	2
MATH 123	Basic Mathematics II	2
	Wellness Elective	1

Associate in Applied Science

FYE 101	Science of Success	1
ENGL 110	College Composition I	3
	English/Communication elective (choose one)	3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
COMM 110	Fundamentals of Public Speaking	
CIS 101	Computer Literacy	2
PSYC 100	Human Relations in Organizations	2
MATH 120	Basic Mathematics I	2
MATH 123	Basic Mathematics II	2
MATH 125	Basic Mathematics III	2
	Wellness electives	2
AUTO 297	Cooperative Education - 324 hours	2

Total Required Credits for Diploma	63
Total Required Credits for Associate in Applied Science	71

Specialty Options: (Fifth Semester)

AUTO 209	Advanced Chassis Repair and Body Electrical	4-8
AUTO 219	Advanced Engine Rebuilding	4-8
AUTO 229	Advanced Automatic Transmissions/Automatic Transaxles	4-8
AUTO 289	Electronics and Computer Systems	4-8

NOTE: Students may enter this program at the beginning of any semester. A student may be able to start in the middle of a semester; for information please contact the Automotive Department.

Revised: June 2015

Automotive Alignment and Brake Technician

► Contact Information

Luke Kasowski, department chair
 luke.kasowski@ndscs.edu
 701-671-2544
 Schuett Hall 130

► Delivery Methods

Face-to-Face: Wahpeton

The Automotive Alignment and Brake Technician option provides students with opportunities to enter the vast automotive repair field as an alignment and brake technician. Graduates may choose to work in an automotive dealership, independent automotive shop, car manufacturer or automotive service center.

Students are provided with experiences emphasizing diagnostic and repair skills with extensive shop time. Students test, diagnose, adjust and repair automotive systems including brakes, electrical and electronics, heating and air conditioning, suspension and steering, and manual drive train and axles.

Graduates gain employment as automotive repair technicians in automotive dealerships, independent automotive shops, or national automotive service centers.

While students are fully employable upon completion of this program, some students continue their education by returning for the complete automotive technology program.

The program is master certified by the National Institute for Automotive Service Excellence.

NOTE: This program requires a laptop computer. For further information please contact Peter Mandt at 701-671-2442.

Course Code	Course Title	Credits
AUTO 103	Power Trains/Brakes	3
AUTO 143	Steering, Suspension and Wheel Alignment	3
AUTO 165	Automotive Electrical and Electronics	5
AUTO 206	Chassis Repair/Body Electrical Theory	3
AUTO 207	Chassis Repair/Body Electrical Lab	4
MFGT 110	Industrial Shop Practices	2
TECH 109	Air Conditioning	2
AUTO 188	Driveability Procedures I	5

Related/General Education Courses

ENGL 105	Technical Communications	3
MATH 120	Basic Mathematics I	2
FYE 101	Science of Success	1

Total Required Credits **33**

Specialty Option:

AUTO 209	Advanced Chassis Repair and Body Electrical	7
----------	---	---

NOTE: Students may enter this program at the beginning of any semester. This certificate will take at least three semesters to complete.

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

ACT Reading – 15 or COMPASS Reading – 61

ACT English – 15 or COMPASS Writing – 26

Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Technologies and Services Dean's Office at 701-671-2244 or the Automotive Technology department chair at 701-671-2544 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded a certificate in Automotive Technology with an emphasis in Automotive Alignment and Brake Technician.

Revised: June 2015

Automotive Engine Technician

► Contact Information

Luke Kasowski, department chair
 luke.kasowski@ndscs.edu
 701-671-2544
 Schuett Hall 130

► Delivery Methods

Face-to-Face: Wahpeton

The Automotive Engine Technician option is designed to provide students with opportunities to enter the vast automotive repair field as an automotive engine technician. Graduates work in automotive dealerships, independent automotive shops or automotive service centers.

Students are provided with experiences emphasizing diagnostic and repair skills with extensive shop time. Students test, diagnose, adjust and repair automotive systems including electrical and electronics, perform engine repair, as well as practice the fundamentals in fuel delivery, tune-up and welding.

While students are fully employable upon completion of this program, some may wish to continue their education by returning for the complete automotive technology program.

The program is master certified by the National Institute for Automotive Service Excellence.

NOTE: This program requires a laptop computer. For further information please contact Peter Mandt at 701-671-2442.

Course Code	Course Title	Credits
AUTO 165	Automotive Electrical and Electronics	5
AUTO 188	Driveability Procedures I	5
AUTO 216	Engine Repair Theory	3
AUTO 217	Engine Repair Lab	4
MFGT 110	Industrial Shop Practices	2

Related/General Education Courses

ENGL 105	Technical Communications	3
MATH 120	Basic Mathematics I	2
FYE 101	Science of Success	1
Total Required Credits		25

Specialty Option:

AUTO 219	Advanced Engine Rebuilding	7
----------	----------------------------	---

NOTE: Students may enter this program at the beginning of any semester.

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Technologies and Services Dean's Office at 701-671-2244 or the Automotive Technology department chair at 701-671-2544 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded a certificate in Automotive Technology with an emphasis in Automotive Engine Technician.

Revised: June 2015

Automotive Transmission and Driveline Technician

► Contact Information

Luke Kasowski, department chair
 luke.kasowski@ndscs.edu
 701-671-2544
 Schuett Hall 130

► Delivery Methods

Face-to-Face: Wahpeton

The Automotive Transmission and Driveline Technician curriculum prepares students for employment as Automotive Transmission and Driveline Technicians. Students are provided with experiences emphasizing diagnostic and repair skills with extensive shop time. Students test, diagnose, adjust and repair automotive systems including brakes, basic electronics, suspension and steering, manual drivetrain and axles, and automatic transmissions. Students' abilities in communications and other aspects of general education also will be enhanced through coursework.

Graduates work as automotive transmission and driveline technicians in automotive dealerships, independent automotive shops or automotive service centers.

While students are fully employable upon completion of this program, some may wish to continue their education by returning for the complete automotive technology program.

The program is master certified by the National Institute for Automotive Service Excellence.

NOTE: This program requires a laptop computer. For further information please contact Peter Mandt at 701-671-2442.

Course Code	Course Title	Credits
AUTO 103	Power Trains/Brakes	3
AUTO 143	Steering, Suspension, and Wheel Alignment	3
AUTO 165	Automotive Electrical and Electronics	5
AUTO 206	Chassis Repair/Body Electrical Theory	3
AUTO 207	Chassis Repair/Body Electrical Lab	4
AUTO 226	Automatic Transmission/Transaxle Theory	3
AUTO 227	Automatic Transmission/Transaxle Lab	4
MFGT 110	Industrial Shop Practices	2
TECH 109	Air Conditioning	2

Related/General Education Courses

ENGL 105	Technical Communications	3
MATH 120	Basic Mathematics I	2
FYE 101	Science of Success	1
Total Required Credits		35

Specialty Options:

AUTO 209	Advanced Chassis Repair/Body Electrical	4-8
AUTO 229	Advanced Automatic Transmission/ Automatic Transaxle	4-8

NOTE: Students may enter this program at the beginning of any semester. This certificate will take at least three semesters to complete.

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

ACT Reading – 15 or COMPASS Reading – 61

ACT English – 15 or COMPASS Writing – 26

Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Technologies and Services Dean's Office at 701-671-2244 or the Automotive Technology department chair at 701-671-2544 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded a certificate in Automotive Technology with an emphasis in Automotive Transmission and Driveline Technician.

Revised: June 2015

Automotive and Diesel Master Technician

► Contact Information

Terry Marohl, department chair
 terry.marhol@ndscs.edu
 701-671-2308
 Bisek Hall 111

► Delivery Methods

Face-to-Face: Wahpeton

This is a third-year option developed for students who complete Diesel Technology and want to continue their education and increase their technical and mechanical skills. The dual major will strengthen the marketability of students for employment in diesel, automotive and related fields of business and industry. This curriculum is for students who complete Diesel Technology and then go to Automotive Technology.

The Automotive and Diesel Master Technician program prepares students for employment in the vast and broad diesel and automotive industry. Students are provided with experiences emphasizing diagnostic and repair skills with extensive shop time. Students test, diagnose, adjust and repair all types of drivetrains, engines, hydraulic systems, steering and suspension systems. Students' abilities in communications, human relations, and other aspects of general education also are enhanced through coursework.

Green technology is addressed through changes in emission standards and alternative fuels that will continue to advance changes in this industry.

This practical education will allow graduates to work in dealerships, independent shops or national service centers. Graduates work as automotive technicians, truck technicians, tractor technicians, heavy equipment technicians and other related jobs. Many graduates have advanced from technicians to team leaders, service writers, service managers, owners and vocational teachers.

Students interested in pursuing an advanced degree will find the Associate in Applied Science degree in Automotive Technology provides transfer options to four-year colleges and universities in related fields.

The Automotive Technology program is master certified by the National Institute for Automotive Service Excellence.

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- Or transfer equivalencies will apply as appropriate

Applicants must also have a minimum score of 70% on the Differential Aptitude Test (DAT). For information on the DAT exam, contact the Diesel Technology Department at 701-671-2330.

Applicants not meeting the above requirements are encouraged to visit with the Diesel Technology Department at 701-671-2330 or the Technologies and Services Dean's Office at 701-671-2244 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Automotive and Diesel Master Technician.

Course Code	Course Title	Credits
DTEC 109	Air Conditioning for Diesel Technology	2
DTEC 115	Introduction to Light and Medium Duty Engines	4
DTEC 125	Introduction to Heavy Duty Drive Systems	4
DTEC 155	Electricity for Diesel Technology	4
DTEC 164	Introduction to Mobile Hydraulics	4
DTEC 185	Diesel Fuel Injection Systems	4
DTEC 215	Heavy Duty Diesel Engines	7
DTEC 225	Heavy Duty Drive Systems	7
DTEC 255	Heavy Duty Chassis Electrical Systems	7
DTEC 265	Mobile Hydraulic Systems Diagnostics and Repair	7
DTEC 297	Cooperative Education	2
MFGT 110	Industrial Shop Practices	2

Related/General Education Courses

CIS 101	Computer Literacy	2
ENGL 110	College Composition I	3
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
COMM 110	Fundamentals of Public Speaking	
Wellness elective(s)		2
MATH 120	Basic Mathematics I	2
MATH 123	Basic Mathematics II	2
MATH 125	Basic Mathematics III	2
PSYC 100	Human Relations in Organizations	2
FYE 101	Science of Success	1

Automotive Technology (Minor)

Specific Program Courses

AUTO 206	Chassis Repair/Body Electrical Theory	3
AUTO 207	Chassis Repair/Body Electrical Lab	4
AUTO 216	Engine Repair Theory	3
AUTO 217	Engine Repair Lab	4
AUTO 226	Automotive Transmission/Transaxle Theory	3
AUTO 227	Automotive Transmission/Transaxle Lab	4
AUTO 286	Driveability Procedures Theory	3
AUTO 287	Driveability Procedures Lab	4
Total Required Credits		101

Students in this emphasis will complete the Diesel curriculum prior to taking Automotive Technology.

Revised: June 2015

Building Construction Technology

► Contact Information

Randy Stach, department chair
 randy.stach@ndscs.edu
 701-671-2116
 Horton Hall 240

► Delivery Methods

Face-to-Face: Wahpeton

The Building Construction Technology curriculum prepares students with skills to work in many areas of the construction industry. The program is a unique blend of education and hands-on training that will allow graduates to work for builders, general contractors and subcontractors in residential, industrial and commercial construction. Students develop the skills, knowledge and attitudes necessary to function on the construction site with the potential to advance into supervisory positions within the building industry.

The program provides students with realistic classroom and laboratory experiences emphasizing: wood frame, steel frame, concrete construction, steel erection, assembly of pre-engineered metal building systems, equipment operation, construction safety, interior finishing, print reading and project supervision. In addition, students take courses in communications, human relations, technical mathematics, and computers to help provide them career-advancing skills.

Green and/or sustainable construction is specifically covered in multiple courses with an emphasis on energy efficient buildings and sustainable building materials.

While students are fully employable upon completion of this program, some may wish to continue their education by returning for an additional year and earn a second major in Construction Management Technology.

Course Code	Course Title	Credits
BCT 140	Residential Print Reading	2
ARCT 144	Construction Estimating I	3
BCT 102	Core Curriculum	2
BCT 110	Concrete and Sitework	4
BCT 111	Concrete Theory	2
BCT 115	Introduction to Light Commercial Construction	2
BCT 130	Wood Frame Construction	7
BCT 133	Carpentry Fundamentals	3
BCT 210	Light Commercial Construction	7
BCT 220	Project Supervision	3
BCT 222	Construction Safety	2
BCT 224	Building Layout	2
BCT 230	Interior Finishing for Light Commercial Construction	7
BCT 233	Carpentry Framing and Finishing	3
BCT 240	Commercial Print Reading	3
MFGT 120	Basic Welding I	1
BCT 297	Cooperative Education	2

Related/General Education Courses

ENGL 110	College Composition I	3
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
COMM 110	Fundamentals of Public Speaking	
HPER 210	First Aid and CPR	2
MATH 130	Technical Mathematics	2
MATH 132	Technical Algebra I	2
MATH 136	Technical Trigonometry	2
FYE 101	Science of Success	1
Social and Behavioral Science electives		4
ECON, HIST, POLS, PSYC, SOC, GEOG or CIS/CSCI electives. (NOTE: Maximum of two CIS/CSCI credits may be used for this category).		

Total Required Credits **74**

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- ACT Math – 17 or COMPASS Math – 21 (algebra domain)
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Technologies and Services Dean's Office at 701-671-2244 or the Construction and Design Technology department chair at 701-671-2116 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Building Construction Technology.

Revised: June 2015

Business Technology Management

► Contact Information

Ann Smith, assistant professor
ann.smith@ndscs.edu
701-671-2302
Horton Hall 229

► Delivery Methods

Face-to-Face: Wahpeton
Online: All Classes
Combination

This option is designed as a third-year option for students who have previously completed a technical degree program (Auto Body, Machine Tooling, Plumbing, Welding, etc.). It provides a range of business knowledge and experiences that will integrate well with the skills students have already achieved, preparing them to take on supervisory roles in their employment. Additionally, this option can develop skills needed to own, operate and expand your own business. Students will learn to recognize and act on opportunities to develop an entrepreneurial mindset. The Business Management core taught at NDSCS focuses student learning in the following areas:

- Business Law
- Communication Skills
- Customer Relations
- Economics
- Emotional Intelligence
- Entrepreneurship
- Financial Analysis
- Human Resource Management
- Information Management
- Marketing
- Operations
- Professional Development
- Strategic Management

A faculty advisor will assist students in the development of an appropriate program to meet his/her career goals. Employment opportunities are unlimited, depending upon the individuals' strengths and interests.

In addition to having earned an Associate in Applied Science (A.A.S.) degree, the following courses are required:

Course Code	Course Title	Credits
ACCT 102	Fundamentals of Accounting	3
ACCT 118	Applied Accounting	3
ACCT 215	Business in the Legal Environment	3
BADM 201	Principles of Marketing	3
BADM 202	Principles of Management	3
BADM 240	Sales	3
BADM 281	Organizational Behavior	3
BADM 282	Human Resource Management	3
BUSN 120	Fundamentals of Business	3
BUSN 170	Entrepreneurship	3

Related/General Education Courses

BOTE 108	Business Mathematics	3
COMM 110	Fundamentals of Public Speaking	3

Total Required Credits **36**

(in addition to previously earned A.A.S. degree)

Admission Requirements*

The student must have earned an Associate in Applied Science (A.A.S.) degree from an accredited institution.

Required minimum placement scores:

- ACT Reading – 15; ACT English – 15; ACT Math – 15; Or
- COMPASS Reading – 61; COMPASS Writing – 26; COMPASS Pre-Alg. – 44
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the BADM department chair at 701-671-2172 or the Arts, Science and Business Division Dean's Office at 701-671-2108 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Business Management with an emphasis in Business Technology Management.

Revised: June 2015

General Business Management

▶ Contact Information

Kathy Marquette, associate professor
 kathy.marquette@ndscs.edu
 701-671-2595
 Horton Hall 230

▶ Delivery Methods

Face-to-Face: Wahpeton
 Online: Some Classes
 Combination

Careers in business management are considered backbone careers. Business management is the type of degree that can benefit nearly every career choice a person can make, as most employment will be found through a business enterprise. Earning a degree in business management prepares you for management positions and career paths within companies so that you can move up the corporate ladder. Additionally, a business management degree can give you the skills you need to own, operate and expand your own business. There are many different paths you can take with a business management degree, because this degree allows you to choose a niche or specialty.

The General Business Management core taught at NDSCS focuses student learning in the following areas:

- Business Law
- Communication Skills
- Customer Relations
- Economics
- Emotional Intelligence
- Entrepreneurship
- Financial Analysis
- Human Resource Management
- Information Management
- Marketing
- Operations
- Professional Development
- Strategic Management

Beyond the core focus, the Business Management option will develop additional skills in the areas of Financial Analysis and Financial-Information Management. These skills will prepare students for either career sustaining or specialist careers in a variety of business occupations. Embedded in the program, students will learn to recognize and act on opportunities to develop an entrepreneurial mindset.

A faculty advisor will assist students in the development of an appropriate program to meet his/her career goals. Employment opportunities are unlimited, depending upon the individuals' strengths and interests.

Course Code	Course Title	Credits
BADM 103	*Leadership Techniques	1
BADM 201	Principles of Marketing	3
BADM 202	Principles of Management	3
BADM 234	Customer Service	1
BADM 240	Sales	3
BADM 251	Personal Finance	3
BADM 281	Organizational Behavior	3
BADM 282	Human Resource Management	3
BADM 291	Career Seminar	3
BUSN 120	Fundamentals of Business	3
BUSN 170	Entrepreneurship	3
BUSN 254	Financial Statement Analysis	3
BUSN 282	*Professional Development	1

Related/General Education Courses

ACCT 200	Elements of Accounting I	4
ACCT 201	Elements of Accounting II	4
ACCT 215	Business in the Legal Environment	3
CIS 101	Computer Literacy	2
COMM 110	Fundamentals of Public Speaking	3
ECON 105	Elements of Economics	3
	or ECON 201 Principles of Microeconomics (3)	
	or ECON 202 Principles of Macroeconomics (3)	
ENGL 110	College Composition I	3
ENGL 125	Introduction to Professional Writing	3
	or ENGL 120 College Composition II (3)	
FYE 101	Science of Success	1
	Wellness elective(s)	2
	MATH elective (BOTE 108 or MATH 103)	3
	Electives	3
	<i>Choose 3 credits from the courses listed below.</i>	
BADM 217	Promotion and Advertising (3)	
BADM 230	Marketing Information Analysis (3)	
BADM 244	Sales Seminar (3)	
BUSN 297	Internship/Coop (1-5)	
PHIL 210	Ethics (3)	
PSYC 111	Introduction to Psychology (3)	
SOC 110	Introduction to Sociology (3)	

Total Required Credits **67**

* Includes membership in Collegiate DECA.

Admission Requirements*

The applicants must be high school graduates or equivalent. Work experience and marketing or general business courses are helpful.

Required minimum placement scores:

- ACT Reading – 15; ACT English – 15; ACT Math – 15; Or
- COMPASS Reading – 61; COMPASS Writing – 26; COMPASS Pre-Alg. – 44
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the BADM department chair at 701-671-2172 or the Arts, Science and Business Division Dean's Office at 701-671-2108 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Business Management with an emphasis in General Business Management.

Revised: June 2015

Marketing Management

► Contact Information

Greg Anderson, department chair
 greg.anderson@ndscs.edu
 701-671-2172
 Horton Hall 233

► Delivery Methods

Face-to-Face: Wahpeton
 Face-to-Face: Fargo
 Online: All Classes
 Combination

Careers in business management are considered backbone careers. Business management is the type of degree that can benefit nearly every career choice a person can make as most employment will be found through a business enterprise. Earning a degree in business management prepares you for management positions and career paths within companies so that you can move up the corporate ladder. Additionally, a business management degree can give you the skills you need to own, operate and expand your own business. There are many different paths you can take with a business management degree, because this degree allows you to choose a niche or specialty.

The Marketing Management core taught at NDSCS focuses student learning in the following areas:

- Business Law
- Communication Skills
- Customer Relations
- Economics
- Emotional Intelligence
- Entrepreneurship
- Financial Analysis
- Human Resource Management
- Information Management
- Marketing
- Operations
- Professional Development
- Strategic Management

Beyond the core focus, the Marketing Management option will develop additional skills in the areas of promotion, selling and marketing information management. These skills will prepare students for either career-sustaining or specialist careers in a variety of business occupations. Embedded in the program, students will learn to recognize and act on opportunities to develop an entrepreneurial mindset.

A faculty advisor will assist students in the development of an appropriate program to meet his/her career goals. Employment opportunities are unlimited, depending upon the individuals' strengths and interests.

Admission Requirements*

The applicants must be high school graduates or equivalent. Work experience and marketing or general business courses are helpful.

Required minimum placement scores:

- ACT Reading – 15; ACT English – 15; ACT Math – 15; Or
- COMPASS Reading – 61; COMPASS Writing – 26; COMPASS Pre-Alg. – 44
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the BADM department chair at 701-671-2172 or the Arts, Science and Business Division Dean's Office at 701-671-2108 for strategies to meet the admission requirements.

Course Code	Course Title	Credits
BADM 103	*Leadership Techniques	1
BADM 201	Principles of Marketing	3
BADM 202	Principles of Management	3
BADM 217	Promotion and Advertising	3
BADM 230	Marketing Information Analysis	3
BADM 234	Customer Service	1
BADM 240	Sales	3
BADM 244	Sales Seminar	3
BADM 251	Personal Finance	3
BADM 281	Organizational Behavior	3
BADM 282	Human Resource Management	3
BADM 291	Career Seminar	3
BUSN 120	Fundamentals of Business	3
BUSN 170	Entrepreneurship	3
BUSN 282	*Professional Development	1

Related/General Education Courses

ACCT 102	Fundamentals of Accounting	3
ACCT 118	Applied Accounting	3
ACCT 215	Business in the Legal Environment	3
CIS 101	Computer Literacy	2
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 125	Introduction to Professional Writing	3
or ENGL 120	College Composition II (3)	
FYE 101	Science of Success	1
Wellness elective(s)		2
BOTE 108	Business Mathematics	3
or MATH 103	College Algebra (3)	
Electives		3
<i>Choose 3 credits from the courses listed below.</i>		
BUSN 297	Internship/Coop (1-5)	
BUSN 254	Financial Statement Analysis (3)	
PHIL 210	Ethics (3)	
ECON 105	Elements of Economics (3)	
or ECON 201	Principles of Microeconomics (3)	
or ECON 202	Principles of Macroeconomics (3)	
PSYC 111	Introduction to Psychology (3)	
SOC 110	Introduction to Sociology (3)	
Total Required Credits		68

* Includes membership in Collegiate DECA.

Online completion may require modification of courses. Consult advisor for changes.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Business Management with an emphasis in Marketing Management.

Revised: June 2015

Restaurant Management

► Contact Information

Ann Smith, assistant professor
ann.smith@ndscs.edu
701-671-2302
Horton Hall 229

► Delivery Methods

Face-to-Face: Wahpeton
Online: Some Classes
Combination

This option is designed as a third-year option for students completing the Culinary Arts program. It provides a range of business knowledge and experiences that will integrate well with the skills students have already achieved, preparing them to take on supervisory roles in their employment. Additionally, this option can develop skills needed to own, operate and expand your own business. Students will learn to recognize and act on opportunities to develop an entrepreneurial mindset.

The Business Management core taught at NDS-CS focuses student learning in the following areas:

- Business Law
- Communication Skills
- Customer Relations
- Economics
- Emotional Intelligence
- Entrepreneurship
- Financial Analysis
- Human Resource Management
- Information Management
- Marketing
- Operations
- Professional Development
- Strategic Management

Employment growth in this occupation will be as fast as the average of all occupations. Multiple job openings will also be created as a large number of managers reach their age of retirement or take transfers for other reasons. Since the food preparation industry is only slightly affected by the economy, the occupation offers good job security for candidates.

A faculty advisor will assist students in the development of an appropriate program to meet his/her career goals. Employment opportunities are unlimited, depending upon the individuals' strengths and interests.

In addition to having earned an Associate in Applied Science (A.A.S.) degree in Culinary Arts, the following courses are required:

Course Code	Course Title	Credits
ACCT 215	Business in the Legal Environment	3
BADM 103	*Leadership Techniques	1
BADM 201	Principles of Marketing	3
BADM 217	Promotion and Advertising	3
BADM 234	Customer Service	1
BADM 251	Personal Finance	3
BADM 282	Human Resource Management	3
BADM 291	Career Seminar	3
BUSN 120	Fundamentals of Business	3
BUSN 170	Entrepreneurship	3
BUSN 282	*Professional Development	1
COMM 110	Fundamentals of Public Speaking	3
ECON 105	Elements of Economics	3
	or ECON 201 Principles of Microeconomics (3)	
	or ECON 202 Principles of Macroeconomics (3)	
Electives		3
<i>Choose 3 credits from the courses listed below.</i>		
BADM 202	Principles of Management (3)	
BADM 230	Marketing Information Analysis (3)	
BADM 240	Sales (3)	
BADM 244	Sales Seminar (3)	
BADM 281	Organizational Behavior (3)	
BUSN 254	Financial Statement Analysis (3)	
Total Required Credits		36

(in addition to previously earned A.A.S. degree in Culinary Arts)

* Includes membership in Collegiate DECA.

Admission Requirements*

This course of study is designed as a third-year option. Applicants for this program must have completed an Associate in Applied Science degree in Culinary Arts.

Required minimum placement scores:

- ACT Reading – 15; ACT English – 15; ACT Math – 15; Or
- COMPASS Reading – 61; COMPASS Writing – 26; COMPASS Pre-Alg. – 44
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the BADM department chair at 701-671-2172 or the Arts, Science and Business Division Dean's Office at 701-671-2108 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Business Management with an emphasis in Restaurant Management.

Business Management

• Business Pro Curriculum Options

► Contact Information

Ann Smith, assistant professor
ann.smith@ndscs.edu
701-671-2302
Horton Hall 229

► Delivery Methods

Face-to-Face: Fargo

These four certificate options are delivered as part of a Business Management curriculum option commonly called the “Business Pro Series” which is offered through NDSCS-Fargo. It consists of four independent plans of study in the areas of Entrepreneurship, Finance, Management/Supervision and Sales. Students may choose to complete any of these individual plans of study to earn a certificate in Business Management with an emphasis in that respective area. If students’ progress through all four plans of study satisfactorily, they will need only to complete two credits of wellness electives to earn an Associate in Applied Science degree in Business Management with an emphasis in Marketing Management.

Designed to meet the needs of an adult population, this program is delivered in a hybrid, or blending of, face-to-face and online learning. Meeting evenings once a week and focusing on one class at a time, this cohort style of learning incorporates interaction and networking while still allowing a learner to balance educational goals with a full-time work or family schedule.

As stand-alone certificates, these classes may provide learners with the opportunity to learn and/or enhance their selling and communication skills; to discover their entrepreneurial abilities; to understand their role as a manager/supervisor; or to provide the knowledge needed to analyze the financial workings of an organization. These skills, combined with real-world experience and the numerous leadership opportunities that will be available, will enable the learner to develop into a valuable asset in the business community.

Admission Requirements*

The applicants must be high school graduates or equivalent. Work experience in marketing or general business courses is helpful.

Required minimum placement scores:

- ACT Reading – 15; ACT English – 15; ACT Math – 15; Or
- COMPASS Reading – 61; COMPASS Writing – 26; COMPASS Pre-Alg. – 44
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the BADM department chair at 701-671-2172 or the Arts, Science and Business Division Dean’s Office at 701-671-2108 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses for the Entrepreneurship plan, students will be awarded a certificate in Business Management with an emphasis in Entrepreneurship.

Upon successful completion of the required courses for the **Finance** plan, students will be awarded a certificate in Business Management with an emphasis in Finance.

Upon successful completion of the required courses for the Management/**Supervision** plan, students will be awarded a certificate in Business Management with an emphasis in Management/Supervision.

Entrepreneurship

Course Code	Course Title	Credits
BADM 201	Principles of Marketing	3
BADM 217	Promotion and Advertising	3
BADM 230	Marketing Information Analysis	3
BUSN 170	Entrepreneurship	3

Related/General Education Courses

ENGL 125	Introduction to Professional Writing	3
PHIL 210	Ethics	3

Total Required Credits for Certificate 18

Finance

Course Code	Course Title	Credits
ACCT 200	Elements of Accounting I	4
ACCT 201	Elements of Accounting II	4
ACCT 118	Applied Accounting	3
BUSN 254	Financial Statement Analysis	3

Related/General Education Courses

ECON 202	Principles of Macroeconomics	3
----------	------------------------------	---

Total Required Credits for Certificate 17

Management/Supervision

Course Code	Course Title	Credits
ACCT 215	Business in the Legal Environment	3
BADM 202	Principles of Management	3
BADM 282	Human Resource Management	3

Related/General Education Courses

CSCI 116	Business Use of Computers	4
ENGL 110	College Composition I	3

Total Required Credits for Certificate 16

Sales

Course Code	Course Title	Credits
BADM 234	Customer Service	1
BADM 240	Sales	3
BADM 244	Sales Seminar	3
BUSN 120	Fundamentals of Business	3

Related/General Education Courses

BOTE 108	Business Mathematics	3
COMM 110	Fundamentals of Public Speaking	3

Total Required Credits for Certificate 16

Business Management - Marketing Management emphasis

Completion of Entrepreneurship Certificate	18
Completion of Finance Certificate	16
Completion of Management/Supervision Certificate	16
Completion of Sales Certificate	16
Wellness elective(s)	2
Total Required Credits for A.A.S. Degree	68

Award Cont'd

Upon successful completion of the required courses for the **Sales** plan, students will be awarded a certificate in Business Management with an emphasis in Sales.

Upon successful completion of the required courses for the four plans of study and two credits of wellness electives, students will be awarded an Associate in Applied Science degree in Business Management with an emphasis in Marketing Management.

Revised: June 2015

Caterpillar Dealer Service Technician

Caterpillar Dealer Service Technician

► Contact Information

Rick Hand, program coordinator
rick.hand@ndscs.edu
701-671-2101 Bisek Hall 1152

► Delivery Methods

Face-to-Face: Wahpeton

The Caterpillar Dealer Service Technician program is designed to develop technically competent entry-level service technicians for Caterpillar dealerships regionally and throughout the world.

Students receive up-to-date technical training on Caterpillar equipment and systems through a combination of classroom instruction, hands-on laboratory instruction, and an internship at the participating Caterpillar dealer. Work experience at the dealership is structured to relate to the most recent classroom/lab subjects covered at NDSCS.

Green technology is addressed through changes in emission standards and alternative fuels that will continue to advance changes in this industry.

The Caterpillar Dealer Service Technician program takes five semesters, or approximately 20 months, to complete. The five semesters are divided into 9 terms, each approximately eight weeks in length. Students complete the first, third, fifth, seventh, and ninth terms on campus and the second, fourth, sixth, and eighth terms at a sponsoring Caterpillar dealership.

The Caterpillar Dealer Service Technician program is accredited by the AED Foundation.

Course Code	Course Title	Credits
DCAT 110	Caterpillar Engine Fundamentals	4
DCAT 111	Introduction to Caterpillar Service	2
DCAT 112	Fundamentals of Hydraulics	3
DCAT 113	Caterpillar Fuel Systems	3
DCAT 114	Fundamentals of Electricity	3
DCAT 115	Air Conditioning Fundamentals	3
DCAT 116	Fundamentals of Transmission and Torque Converters	3
DCAT 117	Machine Hydraulic Systems	3
DCAT 150	Internship I	2
DCAT 151	Internship II	2
DCAT 200	Undercarriage/Final Drives	3
DCAT 201	Machine Electronic Systems	3
DCAT 202	Engine Performance	2
DCAT 203	Diagnostic Testing	2
DCAT 204	Machine Specific Systems	3
DCAT 250	Internship III	6
DCAT 251	Internship IV	6
MFGT 110	Industrial Shop Practices	2

Related/General Education Courses

ENGL 110	College Composition I	3
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
COMM 110	Fundamentals of Public Speaking	
Wellness electives		2
MATH 120	Basic Mathematics I	2
MATH 123	Basic Mathematics II	2
MATH 125	Basic Mathematics III	2
FYE 101	Science of Success	1
Social and Behavioral Science electives		4
ECON, HIST, POLS, PSYC, SOC, GEOG or CIS/CSCI electives (NOTE: Maximum of two CIS/CSCI credits may be used for this category)		
Total Required Credits		74

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements. Special requirements include securing a Caterpillar dealership sponsor.

Required minimum placement scores:

ACT Reading – 15 or COMPASS Reading – 61

ACT English – 15 or COMPASS Writing – 26

Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Diesel Technology Department at 701-671-2330 or the Technologies and Services Dean's Office at 701-671-2244 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Caterpillar Dealer Service Technician.

Revised: June 2015

Construction Management Technology

► Contact Information

Randy Stach, department chair
randy.stach@ndscs.edu
701-671-2116
Horton Hall 240

► Delivery Methods

Face-to-Face: Wahpeton
Some Classes
Available Online

This program is designed to provide individuals with the knowledge and skills needed in the construction management field. Classroom and laboratory experiences emphasize commercial, residential and civil related construction. While students are fully employable upon completion of this program, the Associate in Applied Science degree in Construction Management Technology also provides transfer options to four-year colleges and universities in construction management related fields.

Students will take classes in the areas of construction materials and methods, print reading, safety, scheduling, specifications and project management and supervision as well as hands-on classes regarding construction methods, estimating, surveying, material testing and drafting. Students will also take required classes in written and oral communications, math, business, computer sciences and social sciences.

The construction industry has a high demand for individuals with an education in construction management both regionally and nationally. The Construction Management Technology program will prepare students for a career in construction as a construction manager, project manager, project engineer, field engineer, job site superintendent, estimator, scheduler, quality control and many other managerial positions whose duties and responsibilities ensure that construction projects are completed on-time, within budget, to the desired quality, and safely.

Green and/or sustainable construction is specifically covered in multiple courses. Leadership in Energy and Environmental Design (LEED) certification is covered extensively. Green/sustainable construction is also discussed across the rest of the curriculum.

NOTE: This program requires the purchase of a notebook computer. The cost will be approximately \$950.00. For further information, contact Randy Stach at 701-671-2116.

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- ACT Math – 17 or COMPASS Math – 21 (algebra domain)
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Technologies and Services Dean's Office at 701-671-2244 or the Construction and Design Technology department chair at 701-671-2116 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Construction Management Technology.

Course Code	Course Title	Credits
ARCT 110	Graphic Communications	3
ARCT 134	Structural Wood Design	2
ARCT 144	Construction Estimating I	3
ARCT 231	Commercial Methods and Materials	2
ARCT 241	Construction Estimating II	3
ARCT 242	Construction Estimating III	3
BCT 220	Project Supervision	3
BCT 222	Construction Safety	2
BCT 240	Commercial Print Reading	3
CMT 130	Green Building Fundamentals	2
CMT 251	Construction Documents and Specifications	3
CMT 252	Project Management	3
CMT 253	Construction Scheduling	3
CMT 297	Cooperative Education	2
CT 132	Materials Testing/Quality Control	4
Survey elective (choose one)		2
CMT 120	Surveying Fundamentals	
BCT 224	Building Layout	
Residential Materials elective (choose one)		3
BCT 133	Carpentry Fundamentals	
ARCT 133	Residential Methods and Materials	

Business/Technical electives (5 credit minimum)		Credits
ACCT 200	Elements of Accounting I	(4)
BADM 202	Principles of Management	(3)
BADM 281	Organizational Behavior	(3)
BADM 282	Human Resource Management	(3)
BUSN 120	Fundamentals of Business	(3)
CAD 120	Introduction to AutoCAD	(3)
CMT 121	Plane Surveying	(2)
CMT 234	Asphalt Technology	(1)
CMT 265	Residential Project Experience	(1)
CT 232	Water Management Technology	(4)

Related/General Education Courses		Credits
COMM 110	Fundamentals of Public Speaking	3
CSCI 116	Business Use of Computers	3
ENGL 110	College Composition I	3
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
FYE 101	Science of Success	1
HPER 210	First Aid and CPR	2
MATH 130	Technical Mathematics	2
MATH 132	Technical Algebra I	2
MATH 136	Technical Trigonometry	2
PSYC 100	Human Relations in Organizations	2
Total Required Credits		74

Revised: June 2015

Chef Training and Management Technology

Contact Information

Mary Uhren, program coordinator
mary.uhren@ndscs.edu
701-671-2842
Student Center 129

Delivery Methods

Face-to-Face: Wahpeton

The Culinary Arts curriculum provides students with a broad range of study that enables them to be employed in a large variety of occupations within the food service and hospitality industry. Students learn quality food preparation, service techniques, organizational skills, and are exposed to all aspects of the industry. A significant portion of the program is devoted to laboratory work where students spend time preparing standardized recipes for entrees, soups, garde manger/pantry items, meat, poultry, seafood, bakery and dessert items. An emphasis is placed on classical cuisine and production of cuisine for formal dining rooms, as well as items for less formal establishments.

In addition to preparation courses, the core program provides training in sanitation, nutrition, menu planning, cost control, purchasing and inventory control, management and supervision. General education and related courses that develop human relation skills, communication skills, business skills and mathematics are offered to provide a well-rounded educational experience. A cooperative work experience must be completed successfully by all students prior to graduation.

The chef performs many functions in the food service industry, including food preparation, planning, control, supervision and a variety of other tasks that coincide with the total control of the kitchen in the commercial food world. The industry and program requires professional attitudes, actions, appearance and dress along with the ability to work as part of a team and communicate well with others. Tact, courtesy and a pleasant personality are important, as are keen senses of taste and smell.

Employment opportunities

Employment potential in the hospitality food preparation industry remains high. According to the United States Bureau of Labor Statistics, the North Dakota Hospitality Association, and our Culinary Arts Advisory Committee, there is an extreme shortage for trained individuals throughout the entire industry as chefs, cooks, bakers and managers. Graduates commonly take employment in hotel restaurants, franchise restaurants, clubs, bakeries, catering operations, delis, retirement communities and institutional food service facilities such as hospitals, nursing homes, public schools and colleges.

Admission Requirements*

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this curriculum are food preparation courses, accounting, business math, economics and computer literacy.

Required minimum placement scores:

- ACT Reading – 15; ACT English – 15; ACT Math – 15; Or
- COMPASS Reading – 70; COMPASS Writing – 36; COMPASS Pre-Alg. – 44
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Culinary Arts program coordinator at 701-671-2842 or the Arts, Science and Business Division Dean's Office at 701-671-2108 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Course Code	Course Title	Credits
CULA 101	Food Preparation Laboratory	8
CULA 102	Food Preparation Laboratory	9
CULA 110	Sanitation and Safety	2
CULA 119	Culinary Nutrition	2
CULA 120	Menu Planning	2
CULA 121	Food Cost and Portion Control	2
CULA 201	Principles of Baking and Specialty Desserts	9
CULA 202	Short Order Cookery	2
CULA 203	Gourmet Foods/Catering/Banquet Services	8
CULA 220	Dining Room Service	1
CULA 221	Principles of Restaurant Management	2
CULA 222	Restaurant Service and Production Management	2
CULA 297	*Cooperative Education	2

Related/General Education Courses for Diploma

BADM 240	Sales	3
BOTE 108	Business Math	3
CIS 101	Computer Literacy	2
ENGL 105	Technical Communications	3
FYE 101	Science of Success	1
HPER 210	First Aid and CPR	2
PSYC 100	Human Relations in Organizations	2
	General Education elective	1
Total Required Credits for Diploma		68

Related/General Education Courses for Associate Degree

ACCT 118	Applied Accounting	3
BOTE 108	Business Math	3
CSCI 116	Business Use of Computers	3
ENGL 110	College Composition I	3
ENGL 105	Technical Communications	3
	or ENGL 120 College Composition II (3)	
	or ENGL 125 Introduction to Professional Writing (3)	
FYE 101	Science of Success	1
HPER 210	First Aid and CPR	2
PSYC 100	Human Relations in Organizations	2
	General Education elective	3
Total Required Credits for Associate		74

*To take place at an approved job site during the summer following the first year.

NOTE: The hospitality industry utilizes items that contain alcohol to flavor and flame food products that will be served to customers. These items include wine, flavored liquors and spirits. The Culinary Arts department, in an attempt to offer experiences and products that are as close to the work environment as possible, utilize the same type of products in the preparation and service of food items prepared in the laboratory.

Award

Upon successful completion of the required courses, students will be awarded a diploma or an Associate in Applied Science degree in Culinary Arts with an emphasis in Chef Training and Management Technology.

Revised: June 2015

Dental Assisting (AAS degree)

► Contact Information

Chanel Malone, program coordinator
 chanel.malone@ndscs.edu
 701-671-2367
 Mayme Green Allied Health Center 213P

► Delivery Methods

Face to Face: Wahpeton
 Online: Some Classes

The duties of a Dental Assistant are among the most comprehensive and varied in the dental office. The Dental Assistant performs a wide range of tasks requiring both interpersonal and technical skills. Depending on each state's regulations, some specific tasks Dental Assistants may perform are:

- assisting the dentist during a variety of procedures and direct patient care;
- helping patients feel comfortable before, during and after treatment;
- taking patient's medical history and vital signs;
- exposing and developing dental radiographs (X-rays);
- teaching patients appropriate oral hygiene strategies to maintain oral health;
- taking impressions of patient's teeth for study models;
- applying preventive agents such as fluoride or pit and fissure sealants;
- serving as an infection control officer, developing infection control protocol and preparing and sterilizing instruments and equipment;
- performing office management tasks such as scheduling appointments, answering the telephone, billing, ordering and computer use;
- provide other expanded duties according to state regulations.

Career Opportunities

- solo and group dental practices;
- general or specialty practices such as oral and maxillofacial surgery, orthodontics, dentofacial orthopedics, endodontics, periodontics, prosthodontics and pediatric dentistry; and
- sales and marketing of dental products.

The Dental Assisting program includes curriculum content in general studies, biodental sciences, dental sciences, clinical sciences and clinical practice. Students receive more than 300 hours of on-the-job training in community and regional dental offices in addition to courses taken on campus. Students will be required to cover all expenses associated with affiliation and internship assignments. Criminal background checks and specific immunizations may be required by some clinical sites.

The Dental Assisting program is fully accredited by the Commission on Dental Accreditation of the American Dental Association, 211 East Chicago Ave, Chicago, IL 60611-2678.

A certificate in Dental Assisting is also available. Please see separate fact sheet for additional information.

Admission Requirements*

High school preparation should include biology, chemistry and algebra. Program selection is based on completion of prerequisites and academic performance.

The following criteria must be complete by **March 1** prior to entry into the Dental Assisting program. Applicants that apply after the March 1 deadline can complete the admission requirements and be placed on a waiting list. Late applicants may be selected based on points if openings become available until the first day of class fall semester.

1. High school diploma or GED.
2. Satisfaction of the following: Minimum of 2.0 high school GPA and ACT minimum composite of 17; OR twelve college semester credits with a minimum GPA of 2.0.
3. 8 hours of chairside dental assisting observation. Fax to 701-671-3412.
4. Points are awarded for grades in high school biology, algebra and chemistry and college anatomy and microbiology will also be considered.
5. Complete a Basic Entrance Test. Email alliedhealthcareers@ndscs.edu or call 701-671-2984 to schedule a day/time.

Applicants with English as a second language will be required to complete an English language proficiency exam and meet the benchmark score. Contact the program to schedule the assessment if this applies.

Course Code	Course Title	Credits
DAST 105	Office Practice and Management	1
DAST 111	Introduction to Chairside Assisting	3
DAST 120	Dental Assisting Expanded Function	2
DAST 132	Clinical Training I	3
DAST 132L	Clinical Training I: Clinic	2
DAST 133	Clinical Training II	4
DAST 144	Biodental Science	2
DHYG 101	Pre-Clinic I	1
DHYG 110	Oral Anatomy	2
DAST 115	Dental Radiology	3
DHYG 242	Dental Materials	3
FYE 101	Science of Success	1
MICR 202	Introductory Microbiology	3
MICR 202L	Introductory Microbiology Lab	1
PSYC 111	Introduction to Psychology	3
COMM 110	Fundamentals of Public Speaking	3
CIS 101	Computer Literacy	2
NUTR 240	Principles of Nutrition (and Diet Therapy)	3
BIOL 115	Human Structure and Function	3
BIOL 115L	Human Structure and Function Lab	1
or BIOL 220	Anatomy and Physiology I (3)	
BIOL 220L	Anatomy and Physiology I Lab (1)	
and BIOL 221	Anatomy and Physiology II (3)	
BIOL 221L	Anatomy and Physiology II Lab (1)	
ENGL 110	College Composition I	3
English elective (choose one)		3
ENGL 120	College Composition II	
ENGL 105	Technical Communications	
General Education electives (To be chosen with advisor)		14
Total Required Credits for Associate		66

A current CPR credential (Health Care Provider or Professional Rescuer), eye exam and specific immunizations are required upon acceptance.

The program adheres to the NDSCS Equal Opportunity Policy as stated in the *NDSCS Catalog*. Dental Assisting Program Competencies, Program Goals, and Essential Functions are available on the website at www.ndscs.edu.

Curriculum Requirements

A grade of "C" or above must be achieved in all DAST and DHYG courses in order to advance in the program.

Additional Information

The program is a limited enrollment program. Applicants will be selected on a point system. Once program capacity is reached, an alternate list will be established based on points. It is recommended that applicants stay in close contact with the program as they complete their admission requirements. Visit our website at www.ndscs.edu/dental for additional information or email the program at ndscs.dental@ndscs.edu or call 701-671-2333.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses ("C" or higher), students will be awarded an Associate in Applied Science degree in Dental Assisting. Graduates will meet requirements to become registered within the state and eligible to take the Dental Assisting National Board.

Revised: June 2015

Dental Assisting (Certificate)

Contact Information

Chanel Malone, program coordinator
 chanel.malone@ndscs.edu
 701-671-2367
 Mayme Green Allied Health Center 103B

Delivery Methods

Face to Face: Wahpeton
 Online: Some Classes

The duties of a Dental Assistant are among the most comprehensive and varied in the dental office. The Dental Assistant performs a wide range of tasks requiring both interpersonal and technical skills. Depending on each state's regulations, some specific tasks Dental Assistants may perform are:

- assisting the dentist during a variety of procedures and direct patient care;
- helping patients feel comfortable before, during and after treatment;
- taking patient's medical history and taking vital signs;
- exposing and developing dental radiographs (X-rays);
- teaching patients appropriate oral hygiene strategies to maintain oral health;
- taking impressions of patient's teeth for study models;
- applying preventive agents such as fluoride or pit and fissure sealants;
- serving as an infection control officer, developing infection control protocol and preparing and sterilizing instruments and equipment;
- performing office management tasks such as scheduling appointments, answering the telephone, billing, ordering and computer use;
- provide other expanded duties according to state regulations.

Career Opportunities

- solo and group dental practices;
- general or specialty practices such as oral and maxillofacial surgery, orthodontics, dentofacial orthopedics, endodontics, periodontics, prosthodontics and pediatric dentistry; and
- sales and marketing of dental products.

The Dental Assisting program includes curriculum content in general studies, biodental sciences, dental sciences, clinical sciences and clinical practice. Students receive more than 300 hours of on-the-job training in community and regional dental offices in addition to courses taken on campus. Students will be required to cover all expenses associated with affiliation and internship assignments. Criminal background checks and specific immunizations may be required by some clinical sites.

The Dental Assisting program is fully accredited by the Commission on Dental Accreditation of the American Dental Association, 211 East Chicago Ave, Chicago, IL 60611-2678.

The program adheres to the NDSCS Equal Opportunity Policy as stated in the *NDSCS Catalog*. Dental Assisting Program Competencies, Program Goals, and Essential Functions are available on the website at www.ndscs.edu.

Course Code	Course Title	Credits
DAST 105	Office Practice and Management	1
DAST 111	Introduction to Chairside Assisting	3
DAST 115	Dental Radiology	3
DAST 120	Dental Assisting Expanded Function	2
DAST 132	Clinical Training I	3
DAST 132L	Clinical Training I: Clinic	2
DAST 133	Clinical Training II	4
DAST 144	Biodental Science	2
DHYG 101	Pre-Clinic I	1
DHYG 110	Oral Anatomy	2
DHYG 242	Dental Materials	3
FYE 101	Science of Success	1
MICR 202	Introductory Microbiology	3
MICR 202L	Introductory Microbiology Lab	1
PSYC 111	Introduction to Psychology	3
BIOL 115	Human Structure and Function	3
BIOL 115L	Human Structure and Function Lab	1
ENGL 105	Technical Communications	3
Total Required Credits for Certificate		41

Additional Information

The NDSCS Dental Assisting program is a limited-enrollment program and selection is based on a point system. The Enrollment Services office and the Allied Dental Education Department will provide student advising and details regarding criteria for program acceptance. Contact information: 701-671-2333 or ndscs.dental@ndscs.edu.

Program website contains selection criteria and program goals www.ndscs.edu/dental.

Award

Upon successful completion of the required courses ("C" or higher), students will be awarded a certificate in Dental Assisting. Graduates will meet requirements to become registered within the state and eligible to take the Dental Assisting National Board.

Admission Requirements*

High school preparation should include biology, chemistry and algebra. Program selection is based on completion of prerequisites and academic performance. The following criteria must be complete by **March 1** prior to entry into the Dental Assisting program. Applicants that apply after the March 1 deadline can complete the admission requirements and be placed on a waiting list. Late applicants may be selected based on points if openings become available until the first day of class fall semester.

1. High school diploma or GED.
2. Satisfaction of the following: Minimum of 2.0 high school GPA and ACT minimum composite of 17; OR twelve college semester credits with a minimum GPA of 2.0.
3. 8 hours of chairside dental assisting observation. Fax to 701-671-3412.
4. Points are awarded for grades in high school biology, algebra and chemistry and college anatomy and microbiology will also be considered.
5. Complete a Basic Entrance Test. Contact the program by emailing alliedhealthcareers@ndscs.edu or 701-671-2984 to schedule a day/time.

Applicants with English as a second language will be required to complete an English language proficiency exam and meet the benchmark score. Contact the program to schedule the assessment if this applies.

A current CPR credential (Health Care Provider or Professional Rescuer) eye exam and specific immunizations are required upon acceptance.

An Associate in Applied Science degree in Dental Assisting is also available. Please see separate fact sheet for additional information.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Curriculum Requirements

A grade of "C" or above must be achieved in all DAST and DHYG courses in order to advance in the program.

Revised: May 2015

Dental Hygiene

► Contact Information

Kathryn Dockter, department chair
kathryn.m.dockter@ndscs.edu
701-671-2334
Mayme Green Allied Health Center 103B

► Delivery Methods

Face to Face: Wahpeton

The Dental Hygiene program is designed to prepare students as professionals in the discipline of dental hygiene. The dental hygienist, a licensed member of the dental health team, provides dental health education, promotes and encourages the preventive aspects of dental care, removes stains and deposits from teeth, exposes and processes dental radiographs, administers local anesthesia, provides many other patient treatment procedures and assumes other responsibilities in the dental office.

Career Opportunities

Dental hygienists are typically employed in general dental practices or specialty practices. Dental hygienists also can apply their skills and knowledge in other career activities including public health, corporate dental representative, dental office management and dental hygiene education depending on the level of education and experience they have achieved.

Dental Hygiene Curriculum

The Dental Hygiene program consists of classroom, laboratory and clinical experiences emphasizing skill development, self-assessment and professionalism offered over five continuous semesters. The majority of the clinical experience is in the NDSCS dental clinic. Students are also assigned to off-campus affiliation sites to enhance their dental hygiene education. Students must provide their own transportation to off-campus affiliation sites. Criminal background checks and fingerprinting may be required by affiliation sites.

The program is fully accredited by the Commission on Dental Accreditation of the American Dental Association, 211 East Chicago Ave, Chicago, IL 60611-2678

The program adheres to the NDSCS Equal Opportunity Policy as stated in the *NDSCS Catalog*. Dental Hygiene Program Competencies, Program Goals, and Essential Functions are available on the website at www.ndscs.edu.

Course Code	Course Title	Credits
DHYG 101	Pre-Clinic	1
DHYG 101L	Pre-Clinic Lab	3
DHYG 102	Clinic I	1
DHYG 102L	Clinic I Lab	4
DHYG 103	Clinic II	1
DHYG 103L	Clinic II Lab	3
DHYG 110	Oral Anatomy	2
DHYG 112	Oral Embryology and Histology	1
DHYG 114	Dental Radiology	3
DHYG 145	Periodontics I	1
DHYG 201	Clinic III Lecture	1
DHYG 201L	Clinic III Lab	4
DHYG 202	Clinic IV	1
DHYG 202L	Clinic IV Lab	4
DHYG 209	Head and Neck Anatomy	1
DHYG 210	Local Anesthesia	1
DHYG 212	Oral Pathology	1
DHYG 220	Community Dental Health	2
DHYG 242	Dental Materials	3
DHYG 243	Dental Jurisprudence	1
DHYG 245	Periodontics II	1
PHRM 201	Dental Pharmacology	2

Related/General Education Courses

BIOL 213	General Pathology	3
CHEM 116	Intro to Organic and Biochemistry	3
CHEM 116L	Intro to Organic and Biochemistry Lab	1
CIS 101	Computer Literacy	2
COMM 110	Fundamentals of Public Speaking	3
FYE 101	Science of Success	1
ENGL 120	College Composition II	3
MICR 202	Introductory Microbiology	3
MICR 202L	Introductory Microbiology Lab	1
NUTR 240	Principles of Nutrition (and Diet Therapy)	3
PSYC 111	Introduction to Psychology	3
SOC 110	Introduction to Sociology	3
Total Required Credits		71

Admission Requirements*

Applicants will be admitted to the program following a selection process. The following requirements must be met by **March 1** to be considered for selection. Applicants that apply after the March 1 deadline can complete the admission requirements and be placed on a waiting list. Late applicants may be selected based on points if openings become available until the first day of class fall semester.

1. Complete the NDSCS Application for Admission, Re-application or Change of Program. Forms at www.ndscs.edu.
2. Submit to Enrollment Services your official high school transcript, official college transcript(s) and ACT minimum composite of 19; OR twelve college semester credits with a minimum GPA of 2.50.
3. Submit to Dental Hygiene Program (fax 701-671-3412):
 - a. Documentation of 8 observation hours of a dental hygienist.
 - b. Copy of final fall semester transcript from current college attending (including NDSCS).
4. Complete a Basic Entrance Test. Contact by the program by email alliedhealthcareers@ndscs.edu or phone 701-671-2984 to schedule a time.
5. Complete pre-requisite courses by January 1: Introductory Chemistry (CHEM 115 and 115L), Anatomy and Physiology I (BIOL 220 and 220L) and College Composition I (ENGL 110). Complete pre-requisite course by May 15: Anatomy and Physiology II (BIOL 221 and 221L) with a "C" or higher.
6. Bonus admission points will also be awarded for: Introduction to Organic and Biochemistry (CHEM 116 and 116L), Elementary Statistics (MATH 210) and taking pre-requisite courses at NDSCS.

Applicants with English as a second language will be required to complete an English language proficiency exam and meet the benchmark score. Contact the program to schedule the assessment if this applies.

The program is a limited enrollment program. Applicants will be selected on a point system. Once program capacity is reached, an alternate list will be established based on points. It is recommended that applicants stay in close contact with the program as they complete their admission requirements email ndscs.dental@ndscs.edu or call 701-671-2333.

Specific immunizations, CPR certification (Healthcare Provider or Professional Rescuer), and documentation of a recent eye exam will be required. Visit our website for additional information at www.ndscs.edu/dental.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon program completion of the required courses ("C" or higher), students will be awarded an Associate in Applied Science degree in Dental Hygiene.

Licensure requirements for dental hygienists include successful completion of the Dental Hygiene National Board Examination and a regional clinical examination, i.e. CRDTS, WREB. Individual states have additional licensure requirements. A criminal background check will be required.

Revised: May 2015

Dialysis Technician – pending approval

▶ Contact Information

Jan Rudisel, program coordinator
Janice.rudisel@ndscs.edu
701-231-6926
NDSCS- Fargo 190C

▶ Delivery Methods

Face-to-Face: Fargo
Online
Combination

Course Code	Course Title	Credits
HEM 101	Hemodialysis Technology I	4
HEM 101L	Hemodialysis Technology I Lab	3
HEM 102	Hemodialysis Technology II	3
HEM 102	Hemodialysis Technology II Lab	3
HEM 103	Dialysis Technician Practicum	4

This program is available to high school graduates or transfer students who are interested in pursuing a career as a Dialysis Technician. The curriculum is two semesters in length and awards a certificate in Dialysis Technician. Although the Bureau of Labor Statistics does not give specific numbers for dialysis technicians, it does report that all medical laboratory technicians will have a projected employment growth of 30 percent between the years of 2012 and 2022. The rate is above average when compared to other occupations. The graduate has an excellent opportunity for immediate entry into the health profession.

In most dialysis facilities, dialysis technicians perform dialysis treatments under the supervisor of a registered nurse. Duties include pretreatment assessment, cannulation, initiation of treatment, treatment monitoring, discontinuation of treatment, and post-treatment assessment. Dialysis technicians have excellent job opportunities which include employment in hospitals, clinics and free standing dialysis centers.

Instructional process

The two semesters of the program consist of classroom, laboratory and clinical instruction at the college and at outpatient dialysis centers. The capstone course consists of 240 hours of clinical at an outpatient dialysis center.

A completed criminal background check will be required for the program. A previous conviction may affect clinical rotations and registry at the North Dakota State Board of Nursing. The applicant must visit with the program coordinator if this issue applies.

This program requires a newer model personal computer capable of completing the assignments required by the Dialysis Technician program (Windows 7 Operating System or newer). *Contact program for more information.*

Equal opportunity policy

The NDSCS Dialysis Technician Program adheres to the NDSCS college equal opportunity policy as stated in the *NDSCS Catalog*.

Related/General Education Courses

CIS 101	Computer Literacy	2
ENGL 105	Technical Communications	3
FYE 101	Science of Success	1
MATH 120	Basic Mathematics	2
Total Required Credits		27

Hemodialysis Technology (HEM) courses must be taken in sequence.

Admission Requirements**

Applicants will be admitted to the program on a first come first selected basis once the following requirements are submitted:

1. Complete the NDSCS Application Process for Admission. Refer to the NDSCS website at www.ndscs.edu/admissions for details.
2. Submit a high school and/or college transcript or G.E.D.
3. Submit official ACT results to Enrollment Services with a minimum score of 16 in English and 18 in reading OR submit a Compass Placement test with a minimum score of 38 in writing and 80 in reading OR submit an official college transcript with ENGL 105 (or higher) completed with a "C" or higher. To schedule a Compass Placement test call 701-231-6919.
4. Applicants with English as a second language will be required to complete an English language proficiency exam and meet the benchmark score. Contact the program to schedule the assessment if this applies.

The following requirements will also have to be submitted to the Dialysis Technician Program prior to beginning classes:

- documented evidence of measles, mumps, rubella vaccination or rubella titer
- documentation of three hepatitis B immunizations or a waiver
- documentation of varicella immunization or documented proof of immunity
- documentation of Tdap vaccination within the last ten years

Additional immunizations will be required once program begins.

***Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses ("C" or higher), students will be awarded a certificate of completion and be eligible for the Certified Clinical Hemodialysis Technician (CCHT) Examination.

Revised: June 2015

Case IH

► Contact Information

Michael Redding, program coordinator
 michael.redding@ndscs.edu
 701-671-2226
 Bisek 1171

► Delivery Methods

Face-to-Face: Wahpeton

The Case IH program is designed to develop technically competent, professional service technicians for participating Case IH dealerships.

This program combines state-of-the-art, on-campus training with internships at a sponsoring Case IH dealership. Students receive technical training on Case IH equipment and related products through a combination of classroom instruction and hands-on laboratory experiences. Classroom and laboratory instruction at NDSCS covers the basics of each subject plus the latest developments in Case IH agricultural equipment. Work experience at the dealership reinforces on-campus training and exposes the student to real life shop service practices.

Green technology is addressed through changes in emission standards and alternative fuels that will continue to advance changes in this industry.

The Case IH program takes five semesters or approximately 20 months to complete. The five semesters are divided into 9 terms, each approximately eight weeks in length. Students complete the first, second, third, fifth, seventh, eighth and ninth terms on campus and the fourth and sixth terms at a participating Case IH dealership.

Course Code	Course Title	Credits
DTEC 109	Air Conditioning for Diesel Technology	2
DTEC 115	Introduction to Light and Medium Duty Engines	4
DTEC 125	Introduction to Heavy Duty Drive Systems	4
DTEC 155	Electricity for Diesel Technology	4
DTEC 164	Introduction to Mobile Hydraulics	4
MFGT 110	Industrial Shop Practices	2
CIH 106	Case IH Shop Service Management	2
CIH 215	Case IH Engine Rebuild	6
CIH 216	Case IH Equipment Operation and Adjustment	4
CIH 225	Case IH Powertrains	4
CIH 255	Case IH Electrical/Electronics	5
CIH 260	Case IH AFS (Advanced Farming Systems)	3
CIH 265	Case IH Hydraulic Systems Diagnostics	5
CIH 110	Case IH Internship I	4
CIH 210	Case IH Internship II	4

Related/General Education Courses

ENGL 110	College Composition I	3
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
COMM 110	Fundamentals of Public Speaking	
MATH 120	Basic Mathematics I	2
MATH 123	Basic Mathematics II	2
MATH 125	Basic Mathematics III	2
Wellness elective(s)		2
CIS 101	Computer Literacy	2
PSYC 100	Human Relations in Organizations	2
FYE 101	Science of Success	1
Total Required Credits for Associate		76

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- Or transfer equivalencies will apply as appropriate

Applicants must also have a minimum score of 70% on the Differential Aptitude Test (DAT). For information on the DAT exam, contact the Diesel Technology Department at 701-671-2330.

Applicants not meeting the above requirements are encouraged to visit with the Diesel Technology Department at 701-671-2330 or the Technologies and Services Dean's Office at 701-671-2244 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Diesel Technology with an emphasis in Case IH.

Revised: June 2015

General Diesel

► Contact Information

Terry Marohl, department chair
 terry.marohl@ndscs.edu
 701-671-2308
 Bisek Hall 111

► Delivery Methods

Face-to-Face: Wahpeton

The Diesel Technology program is designed to prepare students for the many employment opportunities in the diesel industry.

This unique program allows students to enter the program at the beginning of any eight-week period. This program gives students the option of earning a diploma or applied science degree. Students are given extensive training and practical experiences in servicing all types of engines, drive trains, hydraulic systems and electrical systems found on trucks, agricultural and industrial equipment.

Students enrolled in Diesel Technology learn the theory of operation along with the latest repair and diagnostic procedures available in the diesel industry. Training facilities are in excellent condition and labs are very well-equipped.

Green technology is addressed through changes in emission standards and alternative fuels that will continue to advance changes in this industry.

Students graduating from Diesel Technology are fully employable upon completion of this program. Diesel Technology graduates are employed by agricultural, industrial (truck and heavy equipment), construction equipment companies, mining industries or fleet owners. Some students may wish to continue their education by returning for an additional year and earn a minor in Automotive Technology.

Students seeking an Associate in Applied Science degree are required to complete both English 105 and 110, Math 125 and 324 hours of work experience (DTEC 297).

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- Or transfer equivalencies will apply as appropriate

Applicants must also have a minimum score of 70% on the Differential Aptitude Test (DAT). For information on the DAT exam, contact the Diesel Technology Department at 701-671-2330.

Applicants not meeting the above requirements are encouraged to visit with the Diesel Technology Department at 701-671-2330 or the Technologies and Services Dean's Office at 701-671-2244 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded a diploma or an Associate in Applied Science degree in Diesel Technology – General Diesel.

Course Code	Course Title	Credits
Diploma		
DTEC 109	Air Conditioning for Diesel Technology	2
DTEC 115	Introduction to Light and Medium Duty Engines	4
DTEC 125	Introduction to Heavy Duty Drive Systems	4
DTEC 155	Electricity for Diesel Technology	4
DTEC 164	Introduction to Mobile Hydraulics	4
DTEC 185	Diesel Fuel Injection Systems	4
DTEC 215	Heavy Duty Diesel Engines	7
DTEC 225	Heavy Duty Drive Systems	7
DTEC 255	Heavy Duty Chassis Electrical Systems	7
DTEC 265	Mobile Hydraulic Systems Diagnostics and Repair	7
MFGT 110	Industrial Shop Practices	2
Associate in Applied Science		
DTEC 109	Air Conditioning for Diesel Technology	2
DTEC 115	Introduction to Light and Medium Duty Engines	4
DTEC 125	Introduction to Heavy Duty Drive Systems	4
DTEC 155	Electricity for Diesel Technology	4
DTEC 164	Introduction to Mobile Hydraulics	4
DTEC 185	Diesel Fuel Injection Systems	4
DTEC 215	Heavy Duty Diesel Engines	7
DTEC 225	Heavy Duty Drive Systems	7
DTEC 255	Heavy Duty Chassis Electrical Systems	7
DTEC 265	Mobile Hydraulic Systems Diagnostics and Repair	7
DTEC 297	Cooperative Education	2
MFGT 110	Industrial Shop Practices	2

Related/General Education Courses

Diploma		
CIS 101	Computer Literacy	2
ENGL 105	Technical Communications	3
or ENGL 110	College Composition I (3)	
Wellness elective(s)		2
MATH 120	Basic Mathematics I	2
MATH 123	Basic Mathematics II	2
PSYC 100	Human Relations In Organizations	2
FYE 101	Science of Success	1
Associate in Applied Science		
CIS 101	Computer Literacy	2
ENGL 110	College Composition I	3
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
COMM 110	Fundamentals of Public Speaking	
Wellness elective(s)		2
MATH 120	Basic Mathematics I	2
MATH 123	Basic Mathematics II	2
MATH 125	Basic Mathematics III	2
PSYC 100	Human Relations In Organizations	2
FYE 101	Science of Success	1

Total Required Credits for Diploma 66

Total Required Credits for Associate in Applied Science 73

* Diploma students take ENGL 105 or ENGL 110

Suggested sequence of study

All 100 course classes must be completed before advancing to the 200 course classes.

NOTE: Students may enter this program at the beginning of any semester. A student may be able to start in the middle of a semester; for information please contact the Diesel Technology Department.

Revised: June 2015

Komatsu

► Contact Information

Terry Marohl, department chair
 terry.marohl@ndscs.edu
 701-671-2308
 Bisek Hall 1135

► Delivery Methods

Face-to-Face: Wahpeton

The Komatsu program is designed to develop technically competent, professional service technicians for participating Komatsu dealers regionally and throughout the world.

This program combines state-of-the-art, on-campus training with internships at a sponsoring Komatsu dealership. Students receive technical training on Komatsu equipment through a combination of classroom instruction and hands-on laboratory experiences. Classroom and laboratory instruction at NDSCS covers the basics of each subject plus the latest developments in Komatsu construction equipment. Work experience at the dealership reinforces on-campus training and exposes the student to real life shop service practices.

Green technology is addressed through changes in emission standards and alternative fuels that will continue to advance changes in this industry.

The Komatsu program takes five semesters or approximately 20 months to complete. The five semesters are divided into 9 terms, each approximately eight weeks in length. Students complete the first, second, third, fifth, seventh, and ninth terms on campus and the fourth, sixth and eighth terms at a sponsoring Komatsu dealership.

Course Code	Course Title	Credits
DTEC 109	Air Conditioning for Diesel Technology	2
DTEC 115	Introduction to Light and Medium Duty Engines	4
DTEC 125	Introduction to Heavy Duty Drive Systems	4
DTEC 155	Electricity for Diesel Technology	4
DTEC 164	Introduction to Mobile Hydraulics	4
MFGT 110	Industrial Shop Practices	2
KMTS 106	Introduction to Komatsu Service	3
KMTS 215	Komatsu Engine and Fuel Systems	4
KMTS 225	Komatsu Powertrains and Undercarriage	4
KMTS 255	Komatsu Electrical/Electronics	4
KMTS 265	Komatsu Advanced Hydraulics Systems	4
KMTS 110	Komatsu Internship I	4
KMTS 210	Komatsu Internship II	5
KMTS 220	Komatsu Internship III	6

Related/General Education Courses

ENGL 110	College Composition I	3
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
COMM 110	Fundamentals of Public Speaking	
MATH 120	Basic Mathematics I	2
MATH 123	Basic Mathematics II	2
MATH 125	Basic Mathematics III	2
Wellness elective(s)		2
CIS 101	Computer Literacy	2
PSYC 100	Human Relations in Organizations	2
FYE 101	Science of Success	1
Total Required Credits for Associate		73

Admission Requirements:

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- Or transfer equivalencies will apply as appropriate

Applicants must also have a minimum score of 70% on the Differential Aptitude Test (DAT). For information on the DAT exam, contact the Diesel Technology Department at 701-671-2330.

Applicants not meeting the above requirements are encouraged to visit with the Diesel Technology Department at 701-671-2330 or the Technologies and Services Dean's Office at 701-671-2244 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Diesel Technology with an emphasis in Komatsu.

Revised: June 2015

Electrical Construction

► Contact Information

Ivan Maas, department chair
ivan.maas@ndscs.edu
701-671-2662
Barnard Hall 118

► Delivery Methods

Face-to-Face: Wahpeton

The Electrical Construction option of the Electrical Technology program is designed to give students the skills necessary for successful employment in the electrical construction industry. The core curriculum of the Electrical Technology program includes an in-depth study of electrical theory, applied math, code study and residential wiring. A substantial amount of hands-on experience is provided in our seven dedicated laboratories, which contain AutoCAD drawing, advanced electrical test equipment, electric motors, magnetic motor starters, programmable controllers, electronic devices and instrumentation. Green technology is applied in areas of lighting and design class, efficiency of motors, controlling of loads (lighting, AC, etc.) in building operation through programmable controllers (PLCs).

The Electrical Construction option adds skills in the area of commercial and industrial wiring systems, advanced code study and planning and estimating. Graduates of this option are well prepared to meet the challenges of today's modern equipment and wiring systems thanks, in part, to the faculty who collectively have over 200 years of industry and training experience.

Graduates of this option are also exempt from the mandatory classroom training required by North Dakota law (ND Century Code 43-09-11).

While students are fully employable upon completion of this associate-granting program, some elect to return for another year of training, earning the Electrical Master Technician degree (please refer to the Electrical Technology, Electrical Master Technician). Other students may wish to continue their education by returning for an additional year, combining Electrical Technology with Robotics, Automation and Mechatronics, HVAC/R, Plumbing, or business classes. Students may transfer to four-year colleges and universities for a bachelor's degree in programs such as Construction Management or Engineering Technology.

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- ACT Math – 17 or COMPASS Math – 21 (algebra domain)
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Technologies and Services Dean's Office at 701-671-2244 or the Electrical Technology department chair at 701-671-2662 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Electrical Technology, Electrical Construction. This is the only program/degree in the ND University System which also qualifies most graduates for the 2,000 hours of apprenticeship credit for North Dakota, South Dakota and Minnesota.

Course Code	Course Title	Credits
ECAL 101	Electrical Fundamentals	5
ECAL 102	Electrical Fundamentals	5
ECAL 103	Electrical Code Study	4
ECAL 111	Electric Meters and Motors	3
ECAL 133	Basic Wiring	3
ECAL 137	Electrical Drafting	2
ECAL 201	Alternating Current Theory	5
ECAL 205	Electrical Design and Lighting	3
ECAL 211	AC Measurements	4
ECAL 223	Electronic Devices	4
ECAL 241	Basic Motor Controls	3
ECAL 243	Programmable Controllers	3

Electrical Construction Courses

ECAL 203	Advanced Electrical Code Study	3
ECAL 204	Electrical Planning and Estimating	4
ECAL 233	Commercial Wiring Lab	3

Related/General Education Courses

FYE 101	Science of Success	1
CIS 101	Computer Literacy	2
ENGL 110	College Composition I	3
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
COMM 110	Fundamentals of Public Speaking	
MATH 132	Technical Algebra I	2
MATH 134	Technical Algebra II	2
MATH 136	Technical Trigonometry	2
HPER	Wellness elective(s)	2
PSYC 100	Human Relations in Organizations	2
Total Required Credits		73

NOTE: This program requires an HP ProBook 650 laptop or equivalent. Please refer to the NDSCS website for specifications. The cost will be approximately \$950 if purchased from NDSCS. For further information, contact Ivan Maas, Department Chair at 701-671-2662.

Industrial Electrical

► Contact Information

Ivan Maas, department chair
ivan.maas@ndscs.edu
701-671-2662
Barnard Hall 118

► Delivery Methods

Face-to-Face: Wahpeton

The Industrial Electrical option of the Electrical Technology program is designed to give students the skills necessary for successful employment in the industrial sector of the electrical industry. The core curriculum of the Electrical Technology programs includes in-depth study of electrical theory, applied math, code study and residential wiring. A substantial amount of hands-on experience is provided in our seven dedicated laboratories, which contain AutoCAD drawing, advanced electrical test equipment, electric motors, magnetic motor starters, programmable controllers, electronic devices and instrumentation. Green technology is applied in areas of lighting and design class, efficiency of motors, controlling of loads (lighting, AC, etc.) in building operation through programmable controllers (PLCs).

The Industrial Electrical option adds skills in the area of automated industrial controls (robotics, pneumatics and digital electronics) as well as large motors and the electronic drives that control those motors. Graduates of this option find employment as maintenance technicians for manufacturing firms, power companies and processing plants. They also have opportunities to work as engineering technicians in the design, manufacturing and sales of electrical equipment. This flexibility in employment is made possible by the department's eight faculty members who collectively have over 200 years of industry and training experience.

Graduates of this option are also exempt from the mandatory classroom training required by North Dakota law (ND Century Code 43-09-11).

While students are fully employable upon completion of this associate-granting program, some elect to return for another year of training, earning the Electrical Master Technician degree (please refer to the Electrical Technology, Electrical Master Technician). Other students may wish to continue their education by returning for an additional year, combining Electrical Technology with Robotics, Automation and Mechatronics, HVAC/R, Plumbing, or business classes. Students may transfer to four-year colleges and universities for a bachelor's degree in programs such as Construction Management or Engineering Technology.

Course Code	Course Title	Credits
ECAL 101	Electrical Fundamentals	5
ECAL 102	Electrical Fundamentals	5
ECAL 103	Electrical Code Study	4
ECAL 111	Electric Meters and Motors	3
ECAL 133	Basic Wiring	3
ECAL 137	Electrical Drafting	2
ECAL 201	Alternating Current Theory	5
ECAL 205	Electrical Design and Lighting	3
ECAL 211	AC Measurements	4
ECAL 223	Electronic Devices	4
ECAL 241	Basic Motor Controls	3
ECAL 243	Programmable Controllers	3

Industrial Courses

ECAL 224	Automated Industrial Controls	5
ECAL 242	Advanced Drives	2
ELEC 253	Introduction to Instrumentation	3

Related/General Education Courses

FYE 101	Science of Success	1
CIS 101	Computer Literacy	2
ENGL 110	College Composition I	3
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
COMM 110	Fundamentals of Public Speaking	
MATH 132	Technical Algebra I	2
MATH 134	Technical Algebra II	2
MATH 136	Technical Trigonometry	2
HPER	Wellness elective(s)	2
PSYC 100	Human Relations in Organizations	2
Total Required Credits		73

NOTE: This program requires an HP ProBook 650 laptop or equivalent. Please refer to the NDSCS website for specifications. The cost will be approximately \$950 if purchased from NDSCS. For further information, contact Ivan Maas, Department Chair at 701-671-2662.

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- ACT Math – 17 or COMPASS Math – 21 (algebra domain)
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Technologies and Services Dean's Office at 701-671-2244 or the Electrical Technology department chair at 701-671-2662 for strategies to meet the admission requirements.

*Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Electrical Technology, Industrial Electrical. This is the only program/degree in the ND University System which also qualifies most graduates for the 2,000 hours of apprenticeship credit for North Dakota, South Dakota and Minnesota.

Revised: June, 2015

Electrical Master Technician

Contact Information

Ivan Maas, department chair
ivan.maas@ndscs.edu
701-671-2662
Barnard Hall 118

Delivery Methods

Face-to-Face: Wahpeton

The Electrical Master Technician curriculum is designed to meet the diverse needs of the construction and industrial sectors of the electrical field. This curriculum broadens the student's perspective on the industry with training in alternative energy sources, building control systems, predictive maintenance and automation.

The Electrical Master Technician curriculum builds on the strengths of a two-year degree in Electrical Construction or Industrial Electrical in a 3rd year. It adds cutting-edge technology in medium and high voltage, instrumentation, fiber optics, structured wiring, HVAC/R and other building controls.

The successful completion of the Master Technician program exceeds the number of classroom hours required by the Electrical Boards of North Dakota, Minnesota and South Dakota, thus qualifying graduates for a full year (2,000 hours) work exemption as typically granted by those boards. The NDSCS Electrical Technology program is the only program in the North Dakota University System qualified to receive this credit for hours.

This program also exempts graduates from the mandatory classroom training required by North Dakota law (ND Century Code Section 43-09-11) for all registered electrical apprentices.

Other links of interest:

www.ndseb.com
www.electricity.state.mn.us/BOE.asp
<http://dol.sd.gov/bdcomm/electric/>

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- ACT Math – 17 or COMPASS Math – 21 (algebra domain)
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Technologies and Services Dean's Office at 701-671-2244 or the Electrical Technology department chair at 701-671-2662 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Electrical Technology.

Course Code	Course Title	Credits
ECAL 101	Electrical Fundamentals	5
ECAL 102	Electrical Fundamentals	5
ECAL 103	Electrical Code Study	4
ECAL 111	Electric Meters and Motors	3
ECAL 133	Basic Wiring	3
ECAL 137	Electrical Drafting	2
ECAL 201	Alternating Current Theory	5
ECAL 205	Electrical Design and Lighting	3
ECAL 211	AC Measurements	4
ECAL 223	Electronic Devices	4
ECAL 241	Basic Motor Controls	3
ECAL 243	Programmable Controllers	3

Electrical Construction Courses

ECAL 203	Advanced Electrical Code Study	3
ECAL 204	Electrical Planning and Estimating	4
ECAL 233	Commercial Wiring Lab	3

Industrial Electrical Courses

ECAL 224	Automated Industrial Controls	5
ELEC 242	Advanced Drives	2
ELEC 253	Introduction to Instrumentation	3

Additional Master Technician Courses

ECAL 105	Electrical Safety and NFPA 70E	1
ECAL 237	House Wiring Rough-In	1
ECAL 238	House Wiring Trim-Out	1
ECAL 245	Medium and High Voltage	1
ECAL 246	Alarm, Communications and Data Systems	3
ECAL 261	HVAC and Building Systems	2
ECAL 262	Predictive and Preventative Maintenance	2
ECAL 263	Distributed Electrical Systems	3
ELEC 254	Instrumentation and Control Systems	4
ELEC 255	Process Measurement and Control Valves	4
MFGT 124	Mechanical Drives I	2
MFGT 208	Electro/Mechanical Systems	2

Related/General Education Courses

CIS 101	Computer Literacy	2
ENGL 110	College Composition I	3
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
COMM 110	Fundamentals of Public Speaking	
FYE 101	Science of Success	1
MATH 132	Technical Algebra I	2
MATH 134	Technical Algebra II	2
MATH 136	Technical Trigonometry	2
Wellness elective(s)		2
PSYC 100	Human Relations in Organizations	2
Total Required Credits		109

Revised: June 2015

Health Information Technician

Contact Information

Geralyn Matejcek, department chair
 geralyn.matejcek@ndscs.edu
 701-671-2269
 Mayme Green Allied Health Center 213H

Delivery Methods

Face-to-Face: Wahpeton
 Online: All Classes
 Combination

The Health Information Technician program blends a profession in healthcare with information management. NDSCS offers North Dakota's only health information technician program accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM).

Health information professionals care for patients by caring for their medical data, focusing on completeness, accuracy and protection. They organize, analyze, evaluate, and report health data, complying with laws, standards, and regulations. Health information technicians apply coding classification systems to health data, which is the basis for reimbursement.

According to the Bureau of Labor Statistics, employment of health information technicians is projected to grow 22 percent from 2012 to 2022; much faster than the average for all other occupations in the United States. The nation's conversion to electronic health records (EHRs) is driving much of the career growth.

Employment opportunities are in a variety of settings including hospitals, clinics, long-term care, behavioral health facilities, insurance, healthcare software, and auditing firms, government agencies, and other facilities outside of healthcare.

Graduates may pursue a bachelor's degree at another institution, and obtain specialty certifications for further advancement opportunities in the profession.

Academic training includes online learning laboratories. Students will participate in two professional practice experiences. These will be a combination of onsite and virtual experiences. Whenever possible, the onsite experience is scheduled at a site in the student's requested geographic area. Tuition and fees are assessed for these courses.

*Healthcare facilities may require the student undergo a criminal background check and drug testing, and to submit other health-related documentation prior to accepting them for a professional practice experience. A previous conviction may affect placement and the student's ability to complete the program of study.

Delivery Options

The program is available both online and on-campus. Online students complete all courses online, while on-campus students complete HIT courses online and several of the related/general education courses in a traditional classroom.

First aid and CPR certifications may substitute for the HPER 210 course requirement.

Admission Requirements*

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this program are computer applications, English, anatomy and medical terminology.

Submit official ACT results to **Enrollment Services** with a minimum score of 18 in reading and 17 in English OR submit a Compass placement test with a minimum score of 80 in reading and 38 in writing OR submit an official college transcript with ENGL 110 completed with a "C" or higher.

Applicants must have the ability to perform the *Essential Program Requirements* as listed on the Health Information Program Information FAQ file on the college website www.ndscs.edu.

*Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.

Course Code	Course Title	Credits
HIT 176	Introduction to Health Information	4
HIT 180	Pathopharmacology	3
HIT 181	Healthcare Delivery Systems	3
HIT 184	Basic Diagnosis Coding	3
HIT 185	Basic Procedure Coding	3
HIT 197	Professional Practice I	1
HIT 281	Health Law, Privacy and Ethics	3
HIT 282	Health Information Data and Management	4
HIT 284	Healthcare Quality Management	3
HIT 285	Reimbursement Methodologies	3
HIT 286	Intermediate Diagnosis Coding	3
HIT 287	Computer Applications in Healthcare	3
HIT 288	Intermediate Procedure Coding	3
HIT 297	Professional Practice II	2

Related/General Education Courses

BIOL 220	Anatomy and Physiology I	3
BIOL 220L	Anatomy and Physiology I Lab	1
BIOL 221	Anatomy and Physiology II	3
BIOL 221L	Anatomy and Physiology II Lab	1
BOTE 171	Medical Terminology	4
COMM 110	Fundamentals of Public Speaking	3
CSCI 116	Business Use of Computers	3
ENGL 110	College Composition I	3
FYE 101	Science of Success	1
HPER 210	First Aid and CPR	2
PSYC 100	Human Relations in Organizations	2
Total Required Credits		67

Curriculum Requirements

A grade of "C" or above must be achieved in all courses in order to advance in the program and prior to placement in the professional practice courses. Minimum keyboarding competency of 40 words per minute and computer skills including ability to use email, upload and download files, install software and navigate the internet.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Health Information with an emphasis in Health Information Technician.

Upon completion of the program, graduates are eligible to take the national certification examination administered by the American Health Information Management Association to become a Registered Health Information Technician (RHIT).

Accreditation

The Health Information Technician Associate in Applied Science degree program is accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM.ORG).

Program Goals and Student Learning Outcomes

Published in program handbook.

Medical Coding

Contact Information

Geralyn Matejcek, department chair
 geralyn.matejcek@ndscs.edu
 701-671-2269
 Mayme Green Allied Health Center 213H

Delivery Methods

Face-to-Face: Wahpeton
 Online: All Classes
 Combination

This option is designed to prepare the student with the necessary skills to be employed as a medical coder in coding and reimbursement. NDSCS offers North Dakota's only medical coding certificate approved by the AHIMA Foundation's Professional Certificate Approval Program (PCAP).

The demand for coders is extremely high, and is expected to grow with the nationwide implementation of a new classification system in 2015. Coders are employed in a variety of health care settings including hospitals, clinics, home health agencies, long-term care, insurance, consulting and auditing firms, and healthcare software companies. Coders review medical documentation, apply classifications systems to it, and assign medical codes. The codes are used for billing, research, statistics, reporting, and administrative purposes.

Coding guidelines will be studied in detail, as well as concepts in insurance and reimbursement, including the various payment systems. Students will apply knowledge of disease processes and procedural techniques to health data.

Graduates may transition into the health information technician AAS degree program option. Additional coding certifications are desirable after the graduate attains work experience, for further advancement in the profession.

Practicum

Academic training includes online learning laboratories. At the end of the program, students will participate in a practicum. These will be a combination of onsite and virtual experiences. Whenever possible, the onsite experience is scheduled at a site in the student's requested geographic area. Tuition and fees are assessed for this course.

*Healthcare facilities may require the student undergo a criminal background check and drug testing, and to submit other health-related documentation prior to accepting them for a professional practice experience. A previous conviction may affect placement and the student's ability to complete the program of study.

Delivery Options

The program is available both online and in a traditional campus environment. Online students complete all courses online, while on-campus students complete their HIT courses online and some of the related/general education courses in a traditional classroom.

Admission Requirements*

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this program are computer applications, anatomy and medical terminology.

Submit official ACT results to **Enrollment Services** with a minimum score of 18 in reading and 17 in English OR submit a Compass placement test with a minimum score of 80 in reading and 38 in writing OR submit an official college transcript with ENGL 110 completed with a "C" or higher.

Applicants must have the ability to perform the *Essential Program Requirements* as listed on the Health Information Program Information FAQ file on the college website www.ndscs.edu.

*Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.

Curriculum Requirements

A grade of "C" or above must be achieved in all courses in order to advance in the program and prior to placement in the practicum course. Minimum keyboarding competency of 40 words per minute and computer skills including ability to use email, upload and download files, install software and navigate the internet.

Course Code	Course Title	Credits
HIT 176	Introduction to Health Information	4
HIT 180	Pathopharmacology	3
HIT 184	Basic Diagnosis Coding	3
HIT 185	Basic Procedure Coding	3
HIT 285	Reimbursement Methodologies	3
HIT 286	Intermediate Diagnosis Coding	3
HIT 287	Computer Applications in Healthcare	3
HIT 288	Intermediate Procedure Coding	3
HIT 197C	Practicum	2
*BOTE 277	Medical Office Procedures (recommended)	3

Related/General Education Courses

BIOL 220	Anatomy and Physiology I	3
BIOL 220L	Anatomy and Physiology I Lab	1
BIOL 221	Anatomy and Physiology II	3
BIOL 221L	Anatomy and Physiology II Lab	1
BOTE 171	Medical Terminology	4
CSCI 116	Business Use of Computers	3
FYE 101	Science of Success	1
Total Required Credits		43 (46*)

* Recommended for students interested in pursuing outpatient coding as an area of focus.

Program Approval Statement

The North Dakota State College of Science Medical Coding program option is approved by the AHIMA Foundation's Professional Certificate Approval Program. This designation acknowledges the coding program as having been evaluated by a peer review process against a national minimum set of standards for entry-level coding professionals. This process allows academic institutions, healthcare organizations and private companies to be acknowledged as offering an approved coding certificate program.

"Value for Students" Statement

The AHIMA Foundation's Professional Certificate Approval Program designation:

- Identifies specialized programs that meet established coding educational standards.
- Stimulates improvement of educational standards through faculty development opportunities, and by involving faculty and staff in program evaluation and planning.
- Promotes a better understanding of the goals of professional coding education.
- Provides reasonable assurance that practitioners possess the necessary job skills upon entry into the profession.

Timeframe of Program Approval

April of 2015 to April 30, 2018 with annual interim approval during these years.

Program Goals and Student Learning Outcomes

Published in program handbook.

Award

Upon successful completion of the required courses, students will be awarded a certificate in Health Information with an emphasis in Medical Coding.

The American Health Information Management Association offers a voluntary entry-level coding certification examination, the Certified Coding Associate (CCA). The CCA credential distinguishes coders by exhibiting commitment and demonstrating coding competencies across all settings, including both hospitals and physician practices. Completion of an AHIMA-approved coding program is one of the training and recommendations listed in the AHIMA candidate guide. (www.ahima.org)

Revised: June 2015

Heating, Ventilating, Air Conditioning and Refrigeration Technology

► Contact Information

Jeff Kukert, department chair
jeffrey.kukert@ndscs.edu
701-671-2515
Barnard Hall 122

► Delivery Methods

Face-to-Face: Wahpeton

The Heating, Ventilating, Air Conditioning, and Refrigeration (HVAC/R) Technology program provides a balance of theory and application, in keeping with the philosophy of the North Dakota State College of Science. This includes a solid foundation of the principles of heating, ventilation, air conditioning, and refrigeration combined with extensive laboratory experience.

While in the lab, students learn to test, systematically troubleshoot, repair, and maintain electrical and mechanical HVAC/R systems and components. Residential and light commercial heating, ventilating, and air conditioning along with food preservation refrigeration are the focus of the program.

Because of the continuing demand for technicians, an HVAC/R graduate can easily find employment in any state or country. The average age of an HVAC/R technician in the US according to the US Department of Labor is 55 years old. In fact, an NDSCS HVAC/R graduate statistically has multiple jobs to choose from at graduation with starting salaries averaging \$37,000 per year (although most students have already found employment prior to graduation). Experienced veteran technicians command salaries averaging between \$70,000 and \$100,000 per year.

Career opportunities for technicians are multiplying with technological advances in the use of microcomputers for data processing and system control. The demand is also spurred by expansion in the production, storage, and marketing of food and other perishables.

The growing emphasis on energy cost and utilization also is creating a need for technicians to renovate, convert, and service existing heating and air conditioning systems. Graduates may work as service technicians, installation technicians, manufacturers, laboratory technicians, sales representatives, or designers.

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

ACT Reading – 15 or COMPASS Reading – 61

ACT English – 15 or COMPASS Writing – 26

Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Technologies and Services Dean's Office at 701-671-2244 or the Mechanical Systems Technologies department chair at 701-671-2515 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded a certificate or an Associate in Applied Science degree in HVAC/R Technology.

Course Code	Course Title	Credits
Certificate		
REFG 101	Refrigeration Technology	3
REFG 102	Refrigeration Technology	3
REFG 104	Refrigerants: Chemistry and Ecology	1
REFG 110	Blueprint Reading and Estimating	2
REFG 111	Fabrication Lab	2
REFG 112	Domestic and Residential Systems Lab	2
REFG 113	Refrigeration Systems Lab	2
REFG 121	Electrical Theory I	3
REFG 122	Electrical Theory II	3
REFG 123	Electrical Lab I	2
REFG 124	Electrical Lab II	2
REFG 253	Heating Equipment Theory	2
REFG 255	Heating Equipment Lab	3

Associate in Applied Science

REFG 201	Refrigeration Technology	3
REFG 202	Refrigeration Technology	3
REFG 211	Commercial Components Lab	2
REFG 212	Advanced Systems Lab	2
REFG 226	Building System Controls	3
REFG 231	Air Conditioning Design	3
REFG 232	Air Conditioning Design	3
REFG 254	Heat Pump Lab	2
REFG 256	Hydronic Heating Systems	3

Related/General Education Courses

Certificate		
ENGL 105	Technical Communications	3
CIS 101	Computer Literacy	2
FYE 101	Science of Success	1

Associate in Applied Science

ENGL 110	College Composition I	3
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
COMM 110	Fundamentals of Public Speaking	
MATH elective(s)		6
Wellness elective (HPER 210 recommended)		2
**Social and Behavioral Science electives		4
ECON, HIST, POLS, PSYC, SOC, GEOG or CIS/CSCI Electives		
Recommended Social Science electives:		
PSYC 100	Human Relations in Organizations	2
CIS 101	Computer Literacy	2
(NOTE: Maximum of two CIS/CSCI credits may be used for this category).		
FYI 101	Science of Success	1

Total Required Credits for Certificate 36

Total Required Credits for Associate in Applied Science 73

Revised: June 2015

Information Technology Support / Information Systems Administrator

Contact Information

John Kroshus, associate professor
john.kroshus@ndscs.edu
701-671-2115
Babcock Hall 106

Delivery Methods

Face-to-Face: Fargo
Online: Some Classes
Combination

Because we live in a computerized and networked society, Information Systems Administrator offers a world-wide job market with a variety of locations and environments. Computers and networks are used in all types of businesses, banks, accounting firms, hospitals, manufacturing companies, insurance companies, sales companies, etc. The placement record in this program has been excellent.

For students wishing to pursue a bachelor's degree at a four-year college or university, please see the Computer Science or Management Information Systems Liberal Arts Transfer Curriculum Plans listed in the Liberal Arts section of this catalog.

Program purposes

- To provide students with the knowledge of computer and network training enabling them to configure and install systems.
- To provide students with the knowledge and skills necessary to assist management in the selection of computer hardware and software.
- To provide students with the knowledge of computer networks enabling them to configure and install them.
- To prepare students to pursue a third-year option in Web Design, IT Forensics or Mobile Application Developer (see additional program purposes listed under Web Design emphasis, IT Forensics emphasis or Mobile Application Developer emphasis).

Computing facilities

NDSCS has many computer labs. Each of these labs has current versions of software installed.

All Information and Communications Technology students are required to purchase laptop computers. These laptops give students adequate computer access to complete projects and assignments given in class.

Instruction

The instructors for this program have formal educational training, industry training and certifications and work experience in Information Technology. Laboratory time is scheduled into each student's program allowing them to receive individual attention and hands-on computer experience.

NOTE: This program requires the purchase of a notebook computer. The cost will be approximately \$1,500 with several purchase or lease options available. For further information, call the Information Technology Department at 701-671-2523.

Admission Requirements*

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this curriculum are mathematics, keyboarding and any computer hardware classes.

Required minimum placement scores:

ACT Composite – 17 Or
COMPASS Reading – 79; COMPASS Writing – 76;
COMPASS Pre-Alg. – 71; COMPASS Algebra – 20
Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the ICT department chair at 701-671-2496 or the Arts, Science and Business Division Dean's Office at 701-671-2108 for strategies to meet the admission requirements.

*Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.

Information Technology Support (Certificate)

Course Code	Course Title	Credits
CIS 128	Hardware I	3
CIS 129	Hardware II	3
CIS 164	Networking Fundamentals I	4
CIS 165	Networking Fundamentals II	4
CIS 191	First Year Seminar	1
CIS 197	Internship	1
CIS 212	Microsoft Windows Operating System Client	3
CIS 220	Operating Systems (UNIX)	3
CIS 244	Web Server Management	3
ENGL 110	College Composition I	3
FYE 101	Science of Success	1
PHIL 210	Ethics	3
Total Required Credits for Certificate		32

After certificate courses are completed, below are the required courses for the Information and Communications Technology A.A.S. with emphasis in Information Systems Administrator degree

Course Code	Course Title	Credits
CIS 180	HTML and CSS	3
CIS 215	Implementing a Microsoft Windows Server Environment	4
CIS 216	Implementing a Microsoft Windows Network Infrastructure	4
CIS 267	Intermediate Networking I	4
CIS 268	Intermediate Networking II	4
CIS 279	Security Awareness and Policy	1
CSCI 160	Computer Science I	4
Wellness elective(s)		2
ND:MATH		3
English elective		3
Social and Behavioral Science, Humanities and History electives		2
Total Required Credits for Associate		66

Students interested in a third-year option in Web Design, IT Forensics or Mobile Application Developer should refer to the Web Design/Web Developer, IT Forensics or Mobile Application Developer fact sheets.

Upon successful completion of the third-year option, students will also be awarded a certificate in Information and Communications Technology with an emphasis in Web Design or a certificate in Information and Communications Technology with an emphasis in IT Forensics or Mobile Application Developer.

Award

Upon successful completion of the Information Technology Support required courses, students will be awarded a Certificate in Information and Communications Technology with an emphasis in Information Technology Support.

Upon successful completion of the Information Technology Support and the Information Systems Administrator required courses, students will be awarded an Associate in Applied Science degree in Information and Communications Technology with an emphasis in Information Systems Administrator.

Revised: June 2015

IT Forensics

► Contact Information

John Kroshus, associate professor
john.kroshus@ndscs.edu
701-671-2115
Babcock Hall 106

► Delivery Methods

Face-to-Face: Fargo
Online: Some Classes
Combination

Course Code	Course Title	Credits
CIS 128	Hardware I	3
CIS 129	Hardware II	3
CIS 164	Networking Fundamentals I	4
CIS 241	IT Forensics I	4
CIS 242	IT Forensics II	4
CIS 282	Computer System Security	4
CIS 284	Managing Network Security	4
ENGL/COMM	elective	3
FYE 101	Science of Success	1
PHIL 210	Ethics	3
Total Required Credits		33

More and more crimes are committed with the aid of computers. Whether they are used in the commission of the crime, as in email harassment or stalking, or used for keeping records of illegal activities such as gambling and embezzlement, the computer must be seized and analyzed. This program will help you learn how to provide a secure computer environment and learn techniques for collecting and analyzing IT-related evidence.

This certificate of completion provides a foundation for IT Forensics. The certificate program will provide an immediate basis for professionals employed in the high-tech industry to improve their ability to counter threats to information systems, thereby increasing their value to organizations that employ them, and ensuring computer systems under their care are protected. A peripheral objective is to provide an opportunity for new or recent graduates to acquire advanced skills in IT Forensics.

Specifically it will meet the following objectives:

- Foster a high-quality, student centered education.
- Provide students with a broad overview of the field and introduce them to recent advances and current research problems.
- Emphasize ethical, economic, social and legal impacts of IT Forensics technologies.
- Provide a foundation for the development of IT Forensics.
- Provide our students with ability to counter threats to information systems and provide appropriate "after incident" responses.

A satisfactory criminal background check will be required prior to admission into this curriculum. The applicant must visit with the department chair regarding this issue.

Admission Requirements*

The applicants must be high school graduates or equivalent. Also, students must meet the prerequisites or obtain department approval for admission into the certificate program.

A satisfactory criminal background check will be required prior to admission into this curriculum.

Required minimum placement scores:

ACT Composite – 17 Or
COMPASS Reading – 79; COMPASS Writing – 76;
COMPASS Pre-Alg. – 71; COMPASS Algebra – 20
Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the ICT department chair at 701-671-2496 or the Arts, Science and Business Division Dean's Office at 701-671-2108 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded a certificate in Information and Communications Technology with an emphasis in IT Forensics.

Revised: June 2015

Mobile Application Developer

► **Contact Information**

Jeff Watne, associate professor
 jeffory.watne@ndscs.edu
 701-671-2311
 Babcock Hall 103

► **Delivery Methods**

Face-to-Face: Fargo
 Online: Some Classes
 Combination

Course Code	Course Title	Credits
CIS 180	HTML and CSS	3
CIS 182	HTML Mobile	3
CIS 188	Application Design	3
CIS 191	First Year Seminar	1
CSCI 133	Database Concepts (SQL)	3
CSCI 134	Database Design and Management	3
CSCI 160	Computer Science I	4
CSCI 161	Computer Science II	4
CSCI 162	Mobile Application Capstone	3
FYE 101	Science of Success	1
MATH 103	College Algebra	3
MATH 104	Finite Mathematics	3
Total Required Credits		34

This certificate in Mobile Application Developer provides students with the specialized knowledge that is important in the development of web and mobile applications. Students will study and gain experience with the languages and frameworks that are most commonly used in developing these applications, and with the design of user interfaces and software systems. They will also learn the fundamental principles on which these topics are based, so that they will be prepared for the new technologies that are constantly being developed.

With a combination of online and on campus classes, our cutting-edge Mobile Application Developer certificate includes such topics as software design, current industry programming, languages, HTML/CSS, advanced HTML mobile, and mobile application development for handheld devices to help students start their career in mobile application development.

With heavy emphasis on programming, our Mobile Application Development certificate courses help students develop and enhance their knowledge and skills for a competitive advantage in today's job market through real-world scenarios, challenges, and tasks.

Admission Requirements*

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this curriculum are mathematics, accounting and keyboarding.

Required minimum placement scores:

- ACT Composite – 17 Or
- COMPASS Reading – 79; COMPASS Writing – 76;
- COMPASS Pre-Alg. – 71; COMPASS Algebra – 20
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the ICT department chair at 701-671-2496 or the Arts, Science and Business Division Dean's Office at 701-671-2108 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded a certificate in Information and Communications Technology with an emphasis in Mobile Application Developer.

Revised: June 2015

Web Design / Web Developer

► Contact Information

Bonnie Schillinger, department chair
 bonnie.schillinger@ndscs.edu
 701-671-2496
 Babcock Hall 102

► Delivery Methods

Face-to-Face: Wahpeton
 Face-to-Face: Fargo
 Online: All Classes
 Combination

Because we live in a computerized society, Web design offers a world-wide job market with unlimited locations and diverse environments. Web sites are utilized for a variety of businesses. The World Wide Web has unveiled new opportunities for businesses creating a demand for Web designers and Web developers.

As the World Wide Web becomes a pervasive medium — just like TV, radio, film and print — and as its influence grows beyond that of earlier media, the scope of essential designing skills for the Web continues to expand. Because today's Web involves more than HTML coding and graphic design, it is important to engage designers with a full range of skills, who can develop Web sites that bring benefits to their intended users.

Formal education and real world experience form a good basis for the development of a capable designer. This curriculum will enlarge student's skill sets and knowledge bases which will assist in the ability to analyze, create and revise Web sites.

For students wishing to pursue a bachelor's degree at a four-year college or university, please see the Computer Science or Management Information Systems liberal arts transfer curriculum plans listed in the Liberal Arts section of this catalog.

Computing facilities

Students in this program are **required** to purchase a laptop computer for classes. Wireless communication is used to keep students linked to the Internet and to other NDSCS campus computing facilities. These facilities are available seven days per week, 24 hours per day. This gives students adequate time to complete computer related projects and assignments.

Instruction

The instructors for this program have formal educational training, industry training and certifications and work experience in Information Technology. Laboratory time is scheduled into each student's program to enable them to receive individual attention and hands-on computer experience.

NOTE: This program requires the purchase of a notebook computer. The cost will be approximately \$1,500 with several purchase or lease options available. For further information, call the Information and Communications Technology Department at 701-671-2523.

Admission Requirements*

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this curriculum are keyboarding, Internet classes and any publication type class.

Required minimum placement scores:

- ACT Composite – 17 Or
- COMPASS Reading – 79; COMPASS Writing – 76;
- COMPASS Pre-Alg. – 71; COMPASS Algebra – 20
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the ICT department chair at 701-671-2496 or the Arts, Science and Business Division Dean's Office at 701-671-2108 for strategies to meet the admission requirements.

Web Design (Certificate)

Course Code	Course Title	Credits
BADM 110	Introduction to eBusiness	3
BOTE 108	Business Mathematics	3
CIS 164	Networking Fundamentals I	4
CIS 180	HTML and CSS	3
CIS 181	Web Authoring and Image Editing Software	3
CIS 220	Operating Systems (UNIX)	3
CIS 232	Graphics Design	3
CSCI 135	Web Programming (XML)	3
ENGL 110	College Composition I	3
ENGL 125	Introduction to Professional Writing	3
FYE 101	Science of Success	1
Total Required Credits for Certificate		32

After certificate courses are completed, below are the required courses for the Information and Communications Technology A.A.S. with emphasis in Web Developer degree

Course Code	Course Title	Credits
CIS 233	Vector Graphics and Web Animation	3
CIS 244	Web Server Management	3
CIS 279	Security Awareness and Policy	1
CIS 197/297	Internship and/or Cooperative Education	2-3
CSCI 102	Fundamentals of Cyberlaw	3
CSCI 122	Visual Basic	3
CSCI 133	Database Concepts (SQL)	3
CSCI 160	Computer Science I	4
CSCI 230	Web Database I (ASP/PHP)	3
PHIL 210	Ethics	3
Social and Behavioral Science, Political Science, Humanities and History elective(s)		3
Wellness elective(s)		2
Total Required Credits for Associate		65-66

*Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.

Award

Upon successful completion of the required courses for the certificate, students will be awarded a certificate in Information and Communications Technology with an emphasis in Web Design.

Upon successful completion of the required courses for the degree, students will be awarded an Associate in Applied Science degree in Information and Communications Technology with an emphasis in Web Developer.

Revised: June 2015

John Deere Tech

► Contact Information

Larry Ascheman, program coordinator
 larry.ascheman@ndscs.edu
 701-671-2213
 Tech Center 71

► Delivery Methods

Face-to-Face: Wahpeton

The John Deere Tech program is designed to develop technically competent, professional ag equipment service technicians. The John Deere Company sponsors the program and NDSCS administers and operates the program.

This unique program combines state-of-the-art, on-campus training with supervised occupational experiences at a sponsoring John Deere dealership. Students receive technical training on John Deere equipment and related products through a combination of classroom instruction and hands-on laboratory experiences. Classroom and laboratory instruction at NDSCS covers the basics of each subject plus the latest developments in John Deere's agricultural equipment. Work experience at the dealership reinforces on-campus training and exposes the student to real life failures and repairs as they occur on the equipment.

Green technology is addressed through changes in emission standards and alternative fuels that will continue to advance changes in this industry.

The John Deere Tech program takes six semesters, or approximately 24 months, to complete. The six semesters are divided into 10 terms, each approximately eight weeks in length. Students complete the second, third, fourth, sixth, seventh, ninth and tenth terms on campus and the first, fifth, and eighth terms at a sponsoring John Deere dealership.

Admission Requirements:

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements. Special requirements include securing a John Deere dealership sponsor.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- Or transfer equivalencies will apply as appropriate

Applicants must also have a minimum score of 80% on the Differential Aptitude Test (DAT). For information on the DAT exam, contact the Diesel Technology Department at 701-671-2330.

Applicants not meeting the above requirements are encouraged to visit with the Diesel Technology Department at 701-671-2330 or the Technologies and Services Dean's Office at 701-671-2244 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in John Deere Tech.

Course Code	Course Title	Credits
DTEC 109	Air Conditioning for Diesel Technology	2
DTEC 115	Introduction to Light and Medium Duty Engines	4
JDAT 105	Supervised Occupational Experience I	2
JDAT 106	John Deere Time Service Management	2
JDAT 110	Supervised Occupational Experience II	5
JDAT 114	Supervised Occupational Experience III	5
JDAT 116	John Deere Equipment Operation and Adjustment	4
JDAT 155	Introduction to Electrical Electronics	4
JDAT 165	Introduction to John Deere Hydraulic Systems	4
JDAT 215	John Deere Engine Rebuild	6
JDAT 225	John Deere Powertrains	7
JDAT 255	John Deere Electrical/Electronics	5
JDAT 260	Introduction to Ag Management Solutions (AMS)	3
JDAT 265	John Deere Tractor Hydraulic Systems Diagnosis	5
MFGT 110	Industrial Shop Practices	2

Related/General Education Courses

BADM 240	Sales	3
ENGL 110	College Composition I	3
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
COMM 110	Fundamentals of Public Speaking	
MATH 120	Basic Mathematics I	2
MATH 123	Basic Mathematics II	2
MATH 125	Basic Mathematics III	2
Wellness elective(s)		2
CIS 101	Computer Literacy	2
PSYC 100	Human Relations in Organizations	2
FYE 101	Science of Success	1

Total Required Credits 82

NOTE: 81 credits include two summer sessions

Land Surveying and Civil Engineering Technology

► Contact Information

Jeff Jelinek, program coordinator
 Jeff.jelinek@ndscs.edu
 701-671-2268
 Horton Hall 242

► Delivery Methods

Face-to-Face: Wahpeton
 Online: Some classes

The Land Surveying and Civil Engineering Technology program is designed to prepare students for work as engineering and surveying technicians in construction-related industries, allowing graduates to work in a broad range of jobs such as surveying, drafting and material testing. Upon graduation, students can be employed with state, county and city engineering offices as well as private agencies such as consulting engineers, land surveyors and construction contractors. Some jobs are in fixed locations, while others require limited to extensive travel.

Students are provided with experiences emphasizing surveying, drafting and materials testing. Surveying courses give students the opportunity to learn how to operate the latest instruments used in distance and angle measurement. Surveying drawings and maps are developed using enhanced computer-aided drafting programs (CAD). Courses in soil testing, water-quality management, concrete and asphalt provide students with hands-on experience in materials testing. In addition, students take courses in communications, human relations, computers and technical mathematics, which will help provide them the skills to advance in their careers.

Green and/or sustainable construction is covered at an awareness level in the materials testing classes and the design classes.

While students are fully employable upon completion of this program, students interested in pursuing an advanced degree will find the Associate in Applied Science degree in Land Surveying and Civil Engineering Technology provides transfer options to four-year colleges and universities in related fields such as land surveying and construction management.

NOTE: This program requires the purchase of a notebook computer. The cost will be approximately \$1,500. For further information, call Jeff Jelinek, Land Surveying and Civil Engineering program coordinator, at 701-671-2268.

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- ACT Math – 17 or COMPASS Math – 21 (algebra domain)
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Technologies and Services Dean's Office at 701-671-2244 or the Construction and Design Technology department chair at 701-671-2116 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Land Surveying and Civil Engineering Technology.

Course Code	Course Title	Credits
CAD 120	Introduction to AutoCAD	3
CT 111	Civil Plans and Specifications	2
CT 113	Introduction to Civil Design Applications	3
CT 121	Plane Surveying	4
CT 122	Advanced Surveying	4
CT 132	Material Testing/Quality Control	4
CT 142	Construction Safety for Civil Technicians	1
CT 211	Introduction to Geographic Information Systems	3
CT 212	GIS Applications	3
CT 214	Highway and Street Design	3
CT 215	Land Use Planning and Development	3
CT 221	Surveying Procedures	4
CT 222	Advanced Surveying Procedures	4
CT 223	Boundary Control and Legal Principles	3
CT 235	Water Resource Technology	3
CT 241	Statics and Strength of Materials	2
CT 243	Research and Analysis	3
CT 261	Machine Control and Project Layout	2

Related/General Education Courses

ENGL 110	College Composition I	3
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
COMM 110	Fundamentals of Public Speaking	
MATH 130	Technical Mathematics	2
MATH 132	Technical Algebra I	2
MATH 136	Technical Trigonometry	2
FYE 101	Science of Success	1
HPER 210	First Aid and CPR	2
Social and Behavioral Science electives		4
ECON, HIST, POLS, PSYC, SOC, GEOG or CIS/CSCI electives (NOTE: Maximum of two CIS/CSCI credits may be used for this category)		

Total Required Credit **73**

Revised: June 2015

Agriculture Transfer

Contact Information

Dr. Anissa Wilhelm, associate professor
 anissa.wilhelm@ndscs.edu
 701-671-2252
 Tech Center 46

Delivery Methods

Face-to-Face: Wahpeton
 Online: Some Classes
 Combination

The Agriculture Department mission statement is to "provide a foundation for an entrepreneurial agricultural spirit."

Its philosophy statement is: "The Agriculture Department provides education for the present and future by incorporating leadership and career development, best management practices in crop and livestock production, mechanics, technology, natural resources, problem solving, internships and communication through a diverse program."

The Agriculture transfer curriculum plan is designed for students who plan to continue their studies toward a bachelor's degree in agriculture from one of the area universities. Since degree requirements of various transfer institutions differ, students should consult an advisor and the catalog of the college to which they plan to transfer so they can determine specific course requirements and transfer policies. Their NDSCS agriculture advisor will assist them with the transfer process.

Students will take a mixture of agriculture and general education courses while at NDSCS that will assist them in meeting the requirements of their anticipated degree. Smaller class size enables a successful beginning towards completion of a bachelor's degree.

Green technology is threaded through program outcomes which involve economic, ecological and environmental decision making. Examples include instruction in integrated pest management, precision application of production inputs, soil and water conservation applications, conservation tillage practices, crop rotation strategies, manure management plans, rotational grazing systems, understanding the nitrogen and carbon cycles, and crop and livestock diversification.

Course Code	Course Title	Credits
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
FYE 101	Science of Success	1
	Wellness elective(s)	2
PLSC 110	World Food Crops	3
PLSC 225	Principles of Crop Production	3
SOIL 210	Introduction to Soil Science	3
AGEC 242	Introduction to Agricultural Management	3
	Free electives	4
	Humanities/History electives	6
	<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>	
	Math, Science and Computer Information Systems electives	9
	<i>From any course marked ND:LABSC, ND:MATH, ND:COMPSC, ND:SCI</i>	
	<i>All students must complete one lab science course, one mathematics course and one computer science course.</i>	
	Social and Behavioral Science electives	8
	<i>From two or more prefixes within the category marked ND:SS</i>	
	Required:	
ECON 201	Principles of Microeconomics (3)	
ECON 202	Principles of Macroeconomics (3)	
	*Agriculture and general education electives	15
	Total Required Credits	66

*Electives should be selected according to the needs of the student or requirements of the transfer college.

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading: NDUS General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this program are chemistry, algebra, advanced mathematics, biology, agricultural education, English and computer science.

Applicants may be required to complete a basic skills evaluation during the admissions process.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Science degree in Liberal Arts.

Revised: June 2015

Biotechnology Transfer

► Contact Information

Dr. Bill Shay, associate professor
 william.shay@ndscs.edu
 701-671-2341
 Haverty Hall 228

► Delivery Methods

Face-to-Face: Wahpeton
 Online: Some Classes
 Combination

The biotechnician has a diversified education in biology, chemistry and physics. While a few entry-level jobs are available to biotechnicians with an A.S. or B.S. degree, most often the undergraduate Biotechnology curriculum is used as a stepping-stone to a M.D., M.S. or Ph.D. degree. A biotechnician with an A.S. or B.S. degree generally performs routine tasks and analytical procedures under the supervision of the research scientist.

Students choosing this plan should consult with the Mathematics and Science Department in selecting their courses since future plans of study at a four-year college may have specific requirements. In addition, a student should contact the college or university of their choice to confirm a list of recommended courses.

Students entering Biotechnology who do not have the proper prerequisites may need additional preparatory classes.

The Biotechnology transfer curriculum plan provides preparation for the professional curriculum and meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

In addition to the Biotechnology transfer curriculum plan, other programs a student may transfer into are biology, microbiology, chemistry, biochemistry, environmental science, wildlife biology, agriculture, natural science and conservation.

Course Code	Course Title	Credits
BIOL 150	General Biology I	3
BIOL 150L	General Biology I Lab	1
CHEM 121	General Chemistry I	4
CHEM 121L	General Chemistry I Lab	1
CHEM 122	General Chemistry II	4
CHEM 122L	General Chemistry II Lab	1
CHEM 241	Organic Chemistry I	4
CHEM 241L	Organic Chemistry I Lab	1
CHEM 242	Organic Chemistry II	4
CHEM 242L	Organic Chemistry II Lab	1
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
FYE 101	Science of Success	1
MATH 165	Calculus I	4
MICR 202	Introductory Microbiology	3
MICR 202L	Introductory Microbiology Lab	1
PHYS 211	College Physics I	3
PHYS 211L	College Physics I Lab	1
PHYS 212	College Physics II	3
PHYS 212L	College Physics II Lab	1
	Computer Information System elective	2
	<i>Any course marked ND:COMPSC</i>	
	Humanities/History electives	6
	<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>	
	Social and Behavioral Science electives	8
	<i>From two or more prefixes within the category marked ND:SS</i>	
	Wellness elective(s)	2
	Total Required Credits	68

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading: NDUS General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this program are biology, computer science, chemistry, mathematics, physics and English. Courses that develop reading and communications skills are also recommended. Applicants may be required to complete a basic skills evaluation during the admissions process.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Science degree in Liberal Arts.

Revised: June 2015

Business Administration Transfer

► Contact Information

Curt Schreiber, assistant professor
 curt.schreiber@ndscs.edu
 701-671-2601
 Horton Hall 231

► Delivery Methods

Face-to-Face: Wahpeton
 Online: Some Classes
 Combination

This Liberal Arts degree with an emphasis in Business Administration is for students intending to eventually earn a four-year degree. It is designed to provide a smooth transition into an accounting, business administration, finance, marketing, or international business baccalaureate program at a four-year college or university. The curriculum will include a blend of both general education and business courses.

A faculty advisor will assist students in the development of an appropriate program to meet his/her career goals. Employment opportunities are unlimited, depending upon the individuals' strengths and interests.

Course Code	Course Title	Credits
ACCT 200	Elements of Accounting I	4
ACCT 201	Elements of Accounting II	4
COMM 110	Fundamentals of Public Speaking	3
ECON 201	Principles of Microeconomics	3
ECON 202	Principles of Macroeconomics	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
FYE 101	Science of Success	1
	Wellness elective(s)	2
PSYC 111	Introduction to Psychology	3
SOC 110	Introduction to Sociology	3
	Humanities/History electives	6
	<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>	
	Required:	
PHIL 210	Ethics (3)	
	Math, Science and Computer Information Systems electives	13
CSCI 116	Business Use of Computers (3)	
MATH 103	College Algebra (3)	
MATH 210	Elementary Statistics (3)	
	Lab Science elective (4)	
	General Requirements	15
ACCT 215	Business in the Legal Environment (3)	
BADM 201	Principles of Marketing (3)	
BADM 202	Principles of Management (3)	
BADM 251	Personal Finance (3)	
BUSN 120	Fundamentals of Business (3)	
	Total Required Credits	66

*Consult academic advisor in selecting electives that are most appropriate for the intended bachelor's program.

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading: NDUS General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this program are accounting and general business.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Arts degree in Liberal Arts.

Revised: June 2015

Chemistry Transfer

► Contact Information

Dr. Bill Shay, associate professor
william.shay@ndscs.edu
701-671-2341
Haverty Hall 228

► Delivery Methods

Face-to-Face: Wahpeton
Online: Some Classes
Combination

The Chemistry transfer curriculum is designed for students planning a career in chemistry or a related field that would benefit from a strong background in the physical sciences and mathematics. Successful completion of the curriculum will allow the student to transfer to a four-year chemistry program or to four-year programs in the physical sciences or engineering.

This degree plan is designed to provide students with a more accurate representation of the course sequences taken during the first two years of a four-year degree program in either chemistry or mathematics.

Students choosing this plan should consult with the Mathematics and Science Department in selecting their courses since future plans of study at a four-year college may have specific requirements. In addition, a student should contact the college or university of their choice to confirm a list of recommended courses.

Upon completion of this program, the student is awarded an Associate in Science degree, which allows transfer to most four-year colleges and universities as a junior.

This plan meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

Course Code	Course Title	Credits
CHEM 121	General Chemistry I	4
CHEM 121L	General Chemistry I Lab	1
CHEM 122	General Chemistry II	4
CHEM 122L	General Chemistry II Lab	1
CHEM 241	Organic Chemistry I	4
CHEM 241L	Organic Chemistry I Lab	1
CHEM 242	Organic Chemistry II	4
CHEM 242L	Organic Chemistry II Lab	1
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
or ENGL 125	Introduction to Professional Writing (3)	
FYE 101	Science of Success	1
MATH 165	Calculus I	4
MATH 166	Calculus II	4
MATH 265	Calculus III	4
PHYS 251	University Physics I	4
PHYS 251L	University Physics I Lab	1
PHYS 252	University Physics II	4
PHYS 252L	University Physics II Lab	1
	Computer Information System elective	2
	<i>Any course marked ND:COMPSC</i>	
	Humanities/History electives	6
	<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>	
	Social and Behavioral Science electives	8
	<i>From two or more prefixes within the category marked ND:SS</i>	
	Wellness elective(s)	2
	Total Required Credits	70

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading NDUS: General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Helpful course to prepare for this program are biology, chemistry, computer science, English, mathematics and physics.

Courses that develop reading and communication skills and two years of a foreign language, if available, also are recommended. Applicants may be required to complete a basic skills evaluation during the admissions process.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Science degree in Liberal Arts.

Revised: June 2015

Chiropractic Transfer

► Contact Information

Shannon King, department chair
shannon.king@ndscs.edu
701-671-2296
Haverty Hall 213

► Delivery Methods

Face-to-Face: Wahpeton
Online: Some Classes
Combination

Chiropractors are health practitioners who treat patients primarily by manual manipulation of parts of the body, especially the spinal column. This approach to health care is based upon the principle that interference with the nervous system impairs normal functions and lowers resistance to disease. Chiropractic manipulation is intended to assist the nervous system to function properly.

All chiropractic colleges require three years of undergraduate study, including courses in English, social sciences, biology, general and organic chemistry, physics, mathematics, English and humanities. The course in chiropractic college is generally an additional four years. Most offer a broad curriculum, including subjects such as physiotherapy and nutrition. In most chiropractic colleges the first two years consist of classroom and laboratory work while the last two years stress clinical work with patients. The degree awarded upon completion is Doctor of Chiropractic (D.C.).

Students entering the Chiropractic transfer curriculum plan who do not have the proper prerequisites may need additional preparatory classes.

The Chiropractic transfer curriculum plan provides preparation for the professional curriculum and meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

In addition to this plan, other programs a student may transfer into are biology, chemistry, chemistry health service option and natural science.

Course Code	Course Title	Credits
BIOL 150	General Biology I	3
BIOL 150L	General Biology I Lab	1
BIOL 151	General Biology II	3
BIOL 151L	General Biology II Lab	1
CHEM 121	General Chemistry I	4
CHEM 121L	General Chemistry I Lab	1
CHEM 122	General Chemistry II	4
CHEM 122L	General Chemistry II Lab	1
CHEM 241	Organic Chemistry I	4
CHEM 241L	Organic Chemistry I Lab	1
CHEM 242	Organic Chemistry II	4
CHEM 242L	Organic Chemistry II Lab	1
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
FYE 101	Science of Success	1
MATH 105	Trigonometry	2
or MATH 165	Calculus I (4)	
PHYS 211	College Physics I	3
PHYS 211L	College Physics I Lab	1
PHYS 212	College Physics II	3
PHYS 212L	College Physics II Lab	1
Computer Information Systems elective		2
<i>From any course marked ND:COMPSC</i>		
Humanities/History electives		6
<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>		
Social and Behavioral Sciences		8
<i>From two or more prefixes within the category marked ND:SS</i>		
Required:		
PSYC 111	Introduction to Psychology (3)	
Wellness elective(s)		2
Total Required Credits		66 (68)

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading: NDUS General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this program are biology, computer science, chemistry, zoology, mathematics, physics and English. Courses that develop reading and communications skills and two years of a foreign language, if available, are also recommended. Applicants may be required to complete a basic skills evaluation during the admissions process.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Science degree in Liberal Arts.

Revised: June 2015

Clinical Laboratory Science Transfer

► Contact Information

Shannon King, department chair
shannon.king@ndscs.edu
701-671-2296
Haverty Hall 213

► Delivery Methods

Face-to-Face: Wahpeton
Online: Some Classes
Combination

Clinical laboratory scientists are laboratory professionals who apply scientific skills and knowledge to a variety of complex diagnostic and therapeutic procedures. Clinical Laboratory Science has increased in scope and importance in recent years. Although they are trained in all areas of laboratory work, they often specialize in an area such as blood banking, hematology, microbiology, urinalysis or nuclear medicine technology.

Preparation for a career in Clinical Laboratory Science involves three years of academic study in an undergraduate program and one year of clinical study in a professional program. Academic work will include chemistry, organic chemistry, biology, microbiology, zoology, English, physics, anatomy/physiology, statistics, psychology, social sciences, speech, mathematics and humanities.

Students entering the Clinical Laboratory Science transfer curriculum plan who do not have the proper prerequisites may need additional preparatory classes. The Mathematics and Science Department highly recommends the completion of sequential series of courses.

The Clinical Laboratory Science transfer curriculum plan provides preparation for the professional curriculum and meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

In addition to this plan, other programs a student may transfer into are biology, microbiology, chemistry, biochemistry, environmental science, wildlife biology, agriculture, natural science and conservation.

Course Code	Course Title	Credits
BIOL 150	General Biology I	3
BIOL 150L	General Biology I Lab	1
BIOL 151	General Biology II	3
BIOL 151L	General Biology II Lab	1
CHEM 121	General Chemistry I	4
CHEM 121L	General Chemistry I Lab	1
CHEM 122	General Chemistry II	4
CHEM 122L	General Chemistry II Lab	1
CHEM 241	Organic Chemistry I	4
CHEM 241L	Organic Chemistry I Lab	1
CHEM 242	Organic Chemistry II	4
CHEM 242L	Organic Chemistry II Lab	1
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
FYE 101	Science of Success	1
MATH 103	College Algebra	3
MATH 105	Trigonometry	2
PHYS 211	College Physics I	3
PHYS 211L	College Physics I Lab	1
PHYS 212	College Physics II	3
PHYS 212L	College Physics II Lab	1
	Computer Information Systems elective	2
	<i>From any course marked ND:COMPSC</i>	
	Humanities/History electives	6
	<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>	
	Social and Behavioral Sciences electives	8
	<i>From two or more prefixes within the category marked ND:SS</i>	
	Wellness elective(s)	2
	Total Required Credits	69

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading: NDUS General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this program are biology, computer science, chemistry, zoology, mathematics, physics and English. Courses that develop reading and communications skills also are recommended. Applicants may be required to complete a basic skills evaluation during the admissions process.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Science degree in Liberal Arts.

Revised: June 2015

Computer Science Transfer

▶ Contact Information

Jeff Watne, associate professor
 jeffory.watne@ndscs.edu
 701-671-2311
 Babcock Hall 103

▶ Delivery Methods

Face-to-Face: Wahpeton
 Face-to-Face: Fargo
 Online: Some Classes
 Combination

The Computer Science transfer curriculum plan provides articulation to professional programs in computer science. In addition, this plan meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

If you are creative, a logical thinker, pay attention to detail, are easily motivated, work well on your own and are capable of sound decision-making, you are an excellent candidate for working in the computer area.

Computing facilities

NDSCS has many computer labs. Each of these labs has current versions of software installed.

Information and Communications Technology students are required to purchase laptop computers. These laptops give students adequate computer access to complete projects and assignments given in class.

The software necessary for the CIS/CSCI classes in this curriculum are included with the textbooks.

Instruction and advising

The instructors for this program have formal educational training, industry training and certifications and work experience in Information Technology. The average class size is 25 students. Most of the computer information systems classes have a lab period which enables students to receive individualized attention when it is needed.

NOTE: It is required that students entering this program purchase a notebook computer. The cost will be approximately \$1,500 with several purchase or lease options available. For further information, call the Information Technology Department at 701-671-2523.

Course Code	Course Title	Credits
COMM 110	Fundamentals of Public Speaking	3
CIS 220	Operating Systems (UNIX)	3
CSCI 122	Visual Basic	3
CSCI 133	Database Concepts I (SQL)	3
CSCI 160	Computer Science I	4
CSCI 161	Computer Science II	4
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
	Wellness elective(s)	2
MATH 165	Calculus I	4
MATH 166	Calculus II	4
	CIS/CSCI or General electives*	6
FYE 101	Science of Success	1
	Humanities/History electives	6
	<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>	
	Science electives	8
	<i>Any course marked ND:LABSC</i>	
	Social and Behavioral Sciences	8
	<i>From two or more prefixes within the category marked ND:SS</i>	
	Required:	
ECON 201	Principles of Microeconomics (3)	
Total Required Credits		65

*Consult academic advisor in selecting electives that are most appropriate for the intended bachelor's program.

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading: NDUS General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this curriculum are upper level mathematics classes.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Science degree in Liberal Arts.

Revised: June 2015

Criminal Justice Transfer

► Contact Information

Dr. Kelly Wolf, instructor
 kelly.wolf@ndscs.edu
 701-671-2142
 Old Main 444

► Delivery Methods

Face-to-Face: Wahpeton
 Online: Some Classes
 Combination

This transfer curriculum plan is available to the student whose goal is a career in the justice system. This plan is for the student who wishes to complete the Associate in Arts degree at NDSCS, transfer directly to a four-year college or university to complete the bachelor's degree in criminal justice, and then complete the one semester Peace Officer Training (or other specific academy for their chosen area of criminal justice). The Criminal Justice transfer curriculum plan at NDSCS includes the freshman and sophomore core courses in English and humanities, math, physical sciences, social and behavioral sciences, humanities and physical education. All colleges and universities require these core courses for students seeking a bachelor's degree. An Associate in Arts degree is awarded upon completion of the program.

Individuals interested in criminal justice have several career options available to them. Among the many options are: police, detectives, county and state patrol officers, parole, probation and corrections officers. Also, many jobs are available in the federal government such as: FBI, U.S. Marshal Service, ATF, Secret Service and DEA.

The Criminal Justice transfer curriculum plan meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

NOTE: For those students interested in becoming license eligible as peace officers in the State of N.D., a collaboration agreement has been made between NDSCS and Lake Region State College (LRSC). LRSC offers Peace Officer Training (20 credits; NDSCS graduates take 17 of those credits) in Devils Lake (fall), Minot (spring), Grand Forks (summer) and Fargo (summer). Upon completion of Peace Officer Training, the student would be license eligible as a peace officer in the State of N.D. and may choose to continue their education towards a bachelor's degree at a four-year college.

Course Code	Course Title	Credits
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
HIST 103	United States History to 1877	3
and HIST 104	United States History Since 1877	3
or HIST 101	Western Civilization I	
and HIST 102	Western Civilization II	
Wellness elective(s)		2
PHIL 210	Ethics	3
Math, Science and Computer Information Systems electives		13
<i>From any course marked ND:LABSC, ND:MATH, ND:COMPSC, ND:SCI</i>		
<i>All students must complete one lab science course, one mathematics course and one computer science course.</i>		
Required:		
BIOL 115	Human Structure and Function (3)	
BIOL 115L	Human Structure and Function Lab (1)	
CIS 101	Computer Literacy (2)	
or CSCI 101	Introduction to Computers (3)	
MATH 210	Elementary Statistics (3)	
Social and Behavioral Science electives*		31
<i>From any course with CJ, POLS, PSYC or SOC prefixes within the category marked ND:SS</i>		
Required:		
CJ 160	The Legal System (4)	
CJ 201	Introduction to Criminal Justice (3)	
CJ 232	Administration of Justice (3)	
CJ 297	Internship (1-4)	
POLS 115	American Government (3)	
POLS 116	State and Local Government (3)	
PSYC 111	Introduction to Psychology (3)	
SOC 110	Introduction to Sociology (3)	
SOC 115	Social Problems (3)	
FYE 101	Science of Success	1
Total Required Credits		65

Consult academic advisor in selecting electives that are most appropriate for the intended baccalaureate program.

* Suggested electives:

POLS 103	Global Politics in a Multi-Cultural World (3)
POLS 236	American Constitution — Civil Liberties (3)
PSYC 103	Addictions and Alternatives (2)
PSYC 270	Abnormal Psychology (3)
SOC 220	Family (3)
SOC 221	Minority Relations (3)

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading: NDUS General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Applicants may be required to complete a basic skills evaluation during the admission process.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Arts degree in Liberal Arts.

Revised: June 2015

Dental Transfer

► Contact Information

Dr. Bill Shay, associate professor
 william.shay@ndscs.edu
 701-671-2341
 Haverty Hall 228

► Delivery Methods

Face-to-Face: Wahpeton
 Online: Some Classes
 Combination

Dentistry is a demanding profession. Academic preparation for dentistry is long and rigorous. The dental schools in the United States have no uniform requirements for pre-professional study. They do, however, recommend a bachelor's degree and a broad, general education that includes basic science requirements and the development of skills in reading, writing and speaking. Course work must be completed in biology/zoology, general chemistry, organic chemistry, physics, mathematics and English.

Students are chosen for admission to dental school primarily on the basis of their undergraduate grades and scores on the Dental Admission Test. Most dental schools require an interview and all require recommendations. Students should keep in mind, however, that only a certain percentage of dental school applicants are accepted. Therefore, it is important to select a major that will prepare you to pursue alternative career goals for occupational flexibility.

Students entering the Dental transfer curriculum plan who do not have the proper prerequisites may need additional preparatory classes.

The Dental transfer curriculum plan provides preparation for the professional curriculum and meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

In addition to this plan, other programs a student may transfer into are biology, microbiology, chemistry, biochemistry, environmental science, wildlife biology, agriculture, natural science and conservation.

Course Code	Course Title	Credits
BIOL 150	General Biology I	3
BIOL 150L	General Biology I Lab	1
BIOL 151	General Biology II	3
BIOL 151L	General Biology II Lab	1
CHEM 121	General Chemistry I	4
CHEM 121L	General Chemistry I Lab	1
CHEM 122	General Chemistry II	4
CHEM 122L	General Chemistry II Lab	1
CHEM 241	Organic Chemistry I	4
CHEM 241L	Organic Chemistry I Lab	1
CHEM 242	Organic Chemistry II	4
CHEM 242L	Organic Chemistry II Lab	1
(CHEM 260)	(**Elements of Biochemistry) (4)	
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
FYE 101	Science of Success	1
MATH 105	Trigonometry	2
or MATH 165	Calculus I (4)	
PHYS 211	College Physics I	3
PHYS 211L	College Physics I Lab	1
PHYS 212	College Physics II	3
PHYS 212L	College Physics II Lab	1
	Computer Information Systems elective	2
	<i>From any course marked ND:COMPSC</i>	
	Humanities/History electives	6
	<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>	
	Social and Behavioral Science electives	8
	<i>From two or more prefixes within the category marked ND:SS</i>	
	Wellness elective(s)	2
	Total Required Credits	66 (68)

**The University of Minnesota also requires CHEM 260 Elements of Biochemistry.

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading: NDUS General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this program are biology, computer science, chemistry, zoology, mathematics, physics and English. Courses that develop reading and communications skills and two years of a foreign language, if available, are also recommended. Applicants may be required to complete a basic skills evaluation during the admissions process.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Science degree in Liberal Arts.

Revised: June 2015

Early Childhood Education Transfer

► Contact Information

Jane Krump, department chair
jane.krump@ndscs.edu
701-671-2370
Old Main 442

► Delivery Methods

Face-to-Face: Wahpeton
Online: Some Classes
Combination

This transfer curriculum plan is available to the student whose goal is a career in early childhood education, child development, family science or related fields.

Employment opportunities include parent and family life educators, extension agents, child protection service professionals, financial counselors, nursing home activity directors, credit specialists, probation agents, directors of child care licensing and hospital child life specialists.

The Early Childhood Education transfer curriculum plan at NDSCS includes the freshman and sophomore core courses in English, humanities, math, physical sciences, social and behavioral sciences, and wellness. All colleges and universities require these core courses for students seeking a bachelor's degree.

Upon completion of the program, the student is awarded an Associate in Arts degree, which allows transfer to most four-year colleges and universities as a junior.

This plan meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

Course Code	Course Title	Credits
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
FYE 101	Science of Success	1
	Humanities/History electives	6
<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>		
Recommended:		
ENGL 238	Children's Literature (3)	
	Wellness elective(s)	2
MATH 103	College Algebra	3
CSCI 116	Business Use of Computers	3
BIOL 111	Concepts of Biology	3
BIOL 111L	Concepts of Biology Lab	1
<i>Math, Science and Computer Information Systems electives</i>		
	<i>From any course marked ND:LABSC, ND:MATH, ND:COMPSC, ND:SCI</i>	3
PSYC 111	Introduction to Psychology	3
PSYC 210	Child Development	3
PSYC 250	Developmental Psychology	3
SOC 110	Introduction to Sociology	3
SOC 220	Family	3
	General Education electives*	19
Recommended:		
EDUC 250	Introduction to Education (2)	
EDUC 298	Pre-Professional Field Exp. (w/EDUC 250) (1)	
HPER 210	First Aid and CPR (2)	
HPER 217	Personal and Community Health (3)	
PHIL 210	Ethics (3)	
SOC 115	Social Problems (3)	
SOC 221	Minority Relations (3)	
TOTAL REQUIRED CREDITS		65

*Consult academic advisor in selecting electives that are most appropriate for the intended bachelor's program.

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading: NDUS General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Applicants may be required to complete a basic skills evaluation during the admission process.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Arts degree in Liberal Arts.

Revised: June 2015

Education Transfer

► **Contact Information**

Wade King, department chair
 wade.king@ndscs.edu
 701-671-2317
 Haverty Hall 215

► **Delivery Methods**

Face-to-Face: Wahpeton
 Online: Some Classes
 Combination

Course Code	Course Title	Credits
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
FYE 101	Science of Success	1
HIST 103	United States History to 1877	3
HIST 104	United States History Since 1877	3
	Wellness elective(s)	2
POLS 115	American Government	3
	Political Science or History elective	3
	<i>Any course marked ND:POLS or ND:HIST</i>	
PSYC 111	Introduction to Psychology	3
PSYC 210	Child Development	3
PSYC 230	Educational Psychology	3
SOC 110	Introduction to Sociology	3
SOC 115	Social Problems	3
	General Education electives*	10
	English Literature	3
	<i>Any ND:HUM course with the ENGL prefix</i>	
	Math, Science and Computer Information Systems electives	13
	<i>From any course marked ND:LABSC, ND:MATH, ND:COMPSC, ND:SCI</i>	
	<i>All students must complete one lab science course, one mathematics course and one computer science course.</i>	
Total Required Credits		65

Students entering the Education transfer curriculum plan at NDSCS are exposed to a wide range of courses and disciplines. Upon completion of the requirements, students are awarded the Associate in Arts degree. Students then transfer to other colleges or universities to take their education courses and to student teach.

Kindergarten, elementary and secondary school teaching requires a wide variety of skills and aptitudes, including a talent for working with children; organizational, administrative and recordkeeping abilities; research and communication skills; the power to influence, motivate and train others; patience; and creativity. Preparing students for the future workforce is the major stimulus generating the changes in education. To be prepared, students must be able to interact with others, adapt to new technology, and to think logically through problems. Teachers provide the tools and environment for their students to develop these skills.

This plan meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

*Consult academic advisor in selecting electives that are most appropriate for the intended bachelor's program.

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading: NDUS General Education Transfer Agreement.

Suggested general education electives

Math education majors	Credits	Science education majors	Credits	Social Science electives	Credits
MATH 103	3	BIOL 150 and 150L	3/1	ECON 202	3
MATH 165	4	BIOL 151 and 151L	3/1	POLS/HIST elective(s)	3
MATH 166	4	PHYS 211 and 211L	4/1	PSYC 250	3
MATH 265	4	PHYS 212 and 212L	4/1	PSYC 270	3
MATH 266	3	MATH 165	4	SOC 220	3
		MATH 166	4	SOC 221	3
		PHYS 251	5		
		PHYS 252	5	Elementary education majors	Credits
HPER education majors				MUSC 101	3
Please refer to the Health, Physical Education and Recreation transfer curriculum plan section.		Social Science education majors	Credits	MATH 103	3
		ECON 201	3	HPER 210	2
		HIST elective(s)	3	BIOL 111 and 111L	3/1
Music education majors				Lab Science elective(s)	3/1
Please refer to the Music transfer curriculum plan section.					

Admission Requirements

The applicants must be high school graduates or equivalent. Applicants may be required to complete a basic skills evaluation during the admission process.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Arts degree in Liberal Arts.

Revised: June 2015

Emergency Management Transfer

► **Contact Information**

Jeff Hart, associate professor
 jeffrey.hart@ndscs.edu
 701-671-2342
 Old Main 435

► **Delivery Methods**

Face-to-Face: Wahpeton
 Online: Some Classes
 Combination

This transfer curriculum plan is available to the student whose goal is a career in emergency management or related fields.

Emergency management addresses natural and technological disasters, and homeland security. Career opportunities are available in city, county, state and federal government, as well as voluntary organizations and private businesses.

The Emergency Management transfer plan at NDSCS includes the freshman and sophomore core courses in English, humanities, math, physical sciences, social and behavioral sciences, and wellness. All colleges and universities require these core courses for students seeking a bachelor's degree.

Upon completion of the program, the student is awarded an Associate in Arts degree, which allows transfer to most four-year colleges and universities as a junior.

This plan meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

Course Code	Course Title	Credits
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
FYE 101	Science of Success	1
	Humanities/History electives	6
<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>		
	Wellness elective(s)	2
MATH 103	College Algebra	3
	or MATH 104 Finite Mathematics	
MATH 210	Elementary Statistics	3
CSCI 116	Business Use of Computers	3
	Lab Science Course	4
<i>From any course marked ND:LABSC</i>		
SOC 110	Introduction to Sociology	3
	Social and Behavioral Science electives	6
<i>From two different prefixes within the category marked ND:SS</i>		
Recommended:		
PSYC 111	Introduction to Psychology (3)	
PSYC 250	Developmental Psychology (3)	
SOC 115	Social Problems (3)	
SOC 220	Family (3)	
SOC 221	Minority Relations (3)	
ECON 201	Microeconomics (3)	
ECON 202	Macroeconomics (3)	
POLS 115	American Government (3)	
POLS 116	State and Local Government (3)	
	General Education electives*	25
<i>Recommended from Social Science electives listed above or Science electives</i>		
Total Required Credits		65

*Consult academic advisor in selecting electives that are most appropriate for the intended bachelor's program.

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading: NDUS General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Applicants may be required to complete a basic skills evaluation during the admission process.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Arts degree in Liberal Arts.

Revised: June 2015

Engineering Transfer

► Contact Information

Larry Merbach, professor
larry.merbach@ndscs.edu
701-671-2231
Haverty Hall 214

► Delivery Methods

Face-to-Face: Wahpeton
Online: Some Classes
Combination

Engineers are innovators who take a fresh look at science and technology in order to apply old knowledge to finding solutions to new problems. Fields in engineering are expanding rapidly to meet the needs of society and advances in sciences.

An engineering schedule is difficult due to the number of classes taken within a semester and to the problem-oriented nature of the course work. It is estimated that for an incoming freshman class at a major university, only one-fourth of those students will receive a degree in engineering. Anyone who feels intimidated by a large school definitely should consider NDSCS to start their studies. Successful completion of the curriculum will allow the student to transfer to a four-year engineering program.

Students entering the Engineering transfer curriculum plan who do not have the proper prerequisites may need additional preparatory classes.

The Engineering plan provides preparation for the professional curriculum and meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

In addition to engineering, other programs that a student may transfer into are chemistry, physics, astronomy, geology and mathematics.

Course Code	Course Title	Credits
CHEM 121	General Chemistry I	4
CHEM 121L	General Chemistry I Lab	1
CHEM 122	General Chemistry II	4
CHEM 122L	General Chemistry II Lab	1
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
*ENGR 212	Fundamentals of Visual Communications	3
FYE 101	Science of Success	1
**MATH 165	Calculus I	4
MATH 166	Calculus II	4
MATH 265	Calculus III	4
MATH 266	Introduction to Differential Equations	3
PHYS 251	University Physics I	4
PHYS 251L	University Physics I Lab	1
PHYS 252	University Physics II	4
PHYS 252L	University Physics II Lab	1
	Computer Information Systems elective	2
	<i>Any course marked ND:COMPSC</i>	
	Humanities/History electives	6
	<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>	
	Recommended:	
	PHIL 210 Ethics (3)	
	Social and Behavioral Science electives	8
	<i>From two or more prefixes within the category marked ND:SS</i>	
	Recommended:	
	ECON 201 or 202 Microeconomics/Macroeconomics (3)	
	Wellness elective	2
	Total Required Credits	66

Engineering courses are offered by collaboration with University of North Dakota (UND) – Statics, Dynamics and Introduction to Engineering.

MATH 227 Applied Linear Algebra (3 credits) is recommended by both UND and NDSU as a course suited for students entering their Engineering Department.

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading: NDUS General Education Transfer Agreement.

*Offered even years.

**What mathematic route a student takes will depend on their ACT or Compass math score.

Admission Requirements

The applicants must be high school graduates or equivalent. Applicants may be required to complete a basic skills evaluation during the admissions process.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Science degree in Liberal Arts.

Revised: June 2015

General Liberal Arts Transfer

► Contact Information

Wade King, department chair
wade.king@ndscs.edu
701-671-2317
Haverty Hall 215

► Delivery Methods

Face-to-Face: Wahpeton
Face-to-Face: Fargo
Online: All Classes
Combination

This option is available to the student whose goal is a bachelor's degree, but who may be unsure of his or her major. It includes first and second year core courses in a variety of areas including English and humanities, math, natural and physical sciences, social and behavioral sciences, computer information systems, and physical education. Most four-year colleges and universities require these core courses. Upon completion of the program, the student is awarded an Associate in Arts degree or an Associate in Science degree, which allows transfer to most four-year colleges and universities as a junior.

The General Liberal Arts transfer curriculum plan meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

All instructors in the Liberal Arts area have graduate-level educational training in their field of expertise. The majority of the faculty in the Arts, Science and Business Division hold Master of Arts, Master of Science or doctorate degrees. The faculty also serves as student advisors to aid students in planning programs, setting up schedules, registering for classes and ultimately deciding on a major. Career counseling is also available to help students make decisions.

Employment opportunities for the liberal arts student ultimately depend on the speciality or major the individual eventually pursues. Liberal arts provides maximum flexibility and transfer opportunities for a variety of programs and occupations. While the number of possibilities is far too numerous to list, counselors and faculty members are available to meet with students to discuss future plans, even if the student is not currently enrolled.

Course Code	Course Title	Credits
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
FYE 101	Science of Success	1
	Wellness elective(s)	2
	Electives* (free)	7
	General Education electives**	19
	Humanities/History electives	6
	<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>	
	Math, Science and Computer Information Systems electives	13
	<i>From any course marked ND:LABSC, ND:MATH, ND:COMPSC, ND:SCI</i>	
	<i>All students must complete one lab science course, one mathematics course and one computer science course.</i>	
	Social and Behavioral Sciences electives	8
	<i>From two or more prefixes within the category marked ND:SS</i>	
	Total Required Credits	65

* Consult your advisor for course selection of free electives.

** Consult academic advisor in selecting electives that are most appropriate for the intended A.A. or A.S. degree for transfer to a bachelor's program.

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading: NDUS General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Applicants may be required to complete a basic skills evaluation during the admissions process.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Arts degree or an Associate in Science degree in Liberal Arts.

Revised: June 2015

General Studies Transfer

► Contact Information

Wade King, department chair
 wade.king@ndscs.edu
 701-671-2317
 Haverty Hall 215

► Delivery Methods

Face-to-Face: Wahpeton
 Face-to-Face: Fargo
 Online: All Classes
 Combination

The General Studies transfer curriculum plan is designed to allow students the flexibility to complete a course of study, which fits with his or her interests and goals in life. The General Studies plan serves students who wish to develop unique courses of study at NDSCS and is available to students who begin their studies at NDSCS as undeclared/undecided, pre-allied health, high school and dual-credit students, and part-time students not pursuing a liberal arts transfer degree.

The General Studies transfer curriculum plan meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

NOTE: This plan is not intended to substitute for a Liberal Arts transfer curriculum plan.

Career planning and advising

For students who are undecided on their career plans, career-counseling services are available to help identify realistic career and education goals.

Faculty and staff will serve as student advisors to aid students in planning their programs, setting up schedules, registration and ultimately deciding on a major.

Course Code	Course Title	Credits
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
or ENGL 125	Introduction to Professional Writing (3)	
FYE 101	Science of Success	1
	Wellness elective(s)	2
	Humanities/History electives	6
	<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>	
	Math, Science and Computer Information Systems electives	13
	<i>All students must complete one lab science course, one mathematics course and one computer science course.</i>	
	Social and Behavioral Sciences electives	8
	<i>From two or more prefixes within the category marked ND:SS</i>	
	Electives*	26
	Total Required Credits	65

*Must be 100 level or higher. Consult academic advisor for appropriate course selection.

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading: NDUS General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Applicants who are unable to meet the high school graduation requirement may apply for consideration as a "special student" and may be admitted on a probational basis. Applicants may be required to complete a basic skills evaluation during the admission process.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Science degree in Liberal Arts.

Revised: June 2015

Health, Physical Education and Recreation Transfer

► Contact Information

Jane Passa, department chair
 jane.passa@ndscs.edu
 701-671-2445
 Blikre Activity Center 190

► Delivery Methods

Face-to-Face: Wahpeton
 Online: Some Classes
 Combination

This curriculum is available to the student planning to eventually major in physical education, health/recreation and perhaps, engage in the teaching, coaching or recreation fields as a career pursuit.

The Health, Physical Education and Recreation transfer curriculum plan provides transferable courses, which will eventually result in a major, or minor in the HPER field of study. In addition, the HPER plan meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

The instructors in this department have a wide variety of backgrounds in the field with the majority of them holding at least a master's degree. The average class size is small enough to allow the development of comfortable staff-student relationships. Students are assigned faculty advisors to assist them in planning their programs and working out their semester schedules.

The physical education indoor and outdoor facilities are extensive and in excellent condition. These facilities are shared by the physical education, athletic and intramural programs. They are also open many hours for individual "free play" time.

The opportunities for employment in the HPER field are excellent. Students commonly take employment as physical education instructors in elementary, junior high or high schools, athletic coaches, recreational directorships (community, private, commercial, etc.), athletic trainers or health instructors.

Course Code	Course Title	Credits
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
FYE 101	Science of Success	1
HPER 100	Concepts of Fitness and Wellness	2
HPER 200	Introduction to Parks and Recreation	2
HPER 207	Prevention and Care of Injuries	3
HPER 208	Introduction to Physical Education	2
HPER 210	First Aid and CPR	2
HPER 217	Personal and Community Health	3
	Wellness elective(s)	2
	General Education electives*	12
	Humanities/History electives	6
	<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>	
	Math, Science and Computer Information Systems electives	13
	<i>From any course marked ND:LABSC, ND:MATH, ND:COMPSC, ND:SCI</i>	
	<i>All students must complete one lab science course, one mathematics course and one computer science course.</i>	
	Required:	
BIOL 220	Anatomy and Physiology I (3)	
BIOL 220L	Anatomy and Physiology I Lab (1)	
CIS 101	Computer Literacy (2)	
	Social and Behavioral Science electives	8
	<i>From two or more prefixes within the category marked ND:SS</i>	
	Required:	
PSYC 111	Introduction to Psychology (3)	
PSYC 230	Educational Psychology (3)	
	Total Required Credits	65

* Consult academic advisor in selecting electives that are most appropriate for the intended bachelor's program.

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading: NDUS General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Applicants may be required to complete a basic skills evaluation during the admissions process.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Arts degree in Liberal Arts.

Revised: June 2015

Law Transfer

▶ Contact Information

Jeff Hart, associate professor
 jeffrey.hart@ndscs.edu
 701-671-2342
 Old Main 435

▶ Delivery Methods

Face-to-Face: Wahpeton
 Online: Some Classes
 Combination

This curriculum is available to the student whose goal is a juris doctor (J.D.) or bachelor of law (LL.B) degree. The Law transfer curriculum plan at NDSCS includes the freshman and sophomore core courses in English and humanities, math, physical sciences, social and behavioral sciences, humanities and physical education. All colleges and universities require these core courses for students seeking a bachelor's degree. An Associate in Arts degree is awarded upon completion of the program, and the student can transfer to most four-year colleges and universities as a junior. To be accepted into law school, the student must obtain a bachelor's degree from a four- year college or university.

The Law transfer curriculum plan meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

Course Code	Course Title	Credits
COMM 110	Fundamentals of Public Speaking	3
CSCI 116	Business Use of Computers	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
HIST 101	Western Civilization I	3
and HIST 102	Western Civilization II	3
or HIST 103	U.S. History to 1877 (3)	
and HIST 104	U.S. History Since 1877 (3)	
FYE 101	Science of Success	1
Lab Science elective(s)		3/1
MATH 103	College Algebra	3
MATH 210	Elementary Statistics	3
PHIL 210	Ethics	3
Wellness elective(s)		2
General Education electives*		7
Social and Behavioral Science electives**		24
<i>From any courses marked ND:SS — all law transfer curriculum plan students must complete one criminal justice, one politics and one psychology or one sociology course (in addition to the required courses).</i>		
Required:		
CJ 160	The Legal System (4)	
POLS 115	American Government (3)	
Total Required Credits		65

* Consult academic advisor in selecting electives that are most appropriate for the intended bachelor's program.

** Suggested electives:

CJ 201	Introduction to Criminal Justice (3)
CJ 232	Administration of Justice (3)
CJ 297	Internship (1-4)
ECON 105	Elements of Economics (3)
ECON 201	Principles of Microeconomics (3)
ECON 202	Principles of Macroeconomics (3)
POLS 103	Global Politics in a Multicultural World (3)
POLS 116	State and Local Government (3)
POLS 236	American Constitution-Civil Liberties (3)
PSYC 111	Introduction to Psychology (3)
PSYC 250	Developmental Psychology (3)
PSYC 270	Abnormal Psychology (3)
SOC 110	Introduction to Sociology (3)
SOC 115	Social Problems (3)
SOC 220	Family (3)
SOC 221	Minority Relations (3)

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading: NDUS General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Applicants may be required to complete a basic skills evaluation during the admission process.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Arts degree in Liberal Arts.

Revised: June 2015

Management Information Systems Transfer

► Contact Information

Jeff Watne, associate professor
jeffory.watne@ndscs.edu
701-671-2311
Babcock Hall 103

► Delivery Methods

Face-to-Face: Wahpeton
Face-to-Face: Fargo
Online: Some Classes
Combination

Program purposes

The Management Information Systems transfer curriculum plan provides articulation to baccalaureate programs in management information systems. In addition, this plan meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

Special qualifications

If you are creative, a logical thinker, pay attention to detail, are easily motivated, work well on your own, and are capable of sound decision-making, you are an excellent candidate for working in the computer area.

Computing facilities

NDSCS has many computer labs. Each of these labs has current versions of software installed.

Students in this program are required to purchase a laptop computer for classes. Wireless communication is used to keep students linked to the Internet and to other NDSCS campus computing facilities. These facilities are available seven days per week, 24 hours per day. This gives students adequate time to complete computer related projects and assignments.

Instruction and advising

The instructors for this program have formal educational training, industry training and certifications and work experience in Information Technology. The average class size is 25 students.

NOTE: It is recommended that students entering this program purchase a notebook computer. The cost will be approximately \$1,500 with several purchase or lease options available. For further information, call the Information Technology Department at 701-671-2523.

Course Code	Course Title	Credits
ACCT 200	Elements of Accounting I	4
ACCT 201	Elements of Accounting II	4
COMM 110	Fundamentals of Public Speaking	3
CSCI 116	Business Use of Computers	4
CSCI 122	Visual Basic	3
CSCI 125	Beginning COBOL (II)	3
CSCI 160	Computer Science I	4
CSCI 161	Computer Science II	4
ECON 201	Principles of Microeconomics	3
ECON 202	Principles of Macroeconomics	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
FYE 101	Science of Success	1
MATH 146	Applied Calculus I	4
PHIL 210	Ethics	3
PSYC 111	Introduction to Psychology	3
SOC 110	Introduction to Sociology	3
Humanities/History electives		6
<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>		
Science electives		4
<i>Any course marked ND:LABSC</i>		
Wellness elective(s)		2
Total Required Credits		67

*Consult academic advisor in selecting electives that are most appropriate for the intended bachelor's program.

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading: NDUS General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this curriculum are upper level mathematics classes.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Science degree in Liberal Arts.

Revised: June 2015

Mathematics Transfer

► Contact Information

Larry Merbach, professor
 larry.merbach@ndscs.edu
 701-671-2231
 Haverty Hall 214

► Delivery Methods

Face-to-Face: Wahpeton
 Online: Some Classes
 Combination

The Mathematics transfer curriculum plan is specifically designed for those who are planning to obtain a bachelor's degree in mathematics at a four-year college or university. Students who choose this plan will not be limited to just mathematics, since it will lay the foundation for many other college majors that rely on mathematics, such as actuarial science, chemistry, computer science, engineering, or physics.

Students choosing this plan should consult with the Mathematics and Science Department in selecting their lab science sequence and electives since future plans of study at a four-year college may have specific requirements. In addition, a student should contact the college or university of their choice to confirm a list of recommended courses.

One career opportunity for a person who has a bachelor's degree in mathematics is an actuary. An actuary will assess risk using mathematical and statistical methods and is often employed by insurance and financial institutions. An actuary needs to pass a series of professional exams dealing with probability and statistics, finance and economics. Students interested in a future career as an actuary may find ACCT 200, ACCT 201, ECON 201, ECON 202 and other electives in business, economics and statistics useful.

Upon completion of this program, the student is awarded the Associate in Science degree which allows transfer to most four-year colleges and universities as a junior.

This plan meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

Course Code	Course Title	Credits
COMM 110	Fundamentals of Public Speaking	3
CSCI 160	Computer Science I	4
ENGL 110	College Composition I	3
ENGL 120	*College Composition II	3
ENGL 125	*Introduction to Professional Writing	3
FYE 101	Science of Success	1
MATH 165	Calculus I	4
MATH 166	Calculus II	4
MATH 265	Calculus III	4
MATH 266	Introduction to Differential Equations	3
General Education electives**		9
Humanities/History electives		6
<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>		
Science electives***		8
<i>From any course marked ND:LABSC</i>		
Social and Behavioral Science electives		8
<i>From two or more prefixes within the category marked ND:SS</i>		
Wellness elective(s)		2
Total Required Credits		65

*Either ENGL 120 or ENGL 125, but not both, may be replaced with an alternative elective with the approval of the Mathematics and Science Department.

** Consult academic advisor in selecting electives that are most appropriate for the intended bachelor's program.

***It is recommended that students choose a second Lab Science sequence for their general electives when the intended bachelor's program is not known or to choose appropriate electives with the prefix ECON and ACCT for those who may be interested in actuarial science.

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading NDUS: General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Helpful course to prepare for this program are biology, chemistry, computer science, English, mathematics and physics.

Courses that develop reading and communication skills and two years of a foreign language, if available, also are recommended. Applicants may be required to complete a basic skills evaluation during the admissions process.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Science degree in Liberal Arts.

Revised: June 2015

Medical Transfer

► Contact Information

Dr. Bill Shay, associate professor
william.shay@ndscs.edu
701-671-2341
Haverty Hall 228

► Delivery Methods

Face-to-Face: Wahpeton
Online: Some Classes
Combination

Medicine is a demanding profession. Academic preparation for career in human medicine is among the longest and most rigorous of all professions. More than 120 accredited medical schools in the United States have no uniform requirements for pre-professional study. They do, however, recommend a bachelor's degree and a broad, general education that includes basic science requirement and the development of skills in reading, writing and speaking. Course work must be completed in biology/zoology, general chemistry, organic chemistry, physics, mathematics and English.

Students are chosen for admission to medical school primarily on the basis of their undergraduate grades, scores on the Medical Admission Test, recommendations and an interview. You should keep in mind only a fraction of the applicants are accepted. It is, therefore, important to select a major that will prepare you to pursue alternative career goals for occupational flexibility.

Students entering the Medical transfer curriculum plan who do not have the proper prerequisites may need additional preparatory classes.

This plan provides preparation for the professional curriculum and meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

In addition to the Medical transfer curriculum plan, other programs a student may transfer into are biology, microbiology, chemistry, biochemistry, environmental science, wildlife biology, agriculture, natural science and conservation.

Course Code	Course Title	Credits
BIOL 150	General Biology I	3
BIOL 150L	General Biology I Lab	1
BIOL 151	General Biology II	3
BIOL 151L	General Biology II Lab	1
CHEM 121	General Chemistry I	4
CHEM 121L	General Chemistry I Lab	1
CHEM 122	General Chemistry II	4
CHEM 122L	General Chemistry II Lab	1
CHEM 241	Organic Chemistry I	4
CHEM 241L	Organic Chemistry I Lab	1
CHEM 242	Organic Chemistry II	4
CHEM 242L	Organic Chemistry II Lab	1
or CHEM 260	Elements of Biochemistry (4)	
and CHEM 260L	Elements of Biochemistry Lab (1)	
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
FYE 101	Science of Success	1
MATH 105	Trigonometry	2
or MATH 165	Calculus I (4)	
PHYS 211	College Physics I	3
PHYS 211L	College Physics I Lab	1
PHYS 212	College Physics II	3
PHYS 212L	College Physics II Lab	1
Computer Information Systems elective		2
<i>Any course marked ND:COMPSC</i>		
Humanities/History electives		6
<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>		
Social and Behavioral Science electives		8
<i>From two or more prefixes within the category marked ND:SS</i>		
Wellness elective(s)		2
Total Required Credits		66 (68)

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading NDUS: General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this program are biology, computer science, chemistry, zoology, mathematics, physics and English. Courses that develop reading and communications skills and two years of a foreign language, if available, are also recommended. Applicants may be required to complete a basic skills evaluation during the admissions process.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Science degree in Liberal Arts.

Revised: June 2015

Music Transfer

► Contact Information

Laurie Lekang, department chair
 laurie.lekang@ndscs.edu
 701-671-2871
 Stern Cultural Center 132

► Delivery Methods

Face-to-Face: Wahpeton
 Online: Some Classes
 Combination

The NDSCS Performing Arts Department has four purposes. It allows students to enjoy music and develop their skills by being in performing groups. It provides general education courses that transfer to colleges or universities. It provides a core curriculum for students planning a music major. Finally, it makes artistic contributions to the campus and community.

Performing groups open to most students include concert band and concert choir. From them, students can participate in marching band, pep band and various vocal ensembles. Students are provided with state-of-the-art sound equipment for the touring Wildcat Singers and Wildcat Stage Band. The Harry Stern and Ella Stern Cultural Center is one of the best auditoriums in the area. Students also may be in small performing groups or take private lessons.

Students of all abilities are welcome in the music program, whether they plan to major in music or plan to continue their enjoyment through classroom study or performance ensembles. Many school instruments are provided.

Career possibilities include instrumental and choral conductor, classroom or private teacher, disk jockey, studio technician, music critic, composer and/or performer.

Course Code	Course Title	Credits
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
FYE 101	Science of Success	1
	Wellness elective(s)	2
MUSC 115	Concert Band (1 credit/term)	4
	or MUSC 117 Concert Choir (1 credit/term) (4)	
MUSC 122	Music Theory I	3
MUSC 123	Aural Skills I	2
MUSC 124	Music Theory II	3
MUSC 125	Aural Skills II	2
MUSC 138	Pop-Swing Band	1
MUSC 157	Pop-Swing Choir	1
MUSC 245	Applied Music-Private Piano Lessons (1 credit/term)	2
	Voice or instrumental lessons (1 credit/term)	2
	Students may select from the following:	
	MUSC 144 Voice-Private Lessons (1)	
	MUSC 145 Applied Music-Private Instrumental Lessons (1)	
	Humanities/History electives	6
	<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>	
	Required:	
	MUSC 100 Music Appreciation (3)	
	Math, Science and Computer Information Systems electives	13
	<i>From any course marked ND:LABSC, ND:MATH, ND:COMPSC, ND:SCI</i>	
	<i>All students must complete one lab science course, one mathematics course and one computer science course.</i>	
	Social and Behavioral Sciences electives	8
	<i>From two or more prefixes within the category marked ND:SS</i>	
	General Education electives	6
	Total Required Credits	65

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading: NDUS General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this program are high school band and/or high school choir.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Arts degree in Liberal Arts.

Revised: June 2015

Natural Science Transfer

► Contact Information

Shannon King, department chair
shannon.king@ndscs.edu
701-671-2296
Haverty Hall 213

► Delivery Methods

Face-to-Face: Wahpeton
Online: Some Classes
Combination

The Natural Science transfer curriculum plan is designed for the individual who is considering a career in any of the life sciences. All colleges and universities require core courses such as English, social sciences, humanities and physical education, as well as a strong foundation in mathematics, chemistry and biology for students seeking a bachelor's degree. The mathematics and science courses form the foundation for more advanced studies at the university.

To be successful in this field, you must be strongly motivated, possess high scholastic ability and have an interest in an aptitude for mathematics and the sciences. Important skills include attention to details, a strongly developed sense of curiosity and imagination, self-discipline, patience and ambition.

Students entering the Natural Science transfer curriculum plan who do not have the proper prerequisites may need additional preparatory classes.

The Natural Science plan provides preparation for the professional curriculum and meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

Careers in the Natural Sciences are many and varied. Possible areas of specialization include biology, botany, genetics, ecology, microbiology and zoology. Many job opportunities exist in education, research and government agencies. Although some entry-level positions require only a bachelor's degree, most jobs require one or more advanced degrees such as a master's or Ph.D.

Course Code	Course Title	Credits
BIOL 150	General Biology I	3
BIOL 150L	General Biology I Lab	1
BIOL 151	General Biology II	3
BIOL 151L	General Biology II Lab	1
CHEM 121	General Chemistry I	4
CHEM 121L	General Chemistry I Lab	1
CHEM 122	General Chemistry II	4
CHEM 122L	General Chemistry II Lab	1
CHEM 241	Organic Chemistry I	4
CHEM 241L	Organic Chemistry I Lab	1
CHEM 242	Organic Chemistry II	4
CHEM 242L	Organic Chemistry II Lab	1
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
FYE 101	Science of Success	1
MATH 165	Calculus I	4
MATH 166	Calculus II	4
PHYS 211	College Physics I	3
PHYS 211L	College Physics I Lab	1
	Computer Information System elective	2
	<i>Any course marked ND:COMPSC</i>	
	Humanities/History electives	6
	<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>	
	Social and Behavioral Science electives	8
	<i>From two or more prefixes within the category marked ND:SS</i>	
	Wellness elective(s)	2
	Total Required Credits	68

PHYS 212 College Physics II and PHYS 212L College Physics II Lab are also recommended but not required for graduation.

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading: NDUS General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this program are biology, computer science, chemistry, zoology, mathematics, physics and English. Courses that develop reading and communications skills are also recommended. Applicants may be required to complete a basic skills evaluation during the admissions process.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Science degree in Liberal Arts.

Revised: June 2015

Nursing Transfer

Contact Information

Barb Diederick, department chair
 alliedhealthcareers@ndscs.edu
 701-671-2967
 Mayme Green Allied Health Center 213F

Delivery Methods

Face-to-Face: Wahpeton
 Online: Some Classes
 Combination

The nursing transfer curriculum plan at NDSCS includes the freshman and sophomore core courses in English, math, physical sciences, social sciences, humanities and physical education. All colleges and universities require these core courses for students seeking a bachelor's degree. An Associate in Science degree is awarded upon completion of the program. This program provides articulation to four-year bachelor's of nursing programs.

Nurses are employed in a rapidly changing environment. More than one million women and men are currently employed as registered nurses, and the number is growing. The nursing professional may work in a variety of settings. Almost two-thirds of all professional nurses work in hospitals, while another third work in a variety of community health agencies. Opportunities also exist in private duty, education and industry.

- *Hospital nurses* form the largest group of nurses. Most are staff nurses who provide bedside nursing care and carry out medical regimens.
- *Office nurses* assist the physicians in private practice, clinics, surgery centers, emergency medical centers and health maintenance organizations (HMOs).
- *Home health nurses* provide periodic services, prescribed by a physician, to patients at home.
- *Long term care nurses* manage nursing care for residents with conditions ranging from fractures to Alzheimer's disease.
- *Public health nurses* work in government, private agencies, clinics, schools, retirement communities and other community settings.

Students entering the nursing transfer curriculum plan, who do not have the proper prerequisites, may need additional preparatory classes.

This plan meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

Course Code	Course Title	Credits
BIOL 220	Anatomy and Physiology I	3
BIOL 220L	Anatomy and Physiology I Lab	1
BIOL 221	Anatomy and Physiology II	3
BIOL 221L	Anatomy and Physiology II Lab	1
BIOL 213	*General Pathology	3
CHEM 115	**Introductory Chemistry	3
CHEM 115L	**Introductory Chemistry Lab	1
CHEM 116	**Introduction to Organic and Biochemistry	3
CHEM 116L	**Introduction to Organic and Biochemistry Lab	1
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
FYE 101	Science of Success	1
	Wellness elective(s)	2
MATH 103	College Algebra	3
	or MATH 104 Finite Mathematics	
MATH 210	*Elementary Statistics	3
MICR 202	Introductory Microbiology	3
MICR 202L	Introductory Microbiology Lab	1
NUTR 240	Principles of Nutrition (and Diet Therapy)	3
PSYC 111	Introduction to Psychology	3
PSYC 250	Developmental Psychology	3
PSYC 270	*Abnormal Psychology	3
SOC 110	Introduction to Sociology	3
	CIS/CSCI elective	2
	Any course marked ND:COMPSC	
	Humanities/History electives	6
	From two different prefixes within the categories marked ND:HUM or ND:HIST	
	General Education elective	1
	Total Required Credits	65

*Not required by all nursing programs

**NDSU Transferees contact your advisor

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading: NDUS General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Science degree in Liberal Arts.

Revised: June 2015

Optometry Transfer

► Contact Information

Dr. Bill Shay, associate professor
william.shay@ndscs.edu
701-671-2341
Haverty Hall 228

► Delivery Methods

Face-to-Face: Wahpeton
Online: Some Classes
Combination

The Optometry transfer curriculum plan students generally major in an area of science. Students should keep in mind, however, not all optometric school applicants are accepted. Therefore, it is important to select a major that will prepare you to pursue alternative career goals for occupational flexibility.

The optometric schools in the United States have no uniform requirements for pre-professional study. They do, however, recommend a bachelor's degree and a broad, general education that includes basic science requirement and the development of skills in reading, writing and speaking. Course work must be completed in biology/zoology, general chemistry, organic chemistry, physics, mathematics and English. It is also noted that most, if not all, schools require anatomy and physiology, biochemistry and microbiology. A student should contact the college or university of their choice to confirm a list of recommended courses.

Students are chosen for admission to optometric school primarily on the basis of their undergraduate grades, scores on the Optometry College Admission Test and letters of recommendation.

Students entering the Optometry transfer curriculum plan who do not have the proper prerequisites may need additional preparatory classes.

The Optometry plan provides preparation for the professional curriculum. This plan also meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

In addition to the Optometry transfer curriculum plan, other programs a student may transfer into are biology, microbiology, chemistry, biochemistry and natural science.

Course Code	Course Title	Credits
BIOL 150	General Biology I	3
BIOL 150L	General Biology I Lab	1
BIOL 151	General Biology II	3
BIOL 151L	General Biology II Lab	1
CHEM 121	General Chemistry I	4
CHEM 121L	General Chemistry I Lab	1
CHEM 122	General Chemistry II	4
CHEM 122L	General Chemistry II Lab	1
CHEM 241	Organic Chemistry I	4
CHEM 241L	Organic Chemistry I Lab	1
CHEM 242	Organic Chemistry II	4
CHEM 242L	Organic Chemistry II Lab	1
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
FYE 101	Science of Success	1
MATH 165	Calculus I	4
PHYS 211	College Physics I	3
PHYS 211L	College Physics I Lab	1
or PHYS 251	University Physics I (4)	
and PHYS 251L	University Physics I Lab (1)	
PHYS 212	College Physics II	3
PHYS 212L	College Physics II Lab	1
or PHYS 252	University Physics II (4)	
and PHYS 252L	University Physics II Lab (1)	
Computer Information System elective		2
<i>Any course marked ND:COMPSC</i>		
Humanities/History electives		6
<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>		
Social and Behavioral Science electives		8
<i>From two or more prefixes within the category marked ND:SS</i>		
Wellness elective(s)		2
Total Required Credits		68

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading NDUS: General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this program are biology, computer science, chemistry, zoology, mathematics, physics and English. Courses that develop reading and communications skills and two years of a foreign language, if available, also are recommended. Applicants may be required to complete a basic skills evaluation during the admissions process.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Science degree in Liberal Arts.

Revised: June 2015

Pharmacy Transfer

► Contact Information

Barb Lacher, associate professor
 barbara.lacher@ndscs.edu
 701-671-2114
 Mayme Green Allied Health Center 213I

► Delivery Methods

Face-to-Face: Wahpeton
 Online: Some Classes
 Combination

Today's pharmacist is the most accessible health care professional, with the average American visiting a retail drug store every 13 days. The retail pharmacist is in a position to assist patients with a wide range of health issues regarding medications, disease states, treatments, preventive measures and healthy lifestyles. Surveys show that people rely on their community pharmacists for health care information and admire them for it (pharmacists have been the most widely respected professionals in national surveys for several years). Hospital/institutional pharmacists interact with physicians and other professionals regarding patients' medication regimens and treatment plans, providing advice on drug usage, interactions, side effects and patient education. These clinical pharmacists strive for rational, effective, economical drug choice and usage in their institutions.

Students entering the Pharmacy transfer curriculum plan, who do not have the proper prerequisites, may need additional preparatory classes.

The Pharmacy transfer curriculum plan provides preparation for the four-year professional curriculum and meets the Liberal Arts Program Purposes listed in the *NDSU Catalog*.

The successful pharmacy student has good communication skills, is highly motivated, possesses scholastic ability and has an aptitude for the biological, physical and medical sciences.

Course Code	Course Title	Credits
BIOL 150	General Biology I	3
BIOL 150L	General Biology I Lab	1
BIOL 220	Anatomy and Physiology I	3
BIOL 220L	Anatomy and Physiology I Lab	1
BIOL 221	Anatomy and Physiology II	3
BIOL 221L	Anatomy and Physiology II Lab	1
CHEM 121	General Chemistry I	4
CHEM 121L	General Chemistry I Lab	1
CHEM 122	General Chemistry II	4
CHEM 122L	General Chemistry II Lab	1
CHEM 241	Organic Chemistry I	4
CHEM 241L	Organic Chemistry I Lab	1
CHEM 242	Organic Chemistry II	4
CHEM 242L	Organic Chemistry II Lab	1
COMM 110	Fundamentals of Public Speaking	3
ECON 201	Principles of Microeconomics	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
FYE 101	Science of Success	1
MATH 165	Calculus I	4
or MATH 146	Applied Calculus I (4)	
MATH 210	Elementary Statistics	3
PHYS 211	College Physics	3
Computer Information Systems elective		2
<i>Any course marked ND:COMPSC</i>		
Humanities/History electives		6
<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>		
Social and Behavioral Science electives		5
<i>From two or more prefixes within the category marked ND:SS</i>		
Wellness elective(s)		2
Total Required Credits		70

This curriculum does not fully meet all the educational requirements for the North Dakota State University College of Pharmacy. Additional courses required at NDSU include microbiology, communications and biochemistry. Students applying for other colleges of pharmacy will need to check for current entrance requirements.

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSU Catalog* under the heading: NDUS General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this program are biology, computer science, chemistry, zoology, mathematics, physics and English. Courses that develop reading and communications skills and two years of a foreign language, if available, also are recommended. Applicants may be required to complete a basic skills evaluation during the admissions process.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Science degree in Liberal Arts.

Revised: June 2015

Physical Science Transfer

► **Contact Information**

Dr. Bill Shay, associate professor
 william.shay@ndscs.edu
 701-671-2341
 Haverty Hall 228

► **Delivery Methods**

Face-to-Face: Wahpeton
 Online: Some Classes
 Combination

The Physical Science transfer curriculum plan is not generally a college major in itself, but is a springboard into a variety of college majors. Possible university majors for the physical science student to consider include astronomy, chemistry, consumer food science, geology, meteorology, physics and mathematics.

Students should consult with their academic advisor in selecting free electives, as their future area of study may have additional requirements. For example, some students may need to take organic chemistry during their second year.

Students entering the Physical Science transfer curriculum plan who do not have the proper prerequisites may need additional preparatory classes.

This plan provides preparation for the professional curriculum and meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

In addition to the Physical Science transfer curriculum plan, other programs a student may transfer into are chemistry, physics, engineering, geology and environmental science.

Course Code	Course Title	Credits
CHEM 121	General Chemistry I	4
CHEM 121L	General Chemistry I Lab	1
CHEM 122	General Chemistry II	4
CHEM 122L	General Chemistry II Lab	1
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
or ENGL 125	Introduction to Professional Writing (3)	
FYE 101	Science of Success	1
MATH 165	Calculus I	4
MATH 166	Calculus II	4
MATH 265	Calculus III	4
PHYS 251	University Physics I	4
PHYS 251L	University Physics I Lab	1
PHYS 252	University Physics II	4
PHYS 252L	University Physics II Lab	1
	Electives*	5
	Computer Information System elective	2
	<i>Any course marked ND:COMPSC</i>	
	Humanities/History electives	6
	<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>	
	Social and Behavioral Science electives	8
	<i>From two or more prefixes within the category marked ND:SS</i>	
	Wellness elective(s)	2
	Total Required Credits	65

* Depending on ACT math score or Compass math score, a student may be required to take pre-calculus prior to starting the calculus sequence. This is to be determined through discussion with an academic advisor.

**MATH 266 Introduction to Differential Equations is recommended.

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading: NDUS General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this program are chemistry, mathematics, physics, English and computer science. Courses that develop reading and communications skills and two years of a foreign language, if available, also are recommended. Applicants may be required to complete a basic skills evaluation during the admissions process.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Science degree in Liberal Arts.

Revised: June 2015

Psychology Transfer

▶ Contact Information

Amanda Davison, instructor
 amanda.davison@ndscs.edu
 701-671-2433
 Old Main 440

▶ Delivery Methods

Face-to-Face: Wahpeton
 Online: Some Classes
 Combination

This transfer curriculum plan is available to the student, whose goal is a career in psychology or related fields, including medicine, neurosciences, business, industry, mental health and applied psychology.

The Psychology transfer curriculum plan at NDSCS includes the freshman and sophomore core courses in English, humanities, math, physical sciences, social and behavioral sciences, and wellness. All colleges and universities require these core courses for students seeking a bachelor's degree.

Upon completion of the program, the student is awarded an Associate in Arts degree, which allows transfer to most four-year colleges and universities as a junior.

This plan meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

Course Code	Course Title	Credits
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
FYE 101	Science of Success	1
	Humanities/History electives	6
<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>		
Recommended:		
PHIL 210	Ethics (3)	
	Wellness elective(s)	2
MATH 103	College Algebra	3
MATH 210	Elementary Statistics	3
BIOL 111	Concepts of Biology	3
BIOL 111L	Concepts of Biology Lab	1
	or BIOL 150 General Biology I (3)	
	and BIOL 150L General Biology I Lab (1)	
CSCI 116	Business Use of Computers	3
PSYC 111	Introduction to Psychology	3
PSYC 210	Child Development	3
PSYC 250	Developmental Psychology	3
PSYC 270	Abnormal Psychology	3
SOC 110	Introduction to Sociology	3
	General Education electives*	19
Recommended:		
PSYC 103	Addictions and Alternatives (2)	
PSYC 230	Educational Psychology (3)	
PSYC 261	Psychology of Adjustment (3)	
SOC 115	Social Problems (3)	
SOC 220	Family (3)	
SOC 221	Minority Relations (3)	
Total Required Credits		65

*Consult academic advisor in selecting electives that are most appropriate for the intended bachelor's program.

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading: NDUS General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Applicants may be required to complete a basic skills evaluation during the admission process.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Arts degree in Liberal Arts.

Revised: June 2015

Social Work Transfer

► Contact Information

Char Schuler, assistant professor
charlotte.schuler@ndscs.edu
701-671-2364
Old Main 436

► Delivery Methods

Face-to-Face: Wahpeton
Online: Some Classes
Combination

The Social Work transfer curriculum plan is designed to prepare students with the general education and introductory courses necessary to pursue a bachelor's degree in Social Work. This curriculum will also provide students with the skills, knowledge and abilities necessary to advance in their profession. Students will participate in both classroom and field experiences that are intended to provide a generalist-model foundation in helping people. This program of study also has the flexibility to allow students to tailor their educational experience with the client population of their choice.

Transfer Options

Students interested in transferring to a four-year undergraduate program will find that completion of the Social Work transfer curriculum plan will provide them with a number of options. Many students have transferred successfully into accredited Social Work programs at a number of colleges and universities.

Course Code	Course Title	Credits
PSYC 265	Motivational Interviewing	3
SWK 255	Social Work in a Modern Society	3
SWK 256	Development of Social Welfare	3
SWK 297	Student Internship	4

Related/General Education Courses

COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
FYE 101	Science of Success	1
PSYC 103	Addictions and Alternatives	2
PSYC 111	Introduction to Psychology	3
PSYC 250	Developmental Psychology	3
PSYC 270	Abnormal Psychology	3
PHIL 210	Ethics	3
SOC 110	Introduction to Sociology	3
SOC 221	Minority Relations	3
General Education electives		6
Suggested:		
POLS 115	American Government (3)	
ECON 201	Principles of Microeconomics (3)	
Humanities/History elective		3
<i>Any course marked ND:HUM or ND:HIST</i>		
Math, Science and Computer Information Systems electives		13
<i>From any course marked ND:LABSC, ND:MATH, ND:COMPSC, ND:SCI</i>		
<i>All students must complete one lab science course, one mathematics course and one computer science course.</i>		
Required:		
BIOL 115	Human Structure and Function (3)	
BIOL 115L	Human Structure and Function Lab (1)	
Wellness elective(s)		2
Total Required Credits		67

Admission Requirements

The applicants must be high school graduates or equivalent. Applicants may be required to complete a basic skills evaluation during the admissions process. Applicants are invited to visit the program.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Arts degree in Liberal Arts.

Revised: June 2015

Wildlife Management Transfer

► Contact Information

Margaret Brady, associate instructor
margaret.brady@ndscs.edu
701-671-2119
Haverty Hall 234

► Delivery Methods

Face-to-Face: Wahpeton
Online: Some Classes
Combination

Wildlife management is a career for persons that have an aptitude for science, an ability to work with the public and a love of the outdoors. Wildlife managers may do many kinds of work. They give lectures to groups; act as law enforcement officers and as conservation officers. Wildlife managers survey wildlife populations (whether resident or migratory) to estimate the abundance, variety and distribution of animals in a region and to learn whether the available food and cover will support them. Managers may establish hunting and trapping seasons.

All wildlife managers must have at least a bachelor's degree. A master's degree is common, and a doctoral degree is usually required for those who plan to go into wildlife research or teaching. Besides studies in the life sciences, students must take courses that will prepare them to work with the public, with researchers and with government agencies. Tact and communication skills are essential for managers because they often deal with people in their work.

Students entering the Wildlife Management transfer curriculum plan who do not have the proper prerequisites may need additional preparatory classes.

The Wildlife Management transfer curriculum plan provides articulation into a professional curriculum. This plan also meets the Liberal Arts Program Purposes listed in the *NDSCS Catalog*.

In addition to this plan, other programs a student may transfer into are biology, natural science, environment science and conservation.

Course Code	Course Title	Credits
BIOL 150	General Biology I	3
BIOL 150L	General Biology I Lab	1
BIOL 151	General Biology II	3
BIOL 151L	General Biology II Lab	1
CHEM 121	General Chemistry I	4
CHEM 121L	General Chemistry I Lab	1
CHEM 122	General Chemistry II	4
CHEM 122L	General Chemistry II Lab	1
CHEM 241	Organic Chemistry I	4
CHEM 241L	Organic Chemistry I Lab	1
CHEM 242	Organic Chemistry II	4
CHEM 242L	Organic Chemistry II Lab	1
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
FYE 101	Science of Success	1
MATH 165	Calculus I	4
PHYS 211	College Physics I	3
PHYS 211L	College Physics I Lab	1
	Biology electives	4
	<i>To be determined through discussion with academic advisor</i>	
	Computer Information System elective	2
	<i>Any course marked ND:COMPSC</i>	
	Humanities/History electives	6
	<i>From two different prefixes within the categories marked ND:HUM or ND:HIST</i>	
	Social and Behavioral Science electives	8
	<i>From two or more prefixes within the category marked ND:SS</i>	
	Wellness elective(s)	2
	Total Required Credits	68

MATH 166 Calculus II and/or PHYS 212 College Physics II may be required for wildlife management majors by some universities. Consult with your advisor.

This curriculum meets the North Dakota University System general education requirements as indicated in the *NDSCS Catalog* under the heading: NDUS General Education Transfer Agreement.

Admission Requirements

The applicants must be high school graduates or equivalent. Helpful courses to prepare for this program are biology, computer science, keyboarding, chemistry, zoology, mathematics, physics and English. Applicants may be required to complete a basic skills evaluation during the admissions process.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Science degree in Liberal Arts.

Revised: June 2015

Mechanical Systems

► Contact Information

Jeff Kukert, department chair
jeffrey.kukert@ndscs.edu
701-671-2515
Barnard Hall 122

► Delivery Methods

Face-to-Face: Wahpeton

The Mechanical Systems program is designed to provide the student with the basic knowledge of the plumbing code, trade skills and good work habits, and to credit the student with hours toward apprenticeship training time. The program also will offer the fundamentals of service and installation of residential and light commercial heating and air conditioning equipment. Qualified graduates will have a variety of occupational opportunities available in the HVAC/R and plumbing industries. General education and related instruction is provided so the student will have the opportunity to grow within the occupational field.

Smaller mechanical contractors may struggle to keep their employees doing just plumbing or just heating and air conditioning work. They require technicians with skills in both areas. The Associate in Applied Science in Mechanical Systems provides the training in both programs over two, nine-month periods on campus.

This curriculum involves state codes, various aspects of materials, equipment and fixtures, service and installation procedures. This requires a working knowledge of the state code, layout of water and sanitation systems in the buildings in accordance with the code. This curriculum also involves doing take-off work from blueprints; working with a variety of materials used in piping such as cast iron, plastic, copper and steel; the setting of various fixtures and proper hookups; and the service of various valves, controls, fixture items and domestic water systems. It will involve the operation, service and repair or change-out of various mechanical equipment, controls and accessories of residential and light commercial systems.

The service of mechanical equipment for heating using fossil fuels requires a knowledge of fuels, fuel-air mixtures, combustion testing and control systems. The mechanical equipment for cooling requires knowledge of refrigerants and their systems, compressor change-out, refrigerant recovery and recycling, and system clean up. The equipment studied includes gas, oil and electric heating equipment along with conventional cooling equipment and heat pumps.

Students are encouraged to take the bulk of their plumbing coursework first and then return the second year for their HVAC/R Technology coursework. Students who fail to complete all the required general education courses will be granted certificates in each respective program (Plumbing and HVAC/R Technology). Both the Plumbing and HVAC/R certificate course work offer students study in "Green" technologies, which are in increasing demand as skills in this career choice.

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Technologies and Services Dean's Office at 701-671-2244 or the Mechanical Systems Technologies department chair at 701-671-2515 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Course Code	Course Title	Credits
MSYS 101	Safety for Mechanical System Technicians	1
MSYS 151	Drafting and Sketching	2
PLMB 101	Plumbing Theory and Code	4
PLMB 102	Plumbing Theory and Code	4
PLMB 105	Core Curriculum for Plumbers	2
PLMB 111	Plumbing Lab	6
PLMB 112	Plumbing Lab	6
PLMB 132	Plumbing Drawing, Sketching and Design	3
REFG 101	Refrigeration Technology	3
REFG 102	Refrigeration Technology	3
REFG 104	Refrigerants: Chemistry and Ecology	1
REFG 112	Domestic and Residential Systems	2
REFG 113	Refrigeration Systems Lab	2
REFG 121	Electrical Theory I	3
REFG 122	Electrical Theory II	3
REFG 123	Electrical Lab I	2
REFG 124	Electrical Lab II	2
REFG 253	Heating Equipment Theory	3
REFG 255	Heating Equipment Lab	2

Related/General Education

ENGL 110	English Communication	3
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
COMM 110	Fundamentals of Public Speaking	
CIS 101	Computer Literacy	2
PSYC 100	Human Relations in Organizations	2
FYE 101	Science of Success	1
Wellness elective(s)		2
Math elective(s)		6
Total Required Credits		73

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Mechanical Systems.

Effective Fall 2015 the Microelectronics Technology academic option was placed on inactive status and will not be enrolling students. Please contact the Arts, Science and Business Division at 701-671-2295 or Enrollment Services at 701-671-2521 with any questions.

8/15

Applied Science and Technologies

Microelectronics Technology

Contact Information

Rick Hendrickson, department chair
rick.hendrickson@ndscs.edu
701-231-6923

Delivery Methods

Face-to-Face: Fargo
Online: Some Classes
Combination

What Is Microelectronics Technology? The Microelectronics Technology program at NDSCS-Fargo provides the student with a broad exposure to the fundamentals of electronics. A graduate in Microelectronics Technology is lab-ready and concept proficient in analog, digital, microcontrollers, electronic communications, troubleshooting and many other aspects of electronics in order to give them the cutting edge when it comes to acquiring a challenging and rewarding career.

What Does A Microelectronic Technician Do? Day-to-day, you will find the Microelectronic Technician working in a team environment to solve a problem using the most sophisticated instruments available. Today, electronics has expanded into every type of industry imaginable. Job titles include test technicians, engineering assistants, prototype technicians, repair technicians, installation technicians and many other titles. Here is a brief list of some of the fields where Microelectronics Technicians are found: Medical Equipment Maintenance (Imaging (CAT, MRI, X-RAY), Hospital and Lab Equipment), Electronic Parts Distribution, Computers and Networking, Installation and Maintenance, Manufacturing Fields, Agriculture Electronics, Defense Industry Electronics, Avionics (Aviation Electronics), Broadcast, Cable, & Satellite Industry, Cellular, Food Processing Industry, Power Plant and Pipeline Industries.

The program is a four semester program (assuming full-time load) which starts in the fall of each year. All of the Microelectronics classes are held in Fargo only and are 100% face-to-face to provide the extensive hands-on training needed for today's job market. The program can be completed in two academic years or longer at the discretion of the student.

Green technology is associated with new manufacturing processes that produce less waste during the production of more efficient solar cells, more efficient micro-sensors and micro-actuators produced from eco-friendly materials, electronic components on wind turbines, generators, electric and hydrogen fuel cell-based transportation and better and more efficient communication devices.

Course Code	Course Title	Credits
ENGL 110	College Composition I	3
MATH 103	College Algebra	3
ELEC 100	DC Circuit Analysis	4
ELEC 101	AC Circuit Analysis	4
ELEC 140	Semiconductor Circuit Analysis I	4
ELEC 181	Digital Circuits I	4
ELEC 182	Digital Circuits II	4
ELEC 241	Semiconductor Circuit Analysis II	4
FYE 101	Science of Success	1
NANO 209	Thin Films and MEMS Technology	3
NANO 210	Micro/Nano Fabrication	3
Total Required Credits for Certificate		37

In addition to the courses listed under the certificate option, the following courses are required for the diploma:

Course Code	Course Title	Credits
	Computer Information System elective	3
	<i>Any course marked ND:COMPSC</i>	
ELEC 242	Linear Electronics	3
ELEC 248	Microcontroller Applications	4
ELEC 261	Electronic Communications	4
NANO 211	Manufacturing Quality Assurance	3
PHIL 213	Societal and Ethical Implications of Technology	3
	Wellness elective(s)	1
Total Required Credits for Diploma		58

In addition to the courses listed under the certificate and diploma options, the following courses are required for the A.A.S. degree:

Course Code	Course Title	Credits
NANO 101	Fundamentals of Nanoscience I	3
NANO 102	Fundamentals of Nanoscience II	3
ENGL 120	College Composition II	3
	or ENGL 125 Introduction to Professional Writing (3)	
	Wellness elective(s)	1
NANO 197	Internship Experience I	1
Total Required Credits for A.A.S. Degree		69

Admission Requirements*

The applicants must be high school graduates or equivalent. Tuition information and application procedures are available from the following office:

NDSCS Enrollment Services
800 Sixth Street North
Wahpeton, ND 58076
1-800-342-4325, ext. 3-2202
ndscs.admissions@ndscs.edu

Required minimum placement scores:

ACT Reading – 16; ACT English – 15; ACT Math – 16; Or
COMPASS Reading – 70; COMPASS Writing – 35; COMPASS Pre-Alg. – 71
Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Applied Science and Technologies department chair at 701-231-6923 or the Arts, Science and Business Division Dean's Office at 701-671-2108 for strategies to meet the admission requirements.

*Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.

Award

Upon successful completion of the required courses, students will be awarded a certificate, a diploma or an Associate in Applied Science degree in Microelectronics Technology.

Revised: June 2015

Effective Fall 2015 the Nanoscience Technology academic option was placed on inactive status and will not be enrolling students. Please contact the Arts, Science and Business Division at 701-671-2295 or Enrollment Services at 701-671-2521 with any questions.

8/15

Applied Science and Technologies

Nanoscience Technology

Contact Information

Kristi Jean, nanoscience program coordinator
kristi.jean@ndscs.edu
701-231-6921

Delivery Methods

Face-to-Face: Fargo
Online: Some Classes
Combination

Nanoscience is an emerging technology that studies the composition, structure, properties and behavior of material at the molecular and atomic level. Research, observation, measurement and manipulation occur in the nanometer range; a nanometer is one-billionth of a meter.

Nanotechnicians work in a wide variety of industries including biomedicine/biotech, microelectronics/microfabrication (RFID), materials/coatings/polymers, agriculture production, food processing/value added agriculture, environmental analysis/bio-remediation and energy (H-fuel cells/biomass/solar/wind).

Green technology is associated with new manufacturing processes that produce less waste, production methods for more efficient PVC for solar energy, filtration devices for water purification, coatings for materials which extend their operational life, reduce friction and wear/tear, more efficient micro-sensors and micro-actuators produced from eco-friendly materials, and electronic components.

The first two semesters may be taken at the NDSCS campus in Wahpeton or NDSCS-Fargo. Many of the classes are also available online. The following fall and spring semesters primarily consist of nanoscience classes taught at NDSCS-Fargo.

Admission Requirements

The applicants must be high school graduates or equivalent. Tuition information and application procedures are available from the following office:

NDSCS Enrollment Services
800 Sixth Street North
Wahpeton, ND 58076
1-800-342-4325, ext. 3-2202
ndscs.admissions@ndscs.edu

. Required minimum placement scores:

ACT Reading – 16; ACT English – 16; ACT Math – 18; Or
COMPASS Reading – 70; COMPASS Writing – 38; And
COMPASS Pre-Alg. – 100; COMPASS Algebra – 21
Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Applied Science and Technologies department chair at 701-231-6923 or the Arts, Science and Business Division Dean's Office at 701-671-2108 for strategies to meet the admission requirements.

*Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.

Course Code	Course Title	Credits
CHEM 121	General Chemistry I	4
CHEM 121L	General Chemistry I Lab	1
FYE 101	Science of Success	1
PHYS 211	College Physics I	3
PHYS 211L	College Physics I Lab	1
MATH 103	College Algebra	3
NANO 208	Nanomaterials/Coatings	3
NANO 209	Thin Film Technology:MEMS Case Study	3
NANO 210	Micro/Nano Fabrication	3
NANO 211	Manufacturing Quality Assurance	3
NANO 212	Surface and Thin Film Analysis Techniques	3
ENGL 110	College Composition I	3
Total Required Credits for Certificate		31

In addition to the courses listed under the certificate option, the following courses are required for the diploma:

Course Code	Course Title	Credits
BIOL 150	General Biology I	3
BIOL 150L	General Biology I Lab	1
CSCI 101	Introduction to Computers	3
MATH 210	Elementary Statistics	3
PHIL 213	Societal and Ethical Implications of Technology	3
Wellness elective(s)		2
NANO 101	Fundamentals of Nanoscience I	3
NANO 102	Fundamentals of Nanoscience II	3
NANO 207	Nanobiotechnology	3
Total Required Credits for Diploma		55

In addition to the courses listed under the certificate and diploma options, the following courses are required for the A.A.S. degree:

Course Code	Course Title	Credits
CHEM 116	Introduction to Organic and Biochemistry	3
CHEM 116L	Introduction to Organic and Biochemistry Lab	1
ENGL 125	Introduction to Professional Writing	3
NANO 197	Internship Experience I	1
NANO 297	Internship Experience II	2
Total Required Credits for A.A.S. Degree		65

Other Information

If students are planning on transferring to a baccalaureate program, they should consult their advisor for alternative general education science courses.

Award

Upon successful completion of the required courses, students will be awarded a certificate, a diploma or an Associate in Applied Science degree in Nanoscience Technology.

Revised: June 2015

Practical Nursing

Contact Information

Barb Diederick, department chair
 alliedhealthcareers@ndscs.edu
 701-671-2967
 Mayme Green Allied Health Center 213F

Delivery Methods

Face-to-Face: Wahpeton
 Face-to-Face: Fargo
 Combination

This program is available to high school graduates or transfer students who are interested in pursuing a career in nursing. The curriculum is five semesters and awards an Associate in Applied Science degree in Practical Nursing. The graduate has an excellent opportunity for immediate entry into the health profession and/or transfer to an associate or bachelor's program for nursing. All *general education courses are transferable within the NDUS system. Application deadlines are April 1 (starting fall semester) and October 15 (starting spring semester). Practical nurses have excellent job opportunities, which include: employment in hospitals, long-term care facilities, clinics, home health, hospice, schools and industry.

Instructional process

The first two semesters of the program consist of classroom, laboratory and clinical instruction at the college and local long-term care facilities. The final three semesters of the program include clinical affiliations in adult, maternal-child, psychiatric, long-term care, home health and clinic nursing. Interactive Video Network (IVN) classroom course work is utilized in Wahpeton or Fargo. Tutoring is available at the Academic Services Center (ASC) for many general education and nursing courses.

Completed application for the federal and the Minnesota Criminal background check will be required. A previous conviction may affect clinical rotations and a state board of nursing could deny an application for licensure as a licensed practical nurse. The applicant must visit with the department chair if this issue applies. A criminal history background check will also be required to test for the NCLEX-PN.

The NDSCS Practical Nursing program is accredited by the Accreditation Commission for Education in Nursing (ACEN), 3343 Peachtree Road NE, Suite 850, Atlanta, GA 30326, 404-975-5000, and has full approval from the North Dakota Board of Nursing, 919 South 7th Street, Suite 504, Bismarck, ND 58504, 701-328-9777. This accreditation exemplifies high-quality instruction.

This program requires a newer model personal computer capable of completing the assignments required by the nursing program (Windows 7 Operating System or newer). *Contact program for more information.*

Equal opportunity policy

The NDSCS Department of Nursing adheres to the NDSCS college equal opportunity policy as stated in the *NDSCS Catalog*.

Admission Requirements*

Applicants will be admitted to the program following a selection process which needs to be completed prior to the deadline date(s) of **October 15 or April 1**. Applicants that apply after the deadline(s) can complete the admission requirements, and be placed on the waiting list. If openings become available they may be selected, based on points, until the first day of class.

1. Complete the NDSCS Application Process for Admission. Refer to the NDSCS website at www.ndscs.edu/admissions for details.
2. Submit the following to the Department of Nursing:
 - a. documented evidence of measles, mumps, rubella vaccination or rubella titer.
 - b. documentation of three hepatitis B immunizations or a waiver.
 - c. documentation of varicella immunization or documented proof of immunity.
 - d. documentation of Tdap vaccination within the last ten years.
3. Submit a high school transcript /GED with a 2.0 GPA or higher. If an applicant fails to meet the high school /college GPA of a 2.0, the following requirement applies: they must complete, or be in the process of completing, at least 12 general education courses from the nursing curriculum and achieve a "C" or higher to apply to the program.
4. Complete the admission assessment examination. To schedule the examination please contact the program at 701-671-2967 or email alliedhealthcareers@ndscs.edu.

Course Code	Course Title	Credits
NURS 101	Introduction to Nursing	5
NURS 102	Introduction to Adult Nursing	6
NURS 231	Psychiatric Mental Health Nursing	2
NURS 232	Adult Nursing	5
NURS 233	Adult Nursing Clinical	5
NURS 245	Maternal-Child Nursing	4
NURS 246	Maternal-Child Nursing Clinical	2
NURS 250	Leadership in the Long-Term Care Setting	2
NURS 251	NCLEX-PN Review	1
PHRM 205	Pharmacology for Nursing	3

Related/General Education Courses

*BIOL 220	Anatomy and Physiology I	3
*BIOL 220L	Anatomy and Physiology I Lab	1
*BIOL 221	Anatomy and Physiology II	3
*BIOL 221L	Anatomy and Physiology II Lab	1
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
FYE 101	Science of Success	1
*MICR 202	Introductory Microbiology	3
*MICR 202L	Introductory Microbiology Lab	1
NUTR 240	Principles of Nutrition (and Diet Therapy)	3
PSYC 250	Developmental Psychology	3
SOC 110	Introduction to Sociology	3
	Humanities elective— PHIL 210 Ethics	3
Total Required Credits		66

*This course has an expiration date of completion when transferring into the program. Check with the program.

Practical Nursing (NURS) courses must be taken in sequence. Sequencing is available on the program website at www.ndscs.edu/nursing.

Award

Upon successful completion of the required courses ("C" or higher), students will be awarded an Associate in Applied Science degree in Practical Nursing, and be eligible for the National Council Licensure Exam for Practical Nurses (NCLEX-PN).

5. Applicants with English as a second language will be required to complete an English language proficiency exam and meet the benchmark score. Contact the program to schedule the assessment if this applies.

Applicants must be able to perform Essential Functions for the Nursing Student as listed on the program website at www.ndscs.edu/nursing.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Criteria for Selection

A point system is used based on the following criteria: High School GPA or GED, assessment score, most current college GPA (12 credits or more), grades in BIOL 220/220L, 221/221L, MICR 202/ 202L and completed health requirements. It is highly recommended the applicant contact the program periodically during the selection process to assure file completion. Incomplete files will not be considered for selection.

Revised: May 2015

Associate in Science in Nursing

• Registered Nursing

► Contact Information

Ruth Gladen, RN program coordinator
 ruth.gladen@ndscs.edu
 701-671-2969 or 2981
 Mayme Green Allied Health Center 213Q

► Delivery Methods

Face to Face: Wahpeton

This program is available to AAS or AS Licensed Practical Nurses who wish to continue their nursing education and become a Registered Nurse (RN). The graduate will have an excellent opportunity for immediate employment and/or transfer to a baccalaureate program in nursing utilizing the transfer (articulation) agreements the program has with select colleges.

The course sequence for the program begins Fall Semester with NURS 255, NURS 256, and NURS 257 and continues Spring Semester with NURS 261, NURS 262 and NURS 263. **RN required general education courses may be taken at any time during the program, but must be completed within three semesters of beginning the program. It is highly recommended that students complete all general education courses prior to enrolling in the RN Program courses.

Criminal background checks will be required. A previous conviction may affect clinical rotations and a state board of nursing could deny an application for licensure as a registered nurse. A federal criminal history background check will also be required to test for the NCLEX-RN.

The RN Program has been granted full approval from the North Dakota Board of Nursing, 919 South 7th Street, Suite 504, Bismarck, ND 58504, 701-328-9777. The RN Program is in the process of applying to the Accreditation Commission for Education in Nursing (ACEN) for candidacy toward accreditation.

This program requires a newer model personal computer capable of completing the assignments required by the nursing program (Windows 7 Operating System or newer). *Contact program for more information.*

Equal opportunity policy

The NDSCS Department of Nursing adheres to the NDSCS Equal Opportunity Policy as stated in the *NDSCS Catalog* (www.ndscs.edu)

Course Code	Course Title	Credits
*Prerequisite Courses		
BIOL 220	Anatomy and Physiology I	3
BIOL 220L	Anatomy and Physiology I Lab	1
BIOL 221	Anatomy and Physiology II	3
BIOL 221L	Anatomy and Physiology II Lab	1
ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
MICR 202	Introductory Microbiology	3
MICR 202L	Introductory Microbiology Lab	1
NUTR 240	Principles of Nutrition	3
PHIL 210	Ethics	3
PSYC 250	Developmental Psychology	3
SOC 110	Introduction to Sociology	3
LPN Transfer Credits		14
Total Prerequisite Credits		44

Registered Nursing Program Courses

NURS 255	Role Transition	1
NURS 256	Life Span Nursing	4
NURS 257	Life Span Nursing Clinical	3
NURS 261	Maternal/Newborn Nursing	2
NURS 262	Community/Mental Health Nursing	3
NURS 263	Leadership	2

**Registered Nursing Program General Education Courses

COMM 110	Fundamentals of Public Speaking	3
ND:MATH***		3
ND:SS		2
HUM or HIST elective (No PHIL Prefix)		3
ND:COMPSC		2
Total Required Program Credits		28

A Compass Placement test may be required if you have not met the Math (***)103 or higher) requirement.

At least 16 credits of the final 24 credits of the curriculum must be taken through NDSCS and be from the RN required courses.

Admission Requirements*

Applicants will be admitted to the program following a selection process. The following requirements must be met by **April 15**.

1. Complete the NDSCS Application for Admission if the applicant has not attended NDSCS, or complete a re-application if the applicant has previously attended or is a past graduate of NDSCS.
2. Be a graduate of a Board of Nursing approved Associate in Applied Science or an Associate in Science Practical Nursing Program. Graduates of a certificate Practical Nursing Program can apply to the Certificate to AAS PN Program to obtain the degree required for application to the RN Program.
3. Hold an active and unencumbered license as a Practical Nurse (LPN).
4. Applicants who will be graduating from an approved associate degree granting Practical Nursing Program the semester prior to starting the RN Program can apply with the following provision: Applicants must pass the National Council Licensure Exam for Practical Nurses (NCLEX-PN) with proof of successful completion of the exam submitted to the RN Program no later than **July 15**.
5. Achieve the benchmark minimum of a "C" in all *prerequisite courses required for the RN program. A minimum cumulative GPA of 2.25 is required.
6. Complete admission assessment examinations and meet the program benchmark. Schedule your testing(s) by emailing alliedhealthcareers@ndscs.edu or calling 701-671-2984. Advisement is provided by the RN program coordinator to review admission results. The program reserves the right to change the assessments required for the selection process.
7. Submit a resume, including work history, to the RN Program.

It is highly recommended that the applicant check with the RN Program to assure all admission requirements have been received before the application deadline.

Criteria for Selection

The class selection process will be determined by meeting a required admission benchmark score based on admission assessment examination scores, cumulative GPA of last completed semester, PN work experience, and number of RN general education courses completed. Selection order will be based on the highest total points achieved.

Specific immunizations, background check, CPR (Health Care Provider) certification, and health insurance will be a requirement prior to clinical and preceptor placements.

For additional information please contact Patti Wells, office manager, NDSCS Allied Health Careers at patti.wells@ndscs.edu or 701-671-2981. Also visit our website at www.ndscs.edu/nursing.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses ("C" or higher), students will be awarded an Associate in Science in Nursing (RN) degree; and be eligible for the National Council Licensure Exam for Registered Nurses (NCLEX-RN).



Occupational Therapy Assistant

Occupational Therapy Assistant

Contact Information

Beth Schlepp, department chair
elizabeth.schlepp@ndscs.edu
701-671-2982

Mayme Green Allied Health Center 213G

Delivery Methods

Face to Face: Wahpeton
Online: Some Classes

Occupational therapy assistants are a valued team member of the healthcare setting. COTA's assess, utilize and adapt everyday occupations to improve daily living skills, promote health and wellness, and enhance independence in the daily occupations of their clients. OT practitioners can work with clients ranging from newborn to geriatric in a variety of settings including school systems, hospitals, mental health clinics, nursing homes and rehabilitation facilities. The COTA provides intervention strategies under the supervision of a registered occupational therapist.

The program at NDSCS offers an exceptional education in a supportive learning environment. The curriculum consists of **three** semesters of academic preparation and one semester of full-time fieldwork education. Semester progression is based on meeting established benchmarks. Criminal background checks will be required upon entry to the program. A previous conviction may affect fieldwork placements. If this issue applies, the student must meet with the department chair and fieldwork coordinator. All expenses incurred during fieldwork are the responsibility of the student.

The program is fully accredited by the Accreditation Council for Occupational Therapy Education (ACOTE), 4720 Montgomery Lane, Suite 200, Bethesda, MD 20814-3449, phone number 301-652-2682, www.aota.org. Graduates will be eligible to sit for the National Certification Examination for the Occupational Therapy Assistant, administered by NBCOT, 12 S. Summit Avenue, Suite 100, Gaithersburg, MD 20877-4160, phone number 301-990-7979, www.nbcot.org. When application is made, the candidate will be required to disclose any previous felony conviction, which may affect the graduate's eligibility to sit for the exam. Upon successful completion of the exam, the candidate will be a Certified Occupational Therapy Assistant (COTA). Most states require licensure, which is based on the results of the examination.

The OTA program adheres to the NDSCS equal opportunity policy as stated in the *NDSCS Catalog*.

Course Code	Course Title	Credits
OTA 101	Introduction to Occupational Therapy	3
OTA 102	Disability Awareness	1
OTA 105	Medical Terminology	2
OTA 110	Introduction to Muscle Function	2
OTA 111	Therapeutic Media	1
OTA 112	Documentation	1
OTA 113	Physical Disabilities I: Theory/Practice	3
OTA 114	Pediatrics I: Theory/Practice	2
OTA 115	Behavioral Health: Theory/Practice Children/Adolescents	2
OTA 151	Fieldwork Level I — Experience I	1
OTA 213	Physical Disabilities II: Theory/Practice	2
OTA 214	Pediatrics II: Theory/Practice	3
OTA 215	Behavioral Health: Theory/Practice Adults	3
OTA 216	Professional Issues	2
OTA 218	Aging	2
OTA 219	Community Models of OT Practice	2
OTA 252	Fieldwork Level I — Experience II	1
OTA 253	Orientation to Fieldwork Level II	1
OTA 254	Fieldwork Level II — Experience I	6
OTA 255	Fieldwork Level II — Experience II	6
OTA 256	Seminar	1

Related/General Education Courses

BIOL 220	Anatomy and Physiology I	3
BIOL 220L	Anatomy and Physiology Lab I	1
BIOL 221	Anatomy and Physiology II	3
BIOL 221L	Anatomy and Physiology Lab II	1
COMM 110	Fundamentals of Public Speaking	3
ENGL 110	College Composition I	3
FYE 101	Science of Success	1
PSYC 250	Developmental Psychology	3
PSYC 270	Abnormal Psychology	3
SOC 110	Introduction to Sociology	3

*Wellness elective

Total Required Credits 73

* Recommended: HPER 217 Personal and Community Health or NUTR 240 Principles of Nutrition (and Diet Therapy).

**OTA courses must be taken in sequence. Sequencing of courses is available on the programs website at www.ndscs.edu/ota.

Admission Requirements*

Applicants will be admitted to the program according to the following selection process:

Fall Semester (1st Tier Selection): Students will be admitted provisionally on a first come basis until capacity is reached, so early application/registration is strongly encouraged. The following criteria must be met:

1. Complete the NDSCS Admission process and submit an official high school transcript and all official college transcript(s) to **Enrollment Services**. Refer to NDSCS website for requirements at www.ndscs.edu/admissions.
2. Submit official ACT results to **Enrollment Services** with a minimum score of 16 in English and 18 in reading **OR** submit a Compass Placement test with a minimum score of 38 in writing and 80 in reading **OR** submit an official college transcript with ENGL 110 completed with a "C" or higher. To schedule a Compass Placement test call 701-671-2256.
3. Applicants must have the ability to perform the *Essential Functions for the OTA Student* as listed on the college website www.ndscs.edu/ota.

Spring Semester (2nd Tier Selection): A maximum of 32 students will be granted full acceptance to the program using a point based selection process. The following criteria must be submitted to the OTA program prior to interview. Students will be notified of their status prior to the end of fall semester. Alternates will be selected, based on points, if openings become available until the first day of class.

1. Basic Entrance Exam results. Testing date/time to be announced.
2. Documentation of 20 hours of non-paid volunteer/community service or job shadow in OT.
3. Professional Development Assessment score results.
4. Departmental interview results. Date/time to be announced.
5. Current fall semester grades for in-progress OTA /general education courses (in-progress with a "C" or higher).

6. Bonus admission points will be awarded for completion (passed with a "C" or higher) of the following college level courses, as they appear on an official college transcript: BIOL 220/220L Anatomy and Physiology I, BIOL 221/221L Anatomy and Physiology II, PSYC 250 Developmental Psychology and PSYC 270 Abnormal Psychology.

7. Applicants with English as a second language may be required to complete an English language proficiency exam and meet a benchmark score. Contact the program for information about the assessment if this applies.

Specific immunizations, background check, First Aid certification, CPR (Health Care Provider) certification and health insurance will be a requirement for fieldwork placement.

For additional information contact: Patti Wells, office manager, Allied Health Careers, patti.wells@ndscs.edu 701-671-2981. Also visit our website at www.ndscs.edu/ota.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses ("C" or higher), students will be awarded an Associate in Applied Science degree in Occupational Therapy Assistant.

Revised: June 2015

Emergency Medical Technician (Certificate)

► Contact Information

Thomas Dobrzynski, program coordinator
 tom.dobrzynski@sanfordhealth.org or
 thomas.dobrzynski@ndscs.edu
 701-364-1737 / 701-566-0481

► Delivery Methods

Face-to-Face: Fargo
 Online: Some Classes
 Combination
 Hybrid online lectures with weekend labs

Course Code	Course Title	Credits
*EMS 101	Introduction into EMS	2
EMS 110	EMT Fundamentals	2
EMS 110L	EMT Lab	1
EMS 110P	EMT Practicum	1
**Total required core credits		6

Related/General Education Courses:

BIOL 220	Anatomy and Physiology I	3
BIOL 220L	Anatomy and Physiology I Lab	1
FYE 101	Science of Success	1
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
***ENGL 110	College Composition I	
COMM 110	Fundamentals of Public Speaking	
Social and Behavioral Science electives		2
ECON, HIST, POLS, PSYC, SOC, GEOG or CIS/CSCI electives. (Note: maximum of two CIS/CSCI credits may be used for this category).		
HPER Electives		2
Total Required Credits for Certificate		18

NDSCS offers a program certificate in Emergency Medical Technician (EMT).

The Emergency Medical Technician (EMT) program offers career training for entry-level positions in an emergency medical setting. Those students who successfully complete the EMT coursework will be eligible to apply to take state or national certification exams.

As members of the emergency medical services system, EMTs respond to emergency calls to provide efficient and immediate care to the critically ill and injured and transport patients to appropriate medical facilities.

EMTs use communication skills in person, via radio and in writing. A solid foundation in the basic elements of emergency pre-hospital care is developed and is required to make sound judgments in critical circumstances. Duties include patient assessment, airway and ventilation management, CPR, bleeding control, bandaging and splinting, administration of certain medications and even the use of automated external defibrillators. EMTs also help with childbirth, cardiac, respiratory and endocrine emergencies, behavioral problems, extrication and lifting and moving patients under the authority of an approved medical director.

EMTs are employed by many organizations, public and private, emergency and non-emergency. These include: ambulance companies, fire departments, recreational facilities, law enforcement, hospitals, educational institutions, care centers, search and rescue squads, transfer services and others. Positions range from volunteer services to part and full-time employment.

Students who successfully complete EMT NREMT exam may choose to also pursue a certificate or an Associate in Applied Science degree in Paramedic Technology from NDSCS.

*Completion of EMS 101 ("C" or higher) within 5 years will transfer into paramedic program.

**Upon successful completion of the required core courses ("C" or higher) students will be eligible to take the EMT NREMT exam.

***ENGL 110 is required for Paramedic AAS degree

Admission Requirements*

The applicant must be turn 18 years of age within two years of completion of the EMS 110 courses. Applicants must have the ability to meet technical standards of the program and may be required to complete a basic skills evaluation during the admissions process.

1. Complete the NDSCS Application for Admission if the applicant has not attended NDSCS or complete a re-application if the applicant has previously attended or is a past graduate of NDSCS.
2. Submit official ACT results to **Enrollment Services** with a minimum score of 15 in English and 15 in reading **OR** submit a Compass placement test with a minimum score of 26 in writing and 61 in reading. To schedule a Compass placement test call 701-671-2256.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, ("C" or higher) students will be awarded a certificate in Paramedic (EMT) Technology with an emphasis in Emergency Medical Technician.

Revised: June 2015

Paramedic (EMT) Technology

Advanced Emergency Medical Technician (Certificate) – pending approval

Contact Information

Thomas Dobrzynski, program coordinator
 tom.dobrzynski@sanfordhealth.org or
 thomas.dobrzynski@ndscs.edu
 701-364-1737 / 701-566-0481

Delivery Methods

Face-to-Face: Fargo
 Online: Some Classes
 Combination
 Hybrid online lectures with weekend labs

Course Code	Course Title	Credits
*EMS 101	Introduction into EMS	2
EMS 150	AEMT Fundamentals	2
EMS 150L	AEMT Fundamentals Lab	1
*EMS 170	Trauma I	2
*EMS 180	Pharmacology I	1
*EMS 241	Advanced Provider Practicum I	2
**Total required core credits		10

NDSCS offers a program certificate in Advanced Emergency Medical Technician (AEMT).

The AEMT program offers career training for mid-level positions in a pre-hospital emergency medical setting. Those students who successfully complete the AEMT coursework will be eligible to apply to take state or national certification exams.

As members of the emergency medical services system, AEMTs respond to emergency calls to provide efficient and immediate care to the critically ill and injured and transport patients to appropriate medical facilities.

AEMTs use communication skills in person, via radio and in writing. A solid foundation in the basic elements of emergency pre-hospital care is developed and is required to make sound judgments in critical circumstances. Duties include patient assessment, airway and ventilation management, CPR, bleeding control, bandaging and splinting, administration of certain medications and even the use of automated external defibrillators. AEMTs also help with childbirth, cardiac, respiratory and endocrine emergencies, behavioral problems, extrication, lifting and moving patients and entry level advanced cares under the authority of an approved medical director.

AEMTs are employed by many organizations, public and private, emergency and non-emergency. These include: ambulance companies, fire departments, recreational facilities, law enforcement, hospitals, educational institutions, care centers, search and rescue squads, transfer services and others. Positions range from volunteer services to part and full-time employment.

During orientation, students will be required to pay for and complete a background check. A previous misdemeanor or felony can prevent a student from attending clinical sites and completing the program. If you have any concerns about your history, please contact the program coordinator.

Students who successfully complete AEMT NREMT exam may choose to also pursue a certificate or an Associate in Applied Science degree in Paramedic Technology from NDSCS.

Related/General Education Courses:

***BIOL 221	Anatomy and Physiology II	3
***BIOL 221L	Anatomy and Physiology II Lab	1
FYE 101	Science of Success	1
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
***ENGL 110	College Composition I	
COMM 110	Fundamentals of Public Speaking	
Social and Behavioral Science electives		2
ECON, HIST, POLS, PSYC, SOC, GEOG or CIS/CSCI electives. (Note: maximum of two CIS/CSCI credits may be used for this category).		
HPER Electives		2
ND: Math (103 or higher)		3
Total Required Credits for Certificate		25

*Completion of EMS 101, EMS 170, EMS 180, EMS 241 ("C" or higher) within 5 years will transfer into paramedic program.

**Upon successful completion of the required core courses ("C" or higher) students will be eligible to take the AEMT NREMT exam.

***Note: BIOL 220/220L is a prerequisite for BIOL 221/221L

****ENGL 110 is required for Paramedic AAS degree

Admission Requirements*

The applicant must be a high school graduate or equivalent and be 18 years of age. Applicants must have the ability to meet technical standards of the program and may be required to complete a basic skills evaluation during the admissions process.

1. Complete the NDSCS Application for Admission if the applicant has not attended NDSCS or complete a re-application if the applicant has previously attended or is a past graduate of NDSCS.
2. Hold a current State or National Registry of Emergency Medical Technicians (NREMT) EMT certification.
3. Submit official ACT results to **Enrollment Services** with a minimum score of 15 in English and 15 in reading **OR** submit a Compass placement test with a minimum score of 26 in writing and 61 in reading. To schedule a Compass placement test call 701-671-2256.

*Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.

Award

Upon successful completion of the required courses, ("C" or higher) students will be awarded a certificate in Paramedic (EMT) Technology with an emphasis in Advanced Emergency Medical Technician.

Revised: June 2015

Paramedic Technology (AAS degree)

► Contact Information

Thomas Dobrzynski, program coordinator
tom.dobrzynski@sanfordhealth.org or
thomas.dobrzynski@ndscs.edu
701-364-1737 / 701-566-0481

► Delivery Methods

Face-to-Face: Fargo
Hybrid: Live-video and
Face-to-Face

The Paramedic Technology program is designed to prepare the student with the necessary skills to complete national certification and obtain employment as a paramedic. Paramedics primarily provide care to emergency patients in an out of hospital setting. Through proper patient assessment and medical care, the paramedic's goal is to prevent and reduce mortality and morbidity due to illness and injury. Paramedics are an essential component of the continuum of care and serve as a link to other health care professionals. Paramedics are responsible and accountable to physician medical direction.

NDSCS offers a certificate program and an Associate in Applied Science degree in Paramedic Technology and is affiliated with F-M Ambulance Service and Sanford Health EMS Education in Fargo. Courses start in the fall of each year. The program length will be three semesters including the summer semester.

Clinical and field internship experiences will be completed concurrently with the classroom schedule. Numerous hospitals and ambulance services across North Dakota, South Dakota and Minnesota are utilized. Students may need to drive various distances to clinical sites. Additional clinical sites can be added to suit student needs. Specific immunizations and a current American Heart Association Healthcare Provider CPR card will be required before the start of clinicals.

During orientation, students will be required to pay for and complete a background check. A previous misdemeanor or felony can prevent a student from attending clinical sites and completing the program. If you have any concerns about your history, please contact the Paramedic program coordinator.

The Paramedic program is accredited by the Commission on Accreditation of Allied Health Education Programs, 1361 Park Street, Clearwater, FL 33756, 727-210-2350, www.caahep.org. Upon completion of the Certificate or Degree program, students will be eligible to take the NREMT paramedic exams.

Course Code	Course Title	Credits
EMS 101	Introduction into EMS	2
EMS 170	Trauma I	2
EMS 180	Pharmacology I	1
EMS 203	Pharmacology II	2
EMS 204	Medical Emergencies I	2
EMS 205	Medical Emergencies II	2
EMS 207	Special Populations	2
EMS 209	Advanced Medical Life Support	2
EMS 215	Cardiology	4
EMS 217	Pulmonology	3
EMS 218	Cardio-Pulmonology	1
EMS 219	Trauma II	1
EMS 231	Paramedic Skills Lab I	2
EMS 232	Paramedic Skills Lab II	2
EMS 233	Paramedic Skills Lab III	1
EMS 234	Paramedic Simulation Lab	1
EMS 241	Advanced Provider Practicum I	2
EMS 242	Advanced Provider Practicum II	4
EMS 243	Capstone in Paramedicine	3

Related/General Education Courses:

BIOL 220	Anatomy and Physiology I	3
BIOL 220L	Anatomy and Physiology I Lab	1
BIOL 221	Anatomy and Physiology II	3
BIOL 221L	Anatomy and Physiology II Lab	1
Wellness elective		1
FYE 101	Science of Success	1
ENGL 110	College Composition I	3
ENGL/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
COMM 110	Fundamentals of Public Speaking	
Social and Behavioral Science electives		6
ECON, HIST, POLS, PSYC, SOC, GEOG or CIS/CSCI electives. (Note: maximum of two CIS/CSCI credits may be used for this category).		
ND: Math (103 or higher)		3
HPER Electives		2
Total Required Credits for Associate		65-66

Certificate is also available. Please see separate fact sheet for additional information.

Admission Requirements*

The applicant must be a high school graduate or equivalent and be 18 years of age. Applicants must have the ability to meet technical standards of the program and may be required to complete a basic skills evaluation during the admissions process.

1. Complete the NDSCS Application for Admission if the applicant has not attended NDSCS or complete a re-application if the applicant has previously attended or is a past graduate of NDSCS.
2. Hold a current State or National Registry of Emergency Medical Technicians (NREMT) EMT or AEMT certification.
3. Submit official ACT results to **Enrollment Services** with a minimum score of 16 in English, 18 in reading and 21 in mathematics **OR** submit a Compass placement test with a minimum score of 38 in writing, 80 in reading and 49 in algebra domain **OR** submit an official college transcript showing the student is college level ENGL and Math ready. To schedule a Compass placement test call 701-671-2256.
4. Completion of BIOL 220 and BIOL 220L within the past 5 years with a "C" or higher.
5. Completion of two, 12 hour internship shifts at F-M Ambulance Service in Fargo, N.D. (Those students who currently working with an ambulance service can have their medical director send a letter of recommendation to waive this requirement).

Admission Requirements (Cont.)

6. Applicants will participate in a formal interview process with the Paramedic Program faculty to discuss the internship shifts as well as expectations of the program. Interview points will be graded on a rubric.
7. Class selection process will be determined by the completion of admission requirements and slots will be filled by order of those who have completed all requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, ("C" or higher) students will be awarded a certificate or an Associate in Applied Science degree in Paramedic Technology.

Revised: June 2015

Paramedic (EMT) Technology

Paramedic Technology (Certificate)

Contact Information

Thomas Dobrzynski, program coordinator
 tom.dobrzynski@sandfordhealth.org or
 thomas.dobrzynski@ndscs.edu
 701-364-1737 / 701-566-0481

Delivery Methods

Face-to-Face: Fargo
 Hybrid: Live-video and
 Face-to-Face

The Paramedic Technology program is designed to prepare the student with the necessary skills to complete national certification and obtain employment as a paramedic. Paramedics primarily provide care to emergency patients in an out of hospital setting. Through proper patient assessment and medical care, the paramedic's goal is to prevent and reduce mortality and morbidity due to illness and injury. Paramedics are an essential component of the continuum of care and serve as a link to other health care professionals. Paramedics are responsible and accountable to physician medical direction.

NDSCS offers a certificate program and an Associate in Applied Science degree in Paramedic Technology and is affiliated with F-M Ambulance Service and Sanford Health EMS Education in Fargo. Courses start in the fall of each year. The program length will be three semesters including the summer semester.

Clinical and field internship experiences will be completed concurrently with the classroom schedule. Numerous hospitals and ambulance services across North Dakota, South Dakota and Minnesota are utilized. Students may need to drive various distances to clinical sites. Additional clinical sites can be added to suit student needs. Specific immunizations and a current American Heart Association Healthcare Provider CPR card will be required before the start of clinicals.

During orientation, students will be required to pay for and complete a background check. A previous misdemeanor or felony can prevent a student from attending clinical sites and completing the program. If you have any concerns about your history, please contact the Paramedic program coordinator.

The Paramedic program is accredited by the Commission on Accreditation of Allied Health Education Programs, 1361 Park Street, Clearwater, FL 33756, 727-210-2350, www.caahep.org. Upon completion of the Certificate or Degree program, students will be eligible to take the NREMT paramedic exams.

Course Code	Course Title	Credits
EMS 101	Introduction into EMS	2
EMS 170	Trauma I	2
EMS 180	Pharmacology I	1
EMS 203	Pharmacology II	2
EMS 204	Medical Emergencies I	2
EMS 205	Medical Emergencies II	2
EMS 207	Special Populations	2
EMS 209	Advanced Medical Life Support	2
EMS 215	Cardiology	4
EMS 217	Pulmonology	3
EMS 218	Cardio-Pulmonology	1
EMS 219	Trauma II	1
EMS 231	Paramedic Skills Lab I	2
EMS 232	Paramedic Skills Lab II	2
EMS 233	Paramedic Skills Lab III	1
EMS 234	Paramedic Simulation Lab	1
EMS 241	Advanced Provider Practicum I	2
EMS 242	Advanced Provider Practicum II	4
EMS 243	Capstone in Paramedicine	3

Related/General Education Courses:

BIOL 220	Anatomy and Physiology I	3
BIOL 220L	Anatomy and Physiology I Lab	1
	Wellness elective	1
FYE 101	Science of Success	1
Total Required Credits for Associate		45

An Associate in Applied Science degree is also available. Please see separate fact sheet for additional information.

Admission Requirements*

The applicant must be a high school graduate or equivalent and be 18 years of age. Applicants must have the ability to meet technical standards of the program and may be required to complete a basic skills evaluation during the admissions process.

1. Complete the NDSCS Application for Admission if the applicant has not attended NDSCS or complete a re-application if the applicant has previously attended or is a past graduate of NDSCS.
2. Hold a current State or National Registry of Emergency Medical Technicians (NREMT) EMT or AEMT certification.
3. Submit official ACT results to **Enrollment Services** with a minimum score of 16 in English, 18 in reading and 21 in mathematics **OR** submit a Compass placement test with a minimum score of 38 in writing, 80 in reading and 49 in algebra domain **OR** submit an official college transcript showing the student is college level ENGL and Math ready. To schedule a Compass placement test call 701-671-2256.
4. Completion of BIOL 220 and BIOL 220L within the past 5 years with a "C" or higher.
5. Completion of two, 12 hour internship shifts at F-M Ambulance Service in Fargo, N.D. (Those students who currently working with an ambulance service can have their medical director send a letter of recommendation to waive this requirement).

Admission Requirements (Cont.)

6. Applicants will participate in a formal interview process with the Paramedic Program faculty to discuss the internship shifts as well as expectations of the program. Interview points will be graded on a rubric.
7. Class selection process will be determined by the completion of admission requirements and slots will be filled by order of those who have completed all requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, ("C" or higher) students will be awarded a certificate or an Associate in Applied Science degree in Paramedic Technology.

Revised: June 2015

Community Paramedic (Certificate) – pending approval

► Contact Information

Thomas Dobrzynski, program coordinator
 tom.dobrzynski@sanfordhealth.org or
 thomas.dobrzynski@ndscs.edu
 701-364-1737 / 701-566-0481

► Delivery Methods

Face-to-Face: Fargo
 Online: Some Classes
 Combination
 Hybrid online lectures with
 weekend labs

Course Code	Course Title	Credits
BIOL 213	Pathology	3
EMS 290	Introduction to Community Paramedicine	3
EMS 291	Medical Issues in Community Paramedicine	4
EMS 291L	Medical Issues in Community Paramedicine Lab	1
EMS 292	Community Paramedic Clinical Experience	2
PSYC 270	Abnormal Psychology	3
Total Required Credits for Certificate		16

The Community Paramedic certificate program is designed to prepare the student with the necessary skills to obtain licensure and employment as a community paramedic. Community paramedics, known in some areas as Mobile Integrated Health Care Paramedics, act in instances where other health care providers may not be available and primarily respond to patient's homes. Through advanced patient assessment, medical care, and engagement with other health care professionals and institutions, the community paramedic's goal is to provide the best treatment to the patient while reducing use of emergency services. Community Paramedics are responsible and accountable to physician medical direction.

NDSCS offers a program certificate in Community Paramedic and is affiliated with F-M Ambulance Service and Sanford Health EMS Education in Fargo. While there currently is no accrediting body for this certificate, the Paramedic program is nationally accredited by the Commission on Accreditation of Allied Health Education Programs.

The first semester will consist of lecture and lab courses. Clinical experiences will be completed during the second semester. The program has numerous hospital and field sites across North Dakota, South Dakota and Minnesota. Additional sites to suit students' needs may be added if necessary. Each student will be conducting a needs assessment for their community. This assessment may affect which sites the student will attend.

During orientation, students will be required to pay for and complete a background check. A previous misdemeanor or felony can prevent a student from attending clinical sites and completing the program. If you have any concerns about your history, please contact the Paramedic program coordinator.

Admission Requirements*

The applicant must be a high school graduate or equivalent and be 18 years of age. Applicants must have the ability to meet technical standards of the program and may be required to complete a basic skills evaluation during the admissions process.

1. Complete the NDSCS Application for Admission if the applicant has not attended NDSCS or complete a re-application if the applicant has previously attended or is a past graduate of NDSCS.
2. Hold a current State or National Registry of Emergency Medical Technicians (NREMT) paramedic certification.
3. Submit official ACT results to **Enrollment Services** with a minimum score of 16 in English, 18 in reading and 21 in mathematics **OR** submit a Compass placement test with a minimum score of 38 in writing, 80 in reading and 49 in algebra domain **OR** submit an official college transcript showing the student is college level ENGL and Math ready. To schedule a Compass placement test call 701-671-2256.
4. Completion of BIOL 220 and BIOL 220L within the past 5 years with a "C" or higher.
5. Letter of recommendation from a medical director.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, ("C" or higher) students will be awarded a certificate in Paramedic (EMT) Technology with an emphasis in Community Paramedic.

Revised: June 2015

Pharmacy Technician (AAS Degree)

Contact Information

Barbara Lacher, associate professor
barbara.lacher@ndscs.edu
701-671-2114
Mayme Green Allied Health Center 213I

Delivery Methods

Face-to-Face: Wahpeton
Online: All Classes
Combination

The Pharmacy Technician program is designed to prepare students for careers performing and managing the technical distributive functions in pharmacies and pharmacy-related industries. By doing so, pharmacy technicians allow the pharmacist to concentrate on clinical services such as patient consultation, physician intervention, drug therapy analysis and other clinical topics. The pharmacy technician performs those functions of pharmacy practice that do not require a pharmacist's professional education or judgment.

NDSCS offers two on-campus program options — a one-year (41 academic credits) Certificate and a two-year (65 credits) Associate in Applied Science degree. Both of these include eight weeks of internship in community and institutional practice settings, which occur after all classroom requirements have been completed.

Our programs are fully accredited by the American Society of Health Systems Pharmacists and Accreditation Council for Pharmacy Education (ASHP/ACPE).

Students receive classroom, laboratory and practical experience covering community and institutional practice, sterile product preparation, manufacturing, inventory management and record-keeping, medical terminology and drug products. Students also take other courses in communications, writing, psychology and speech that will help provide them with the skills to advance in their careers. Upon completion of our program, the graduate will be eligible to become registered with the North Dakota Board of Pharmacy (which is required for employment) and are eligible for national certification.

Most pharmacies employ several technicians, and opportunities within the field are steadily increasing. Pharmacy technicians are found in community, hospital and home health care pharmacies, as well as research institutions, manufacturers and other industrial settings. Our graduates have enjoyed 100-percent job placement since our program's inception in 1994.

Completed application for the federal criminal background checks will be required prior to the first day of classes. A previous felony conviction, alcohol or drug related misdemeanors may affect internship placements. The applicant must visit with the department chair regarding this issue if it applies.

Course Code	Course Title	Credits
PHRM 125	Pharmacology for Pharmacy Technicians	3
PRMT 101	Orientation to Pharmacy Practice	1
*PRMT 102	Pharmaceutical Calculations	3
PRMT 111	Pharmacy Law and Ethics	1
PRMT 112	Pharmacy Records and Inventory Management	2
PRMT 216	IV and Sterile Product Preparation Lab	2
PRMT 217	Pharmacy Practice	3
PRMT 217L	Pharmacy Practice Lab	1
PRMT 221	Chemical/Physical Pharmacy	2
PRMT 221L	Chemical/Physical Pharmacy Lab	1
PRMT 231	Pharmacy Internship-Community Based	3
PRMT 241	Pharmacy Internship-Hospital Based	3

Related/General Education Courses:

BADM 234	Customer Service	1
BIOL 115	Human Structure and Function	3
BIOL 213	General Pathology	3
BOTE 171	Medical Terminology	4
CIS 101	Computer Literacy	2
ENGL 110	College Composition I	3
ENGL/COMM	Elective (choose one):	3
COMM 110	Fundamentals of Public Speaking	
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
FYE 101	Science of Success	1
PHIL 210	Ethics	3
PSYC 111	Introduction to Psychology	2
Wellness Elective(s)		2
General Education Electives (to be chosen with advisor)		12
Total Required Credits		65

(Six of the credits for both programs are experiential hours normally done during the summer semester.)

Courses with the prefix PHRM, PRMT, BIOL115, and BOTE 171 must be completed with a "C" or higher.

*PRMT 102 has a Math entrance requirement of a minimum ACT score of 19 or completion of ASC 092.

Certificate is also available. Please see separate fact sheet for additional information.

NOTE: It is recommended for applicants to have taken algebra and chemistry while in high school.

Admission Requirements*

- High school graduate or G.E.D.
- Be 18 years of age before completion of the program.
- Complete the NDSCS admission process and submit an official high school transcript and all official college transcript(s) to Enrollment Services.
- Minimum ACT or equivalent Compass Scores:

ACT Reading	18	COMPASS Reading	80
ACT English	17	COMPASS Writing	76
ACT Math	19	COMPASS Algebra	100

Specific immunizations, background check and *CPR certification (Healthcare Provider) prior to completing the didactic portion. For a list of the immunizations or clarification about CPR, please contact the program.

Students will be allowed to take PRMT 101 and PRMT 11 prior to admittance.

*Students can also complete CPR by taking HPER 210 during the program.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Applicants with English as a second language may be required to complete an English language proficiency exam and meet the benchmark score. Contact the program to schedule the assessment if this applies.

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Pharmacy Technician.

Revised: June 2015

Pharmacy Technician (Certificate)

► Contact Information

Barbara Lacher, associate professor
barbara.lacher@ndscs.edu
701-671-2114
Mayme Green Allied Health Center 213I

► Delivery Methods

Face-to-Face: Wahpeton
Online: All Classes
Combination

The Pharmacy Technician program is designed to prepare students for careers performing and managing the technical distributive functions in pharmacies and pharmacy-related industries. By doing so, pharmacy technicians allow the pharmacist to concentrate on clinical services such as patient consultation, physician intervention, drug therapy analysis and other clinical topics. The pharmacy technician performs those functions of pharmacy practice that do not require a pharmacist's professional education or judgment.

NDSCS offers two on-campus program options — a one-year (41 academic credits) Certificate and a two-year (65 credits) Associate in Applied Science degree. Both of these include eight weeks of internship in community and institutional practice settings, which occur after all classroom requirements have been completed.

Our programs are fully accredited by the American Society of Health Systems Pharmacists and Accreditation Council for Pharmacy Education (ASHP/ACPE).

Students receive classroom, laboratory and practical experience covering community and institutional practice, sterile product preparation, manufacturing, inventory management and record-keeping, medical terminology and drug products. Students also take other courses in communications, writing, psychology and speech that will help provide them with the skills to advance in their careers. Upon completion of our program, the graduate will be eligible to become registered with the North Dakota Board of Pharmacy (which is required for employment) and are eligible for national certification.

Most pharmacies employ several technicians, and opportunities within the field are steadily increasing. Pharmacy technicians are found in community, hospital and home health care pharmacies, as well as research institutions, manufacturers and other industrial settings. Our graduates have enjoyed 100-percent job placement since our program's inception in 1994.

Completed application for a federal criminal background checks will be required prior to the first day of classes. A previous felony conviction, alcohol or drug related misdemeanors may affect internship placements. The applicant must visit with the department chair regarding this issue if it applies.

Admission Requirements*

1. High school graduate or G.E.D.
2. Be 18 years of age before completion of the program.
3. Complete the NDSCS admission process and submit an official high school transcript and all official college transcript(s) to Enrollment Services.
4. Minimum ACT or equivalent Compass Scores:

ACT Reading	18	COMPASS Reading	80
ACT English	17	COMPASS Writing	76
ACT Math	19	COMPASS Algebra	100

Specific immunizations, background check and *CPR certification (Healthcare Provider) prior to completing the didactic portion. For a list of the immunizations or clarification about CPR, please contact the program.

Students will be allowed to take PRMT 101 and PRMT 11 prior to admittance.

*Students can also complete CPR by taking HPER 210 during the program.

Course Code	Course Title	Credits
PHRM 125	Pharmacology for Pharmacy Technicians	3
PRMT 101	Orientation to Pharmacy Practice	1
*PRMT 102	Pharmaceutical Calculations	3
PRMT 111	Pharmacy Law and Ethics	1
PRMT 112	Pharmacy Records and Inventory Management	2
PRMT 216	IV and Sterile Product Preparation Lab	2
PRMT 217	Pharmacy Practice	3
PRMT 217L	Pharmacy Practice Lab	1
PRMT 221	Chemical/Physical Pharmacy	2
PRMT 221L	Chemical/Physical Pharmacy Lab	1
PRMT 231	Pharmacy Internship-Community Based	3
PRMT 241	Pharmacy Internship-Hospital Based	3

Related/General Education Courses:

BADM 234	Customer Service	1
BIOL 115	Human Structure and Function	3
BOTE 171	Medical Terminology	4
CIS 101	Computer Literacy	2
ENGL 105	Technical Communications	3
FYE 101	Science of Success	1
PSYC 100	Human Relations in Organizations	2
Total Required Credits		41

(Six of the credits for both programs are experiential hours normally done during the summer semester.)

Courses with the prefix PHRM, PRMT, BIOL115, and BOTE 171 must be completed with a "C" or higher.

*PRMT 102 has a Math entrance requirement of a minimum ACT score of 19 or completion of ASC 092.

Associate in Applied Science degree is also available. Please see separate fact sheet for additional information.

NOTE: It is recommended for applicants to have taken algebra and chemistry while in high school.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Applicants with English as a second language may be required to complete an English language proficiency exam and meet the benchmark score. Contact the program to schedule the assessment if this applies.

Award

Upon successful completion of the required courses, students will be awarded a certificate in Pharmacy Technician.

Revised: June 2015

Plumbing

▶ Contact Information

Jeff Kukert, department chair
 jeffrey.kukert@ndscs.edu
 701-671-2515
 Barnard Hall 122

▶ Delivery Methods

Face-to-Face: Wahpeton

The Plumbing program at NDSCS provides theory, code and hands-on training to prepare students for work in the plumbing field. The program also provides training in blueprint reading and drafting as well as a course that focuses on workplace safety. Upon successful completion of the safety course, the students will attain the OSHA 10-hour certification card. Students participate in SkillsUSA State Skills Competition and take the SkillsUSA Competency exam.

Students will spend hours in the lab learning to work with copper, plastic and PEX piping methods and also learning the proper procedures for installing fixtures. Lab courses seek to create good work habits and to develop interpersonal skills. Design classes are included to help students advance their careers in the plumbing industry. Green technology techniques are presented to the students as they are an ever growing source of discussion regarding conservation.

Upon successful completion of the NDSCS Plumbing program, up to 2,040 schooling hours may be credited toward the apprenticeship training time.

Course Code	Course Title	Credits
Certificate		
MSYS 101	Safety for Mechanical Systems Technicians	1
MSYS 103	Math for Mechanical Systems Technicians	3
MSYS 151	Drafting and Sketching	2
PLMB 101	Plumbing Theory and Code	4
PLMB 102	Plumbing Theory and Code	4
PLMB 105	Core Curriculum for Plumbers	2
PLMB 111	Plumbing Lab	6
PLMB 112	Plumbing Lab	6
PLMB 132	Plumbing Drawing, Sketching and Design	3

A student will earn a certificate in Plumbing after completing the above courses and the appropriate credits of general education courses as listed below. An Associate in Applied Science degree in Mechanical Systems may be earned by taking the additional classes listed from the HVAC/R Technology curriculum.

Related/General Education Courses		
CIS 101	Computer Literacy	2
ENGL 105	Technical Communications	3
FYE 101	Science of Success	1
Total Required Credits		37

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Technologies and Services Dean's Office at 701-671-2244 or the Mechanical Systems Technologies department chair at 701-671-2515 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded a certificate in Plumbing.

Revised: June 2015

Powersports Technology

► Contact Information

Luke Kasowski, department chair
luke.kasowski@ndscs.edu
701-671-2544
Schuett Hall 130

► Delivery Methods

Face-to-Face: Wahpeton

The Powersports Technology program prepares students for employment in the vast and broad recreational powersports equipment industry. This program provides learning experiences that enable the student to learn and advance on the job and grow with the occupational field. Students' abilities in communications, human relations and other aspects of general education will be enhanced.

Students are provided with classroom and hands-on laboratory experiences emphasizing diagnostic and repair skills development. Students develop skills and abilities necessary to test, diagnose, adjust and repair various systems on all types of recreational powersports equipment.

This practical education and technical training will allow graduates to work on outdoor power equipment, snowmobiles, motorcycles, ATVs, personal watercraft, outboard, and inboard marine equipment. Graduates may choose to be employed with motorcycle, ATV, snowmobile or marine dealerships, independent repair shops, recreational equipment manufacturers, hardware or rental stores, implement dealers or marinas. Positions such as a service technician, partsman or salesman will be readily available. Many graduates go into business for themselves or advance as service, parts or sales managers, shop foremen, factory representatives and vocational technical teachers.

Career opportunities for this skilled occupation will be plentiful in any geographical region for a competent and dependable graduate. Salaries will advance rapidly as experience and knowledge of the profession grow. Students interested in pursuing an advanced degree will find the Associate in Applied Science degree in Powersports Technology provides transfer options to four-year colleges and universities in related fields.

Employers are looking for trained powersports technicians who have a working knowledge of the latest technological advances in 2- and 4- stroke engines regarding emissions reduction. As the government increases regulation of the emissions produced by powersports engines, it becomes even more important that these workers have the most up-to-date pollution control training in this field.

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Technologies and Services Dean's Office at 701-671-2244 or the Automotive Technologies department chair at 701-671-2544 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded a certificate, diploma or an Associate in Applied Science degree in Powersports Technology.

Course Code	Course Title	Credits
Certificate		
PST 101	Outdoor Power Equipment Theory	3
PST 102	Snowmobile Theory I	3
PST 103	Snowmobile Theory II	3
PST 104	Motorcycle/ATV/Marine Theory	4
PST 111	Outdoor Power Equipment Lab	2
PST 112	Snowmobile Lab I	2
PST 113	Snowmobile Lab II	2
PST 114	Motorcycle/ATV/Marine Lab	2
PST 122	Fundamentals of Electricity	3
MFGT 110	Industrial Shop Practices	2
In addition to the courses listed under the Certificate option, the following courses are required for the Diploma and the Associate in Applied Science:		
PST 201	Motorcycle/ATV Theory II	3
PST 202	Outboard Theory II	3
PST 203	Stern Drive Theory	3
PST 211	Motorcycle/ATV Lab II	4
PST 212	Outboard Lab II	2
PST 213	Stern Drive Lab	2
PST 222	Motorcycle/ATV Electrical Systems	3
TECH 121	Engine Fundamentals	3
Related/General Education Courses		
Certificate		
FYE 101	Science of Success	1
ENGL 105	Technical Communications	3
MATH 120	Basic Mathematics I	2
MATH 123	Basic Mathematics II	2
Diploma		
FYE 101	Science of Success	1
ENGL 105	Technical Communications	3
MATH 120	Basic Mathematics I	2
MATH 123	Basic Mathematics II	2
CIS 101	Computer Literacy	2
PSYC 100	Human Relations in Organizations	2
	Wellness elective (HPER 210 recommended)	1
Associate in Applied Science		
FYE 101	Science of Success	1
CIS 101	Computer Literacy	2
PSYC 100	Human Relations in Organizations	2
ENGL 110	College Composition I	3
	English/Communication elective (choose one)	3
	ENGL 105 Technical Communications	
	ENGL 120 College Composition II	
	ENGL 125 Introduction to Professional Writing	
	COMM 110 Fundamentals of Public Speaking	
MATH 120	Basic Mathematics I	2
MATH 123	Basic Mathematics II	2
MATH 125	Basic Mathematics III	2
	Wellness electives (HPER 210 recommended)	2
PST 297	Cooperative Education - 324 hrs.	2
Total Required Credits for Certificate		34
Total Required Credits for Diploma		62
Total Required Credits for Associate in Applied Science		70

Revised: June 2015

Precision Machining Technology

Contact Information

Steve Johnson, department chair
 steve.johnson@ndscs.edu
 701-671-2478
 Tech Center 29

Delivery Methods

Face-to-Face: Wahpeton

The Precision Machining Technology curriculum is designed to provide students experience in machining as it pertains to machining, toolmaking and mold making.

This program provides education and training in CNC programming, CNC set-up and operation, production machining, mold making, die making, toolmaking, automated manufacturing, human relations, communications and other aspects of general education.

Career opportunities offer a wide range of employment possibilities in the manufacturing, machining, toolmaking, mold making and production areas. Recent placement has been 98 percent.

Course Code	Course Title	Credits
Certificate		
MATL 101	Machine Tool Theory I	4
MATL 102	Machine Tool Theory II	4
MATL 111	Machine Tool Lab I	7
MATL 112	Machine Tool Lab II	7
MFGT 137	Print Reading I	2
MFGT 141	Print Reading II	2
Diploma and Associate in Applied Science		
MATL 101	Machine Tool Theory I	4
MATL 102	Machine Tool Theory II	4
MATL 111	Machine Tool Lab I	7
MATL 112	Machine Tool Lab II	7
MATL 201	Toolmaking Theory I	3
MATL 202	Toolmaking Theory II	2
MATL 205	CNC Theory and Operation	4
MATL 206	CNC Programming	3
MATL 213	Machinist Lab I	7
MATL 214	Machinist Lab II	7
MFGT 137	Print Reading I	2
MFGT 141	Print Reading II	2

Related/General Education Courses

Certificate		
CIS 101	Computer Literacy	2
MATH 130	Technical Mathematics	2
MATH 136	Technical Trigonometry	2
FYE 101	Science of Success	1
Diploma		
CIS 101	Computer Literacy	2
ENGL 105	Technical Communications	3
or ENGL 110	College Composition I (3)	
MATH 130	Technical Mathematics	2
MATH 136	Technical Trigonometry	2
Social and Behavioral Sciences elective	(ECON, HIST, POLS, SOC, GEOG)	2
Wellness elective		1
FYE 101	Science of Success	1
Associate in Applied Science		
CIS 101	Computer Literacy	2
ENGL 110	College Composition I	3
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
COMM 110	Fundamentals of Public Speaking	
MATH 130	Technical Mathematics	2
MATH 132	Technical Algebra I	2
MATH 136	Technical Trigonometry	2
Social and Behavioral Sciences elective	(ECON, HIST, POLS, SOC, GEOG)	2
Wellness electives		2
FYE 101	Science of Success	1
Total Required Credits for Certificate		33
Total Required Credits for Diploma		65
Total Required Credits for Associate in Applied Science		71

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- ACT Math – 17 or COMPASS Math – 21 (algebra domain)
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Technologies and Services Dean's Office at 701-671-2244 or the Manufacturing Technologies department chair at 701-671-2478 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded a certificate, diploma or Associate in Applied Science degree in Precision Machining Technology.

Revised: June 2015

Robotics, Automation and Mechatronics Technology

► Contact Information

Shane Suko, program coordinator
shane.suko@ndscs.edu
701-671-2731
Barnard Hall 206

► Delivery Methods

Face-to-Face: Wahpeton

The Robotics, Automation and Mechatronics Technology (RAMT) program is designed to provide students with the knowledge, skills, and abilities necessary to succeed in industries utilizing robotics and automated systems.

This program combines disciplines such as electronics, networking, computers, mechanics, and fluid power utilized in manufacturing and production facilities.

Industries that hire RAMT graduates with the skill sets you will learn in this program include; manufacturing, pharmaceutical, food, energy, defense, and agriculture.

Job requirements for a RAMT technician graduating from this program may include performing installations, troubleshooting, repairing, and programming for automated systems.

A Robotics, Automation and Mechatronics Technology student will experience a combination of lecture and lab classes with knowledgeable instructors and hands-on real world applications and scenarios to prepare the student for a lifelong career.

NOTE: This program requires an HP ProBook 650 laptop or equivalent. Please refer to the NDSCS website for specifications. The cost will be approximately \$950 if purchased from NDSCS. For further information, contact Shane Suko, Robotics, Automation and Mechatronics Technology program coordinator, at 701-671-2731.

Course Code	Course Title	Credits
ECAL 137	Electrical Drafting	2
ECAL 223	Electronic Devices	4
ECAL 224	Automated Industrial Controls	5
ECAL 241	Basic Motor Controls	3
ECAL 242	Advanced Drives	2
ECAL 243	Programmable Controllers	3
ECAL 247	Industrial Safety Systems	2
ECAL 248	Advanced Programmable Controllers	3
ECAL 249	Industrial Network Fundamentals	2
ECAL 262	Predictive Maintenance	2
ELEC 100	DC Circuit Analysis	4
ELEC 101	AC Circuit Analysis	4
MFGT 110	Industrial Shop Practices	2
MFGT 124	Mechanical Drives I	2
MFGT 202	Advanced Robotics	4
MFGT 208	Electro/Mechanical Systems	2
MFGT 230	CIM Lab	5
NANO 211	Manufacturing Quality Assurance	3

Related/General Education Courses

CIS 101	Computer Literacy	2
ENGL 110	College Composition I	3
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
COMM 110	Fundamentals of Public Speaking	
FYE 101	Science of Success	1
Wellness Electives		
MATH 130	Technical Mathematics	2
MATH 132	Technical Algebra I	2
MATH 136	Technical Trigonometry	2
PSYC 100	Human Relations in Organizations	2
Total Required Credits		73

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- ACT Math – 17 or COMPASS Math – 21 (algebra domain)
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Technologies and Services Dean's Office at 701-671-2244 or the Robotics, Automation and Mechatronics Technology program coordinator at 701-671-2731 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Robotics, Automation and Mechatronics Technology.

Revised: June 2015

Technical Studies

► Contact Information

Student Success Center
701-671-2257
Old Main

► Delivery Methods

Face-to-Face: Wahpeton
Face-to-Face: Fargo
Online: Some classes
Combination

This custom-designed program allows individuals to combine elements of various disciplines in a meaningful and logical sequence that meets their career goals. The Technical Studies program addresses a recognized need for business and industry to attract highly trained workers with a variety of skills and to retain current workers. Individuals may pursue this program of study for career advancement or increase in job responsibility or salary. Students work with an advisor to identify career goals and plan a program of study.

For example, a Technical Studies program may be appropriate if a student wanted to combine certain elements of a Business Management curriculum with parts of a Information and Communications Technology program. Another illustration of a Technical Studies program might include a program of study that consists of parts of Electrical Technology, HVAC/R Technology and Plumbing.

Green technology could be a large part of a student's customized program. In today's market that includes "smart" buildings, sustainable building materials, alternative fuels and changing technology, students may choose to customize plans that help them gain entry into a variety of new and emerging fields.

Students enrolled in this program may earn Credit for Prior Learning for previous occupational experience.

Students may choose to build a program that will allow them to earn a certificate, a diploma, or an associate degree. The objective of the individual, the occupational experience, and the needs of the work place will be considered in selecting courses.

For more information, contact the Student Success Center at 1-800-342-4325, ext. 3-2257 or NDSCS–Fargo at 701-231-6901, ext. 3-2784.

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Technologies and Services Dean's Office at 701-671-2244 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded a certificate, diploma or an Associate in Applied Science degree in Technical Studies.

Course Code	Course Title	Credits
Certificate		
Technical credits*		19
ENGL 105	Technical Communications	3
	or ENGL 110 College Composition I (3)	
Mathematics, Science, Social or Behavioral Sciences electives		2
FYE 101	Science of Success	1
Diploma		
Technical credits*		38
ENGL 105	Technical Communications	3
	or ENGL 110 College Composition I (3)	
Mathematics and/or Science electives		3
Social and Behavioral Sciences, Humanities, History and/or Computers electives		4
General Education elective		1
Wellness elective		1
FYE 101	Science of Success	1
Associate in Applied Science		
Technical credits*		46
ENGL 110	College Composition I	3
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
COMM 110	Fundamentals of Public Speaking	
Mathematics and/or Science electives		3
Social and Behavioral Sciences, Humanities, History and/or Computers electives		4
General Education electives		3
Wellness electives		2
FYE 101	Science of Success	1
Total Required Credits for Certificate		25
Total Required Credits for Diploma		51
Total Required Credits for Associate in Applied Science		65

*Technical credits may be earned by a combination of college courses and/or Work-Based Learning Experiences.

Work-Based Learning Experience (internship, affiliation, directed practice, cooperative education, practicum or supervised occupational experience) is a structured experience, which allows the student to learn on the job while under the direction and supervision of the designated college department. Usually earned after matriculation in a custom-designed program.

Credit for Prior Learning refers to learning that occurs before a student enrolls at NDSCS and may be applied to technical courses or work-based learning credits in the Technical Studies curriculum. It may be academic credit awarded for learning that does not occur in the classroom. The award of this type of credit must be based on college-level learning, not simply experiences or time elapsed. A key consideration in awarding Credit for Prior Learning in this form of learning must be described, demonstrated and documented before it can be awarded.

Revised: June 2015

Journeyworker Track

► Contact Information

Student Success Center
701-671-2257
Old Main

► Delivery Methods

Face-to-Face: Wahpeton
Face-to-Face: Fargo
Online: All classes
Combination

The Technical Studies – Journeyworker Track program is designed to allow advanced standing to individuals who have completed a USDOL or federally approved apprenticeship training program of at least 6000 hours (including a minimum of 400 related study hours). It is a flexible program providing students the opportunity to earn an Associate in Applied Science degree by combining their previous apprenticeship training with college credit course work. Students will work with an advisor to design their own plan of study based on their personal career goals. The completion of this program will help students develop the skills and abilities needed for advancement in their current profession.

Green technology could be a large part of a student’s customized program. In today’s market that includes “smart” buildings, sustainable building materials, alternative fuels and changing technology, students may choose to customize plans that help them gain entry into a variety of new and emerging fields.

Individuals who are currently employed and are not able to relocate will find many of their courses are available in an online format or offered by NDSCS at a distant site. Availability of classes is limited by the student’s own plan of study.

For further information contact Russ Karlgaard, coordinator of NDSCS Related Studies Program at 1-800-342-4325 ext. 3-2177.

To plan your course of study contact Mindy Tayer, NDSCS academic counselor at 1-800-342-4325 ext. 3-2257.

Students who wish to continue their education will find there are transfer options to four-year colleges and universities. For more information, see the academic counselor.

Admission Requirements*

The applicants must be high school graduates or equivalent. To receive advanced standing, they must provide official documentation of a completed USDOL or federally approved apprenticeship training program of at least 6000 hours (including a minimum of 400 related study hours). Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Technologies and Services Dean’s Office at 701-671-2244 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Technical Studies.

Course Code	Course Title	Credits
Journey-Level Certificate		
PLA 202	Prior Learning Assessment	12
PLA 202	Prior Learning Assessment	10
PLA 202	Prior Learning Assessment	10

General Education Courses

ENGL 110	College Composition I	3
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
COMM 110	Fundamentals of Public Speaking	
Mathematics and/or Science electives		3
Social and Behavioral Science electives		4
ECON, HIST, POLS, PSYC, SOC, GEOG, or CIS/CSCI electives. (NOTE: Maximum of two CIS/CSCI credits may be used for this category).		
General Education electives		3
Wellness electives		2
Technical, Business and/or General Education courses electives*		14
Total Required Credits		64

* - Individuals who have completed an approved apprenticeship program exceeding 400-hours of related studies may be granted up to 5 additional credits. (Calculated at one credit per 36-hours of instruction.) These credits will count toward the required technical, business and/or general education course credits.

- Consult academic advisor in selecting electives that are most appropriate. An academic plan must be developed and approved by the Technical Studies Committee and be placed on file in the Records office.

- Internships and cooperative education credits will not be accepted in lieu of the technical, business and/or general education course credits.

PLA 202 credits will be transcribed after the successful completion of one NDSCS course.

Individuals seeking this degree will need to meet the NDSCS graduation requirement stating: At least 16 of the final 24 credits of the curriculum must be taken through NDSCS.

Revised: June 2015

Welding Technology Certificate

► Contact Information

Vance Harthun, associate professor
 vance.harthun@ndscs.edu
 701-671-2434
 Trade Tech II - 147

► Delivery Methods

Face-to-Face: Wahpeton
 Face-to-Face: Fargo
 Combination

The Welding Technology curriculum is designed to provide students experience in welding as it pertains to assembly, manufacturing, energy and construction.

This program provides education and training in welding and cutting processes, robotics, print reading, metallurgy, and other aspects of general education.

Career opportunities offer a wide range of entry level employment possibilities in the manufacturing, steel construction, mining, energy and other areas of the welding industry.

The NDSCS Welding program is an American Welding Society SENSE certified facility. AWS Level I certification is available in the certificate program.

The NDSCS Welding program is an educational partner with Weld-Ed, the National Center for Welding Education and Training.

Course Code	Course Title	Credits
Certificate		
MFGT 101	Robotics I	2
MFGT 123	Fabrication Methods I	2
MFGT 135	Basic Metallurgy	2
MFGT 137	Print Reading I	2
WELD 151	Welding Theory I	3
WELD 152	Welding Theory II	3
WELD 153	Welding Lab I	5
WELD 154	Welding Lab II	5

Related/General Education Courses Certificate

CIS 101	Computer Literacy	2
MATH 130	Technical Mathematics	2
	Social and Behavioral Sciences elective (ECON, HIST, POLS, PSYC, SOC, GEOG)	2
FYE 101	Science of Success	1
Total Required Credits for Certificate		31

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- ACT Math – 13 or COMPASS Math – 44 (pre-algebra domain)
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Technologies and Services Dean's Office at 701-671-2244 or the Manufacturing Technologies department chair at 701-671-2478 for strategies to meet the admission requirements.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded a certificate in Welding Technology.

Revised: June 2015

Welding Technology Diploma or Associate Degree

► Contact Information

Joel Johnson, program coordinator
joel.johnson@ndscs.edu
701-671-2170
Trade Tech II - 106

► Delivery Methods

Face-to-Face: Wahpeton
Face-to-Face: Fargo
Combination

The Welding Technology curriculum is designed to provide students advanced experience in welding as it pertains to assembly, manufacturing, energy and construction.

This program provides education and training in advanced welding and cutting processes, robotics, computer numerical control operations, inspection, print reading, fabrication, pipe and plate welding, math, communications and other aspects of general education.

Career opportunities as a Welding technician offer a wide range of employment possibilities in the manufacturing, steel construction, mining, energy and welding inspection. A diploma or Associate in Applied Science degree will provide higher level employment opportunities in the welding industry.

The NDSCS Welding program is an American Welding Society SENSE certified facility. AWS Level I and Level II certification is available.

The NDSCS Welding program is an educational partner with Weld-Ed, the National Center for Welding Education and Training.

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Required minimum placement scores:

- ACT Reading – 15 or COMPASS Reading – 61
- ACT English – 15 or COMPASS Writing – 26
- ACT Math – 13 or COMPASS Math – 44 (pre-algebra domain)
- Or transfer equivalencies will apply as appropriate

Applicants not meeting the above requirements are encouraged to visit with the Technologies and Services Dean's Office at 701-671-2244 or the Manufacturing Technologies department chair at 701-671-2478 for strategies to meet the admission requirements.

Additional Admission Requirements

The Diploma and Associate in Applied Science Degree 2nd year option in Welding Technology is a limited enrollment program. Applicants will be selected on a point system. The following criteria are used to rank students for selection.

1. Completion of the Welding certificate program or substantial progress toward completion of the certificate program.
2. Cumulative NDSCS GPA from fall semester plus midterm assessment of the spring semester in the certificate program.
3. Successful completion of all certificate program core welding and manufacturing courses with a "C" or higher.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded a diploma or Associate in Applied Science degree in Welding Technology.

Course Code	Course Title	Credits
Diploma and Associate in Applied Science		
MFGT 101	Robotics I	2
MFGT 123	Fabrication Methods I	2
MFGT 135	Basic Metallurgy	2
MFGT 137	Print Reading I	2
MFGT 140	Fabrication Methods II	2
MFGT 141	Print Reading II	2
WELD 151	Welding Theory I	3
WELD 152	Welding Theory II	3
WELD 153	Welding Lab I	5
WELD 154	Welding Lab II	5
WELD 201	Welding Theory III	4
WELD 202	Welding Theory IV	4
WELD 211	Welding Lab III	7
WELD 212	Welding Lab IV/Pipe/Plate	7
or WELD 213	Welding Lab IV/Fabrication (7)	

Related/General Education Courses

Diploma		
CIS 101	Computer Literacy	2
ENGL 105	Technical Communications	3
or ENGL 110	College Composition I (3)	
MATH 130	Technical Mathematics	2
MATH 132	Technical Algebra I	2
Social and Behavioral Sciences elective (ECON, HIST, POLS, PSYC, SOC, GEOG)		
	Wellness elective	1
FYE 101	Science of Success	1
Associate in Applied Science		
CIS 101	Computer Literacy	2
ENGL 110	College Composition I	3
English/Communication elective (choose one)		
ENGL 105	Technical Communications	3
ENGL 120	College Composition II	3
ENGL 125	Introduction to Professional Writing	3
COMM 110	Fundamentals of Public Speaking	3
MATH 130	Technical Mathematics	2
MATH 132	Technical Algebra I	2
MATH 136	Technical Trigonometry	2
Social and Behavioral Sciences elective (ECON, HIST, POLS, PSYC, SOC, GEOG)		
	Wellness electives	2
FYE 101	Science of Success	1
Total Required Credits for Diploma		63
Total Required Credits for Associate in Applied Science		69

Revised: June 2015

COURSE DESCRIPTIONS

(ABOD) AUTO BODY REPAIR AND REFINISHING TECHNOLOGY

ABOD 101 Basic Auto Body Repair Techniques Lab (4 credits)

This is a laboratory course covering the basic fundamentals of auto body repair. Emphasis is placed on learning the basic repair methods stressing quality of repair. Laboratory tasks are performed on donated salvage vehicles. Tasks are assigned according to the NATEF task list. (F)

ABOD 102 Basic Auto Body Production Lab I (4)

ABOD 102 applies basic procedures learned in ABOD 101 to production-type vehicles. Using NATEF task lists, the student will take vehicle from damaged state through the initial priming stage. Prerequisite: ABOD 101 and ABOD 113. (F)

ABOD 103 Basic Auto Body Production Lab II (4)

This is a continuation of ABOD 102. The procedures learned in ABOD 101, 102, 103, 113, 115, 116 and 120 will be applied to production vehicles. The student will take a vehicle from primer to refinish and perform final detailing to produce a satisfied customer. Prerequisites: ABOD 102 and ABOD 115. (S)

ABOD 104 Basic Auto Body Production Lab III (4)

This is a continuation of ABOD 103. The procedures learned in ABOD 101, 102, 103, 113, 115, 116 and 120 will be applied to production vehicles. The students will take a vehicle from primer to refinish and perform final detailing to produce a satisfied customer. Prerequisites: ABOD 103 and ABOD 116. (S)

ABOD 113 Basic Auto Body Repair Techniques I (2)

This is a lecture and demonstration course covering the basic fundamentals of auto body repair. Emphasis is placed on learning the basic repair methods, stressing the quality of the repair. (F)

ABOD 115 Basic Auto Body Repair Techniques II (2)

This is a lecture and demonstration course covering the basic fundamentals of auto body repair. Emphasis is placed on learning the basic repair methods, stressing the quality of the repair. Prerequisites: ABOD 101 and ABOD 113. (F)

ABOD 116 Refinishing Equipment/Plastic Repair (2)

This is a lecture course covering the basic equipment of auto body repair and plastic repair. Emphasis is placed on learning the basic uses and maintenance of the repair equipment. Tasks are assigned according to the NATEF task list. Prerequisites: ABOD 102 and ABOD 115. (S)

ABOD 117 Refinishing Materials (2)

This is a lecture course covering the materials used in auto body repair. Emphasis is placed on learning the refinish materials used in auto body repair and the application methods safely. Tasks are assigned according to the NATEF task list. Prerequisites: ABOD 103 and ABOD 116. (S)

ABOD 120 Applied Welding (3)

This course covers basic welding instruction for students enrolled in the Auto Body curriculum. Major emphasis is placed on gas metal arc welding (GMAW), using wire metal inert gas (MIG) welders on sheet-metal gauges used on modern unibody automobiles. Introduction to oxy-acetylene welding and cutting procedures also is covered. (F)

ABOD 200 Mechanical/Electrical Components (3)

This course is a practical introduction to electrical and electronic systems, brake systems, air conditioning systems, cooling systems, drive train, fuel, intake and exhaust systems, and restraint systems. Major emphasis is the utilization of lecture, discussion and demonstrations to the production lab on customer production projects. HP-1 items are tracked on progress charts and the ASE-NATEF task list. (S)

ABOD 201 Wheel Alignment and Measuring Systems (2)

This theory/lab course covers tasks necessary to diagnose, repair and replace suspension and frame parts on today's high-tech vehicles. The use of various measuring systems will be used in this course to perform proper repairs. Prerequisites: All ABOD 100-level courses. (F)

ABOD 202 Frame/Body and Structural Repairs (2)

This theory/lab course covers tasks necessary to repair and replace frame, unibody and structural parts on today's vehicles. Chainless anchoring, magna racks and floor pulling equipment will be used in this course. This course is co-scheduled with ABOD 201 and ABOD 203. Prerequisites: All ABOD 100-level courses. (F)

ABOD 203 Advanced Damage Analysis Lab I (8)

This lab course will provide the student practical application in advanced repair methods. This will include frame, body, suspension, glass, refinishing, and related procedures. Prerequisites: ABOD 100-level courses. (F)

ABOD 204 Estimating and Job Costing (2)

This theory/lab course covers school and shop safety rules, shop equipment, work habits and proper ethics, estimating vehicles involved in a collision to get an accurate repair cost and job costing each vehicle to show a profit or loss. Prerequisites: ABOD 201, ABOD 202, and ABOD 203. (S)

ABOD 205 Aftermarket Accessories and Body Shop Planning (2)

This course covers the use and installation of aftermarket automotive accessories, as well as graphic design, layout and installation. Students will also learn the importance of a properly designed collision repair facility and its importance in the production of the repair facility. The students will design and lay out a working body shop. Prerequisites: ABOD 201, ABOD 202, and ABOD 203. (S)

ABOD 206 Advanced Damage Analysis Lab II (8)

This lab course will continue to provide the student practical application in advanced repair methods. This will include frame, body, suspension, glass, refinishing, and related procedures. Prerequisites: ABOD 201, ABOD 202, ABOD 203. (S)

ABOD 251 Auto Trim/Upholstery Theory (2)

A lecture, discussion, demonstration and practical applications course in automotive and related auto trim and upholstery techniques. Students receive training in basic upholstery processes including sewing machine operation, maintenance and repair; measuring, marking and cutting covering materials; seat re-upholstering; trim panel making and covering, headliner recovering; carpet installation; vinyl top installation; convertible top replacement; window tinting and various other auto trim procedures. (By arrangement)

ABOD 252 Sheet Metal Fabrication Theory (2)

A lecture, discussion, demonstration and practical applications course involving fabrication of repair and replacement body panels using shears, brakes, slip rollers, bead rollers, shrinkers, stretchers, mallets with shot bags, English wheels and common body hand tools. (By arrangement)

ABOD 253 MIG/TIG Specialty Welding (2)

A lecture, discussion, demonstration and practical applications course involving Metal Inert Gas (MIG) and Tungsten Inert Gas (TIG) welding techniques to fabricate and repair light to medium gauge steel, aluminum, and stainless steel used in the specialty vehicle industries. Hammer welding using an Oxygen/Acetylene gas torch will be covered. (By arrangement)

ABOD 254 Custom Painting/Vinyl Graphics Theory (2)

A lecture, discussion, demonstration and practical applications course exploring the artistic side of automotive painting, special effects, and graphic design, using common refinishing products and equipment as well as air brushing, pinstriping, special effect finishes, graphic designs and vinyl plotters in creating rolling works of art. (By arrangement)

ABOD 261 Basic Auto Body Specialty Lab I (4)

A practical application of basic auto body and specialty skills in the repair, restoration, customizing and building of special interest vehicles. Students develop skills of fabrication using basic and specialized tools and equipment. Learned tasks are performed on live production vehicles. Students also visit restoration/custom/hot rod/street rod shops to gain insight into the specialty vehicle industries. (By arrangement)

ABOD 262 Basic Auto Body Specialty Lab II (4)

A continuation of ABOD 261. Students continue to develop skills in the repair, restoration, customizing and building of live production vehicles. (By arrangement)

ABOD 263 Advanced Auto Body Specialty Lab I (4)

A practical application of all skills required to repair, restore, customize and build specialty vehicles. Specialties of auto trim/upholstery, sheet metal fabrication, MIG/TIG welding, and custom painting are incorporated on live production projects. Students also visit restoration/custom/hot rod/street rod shops to gain insight into the specialty vehicle industries. (By arrangement)

ABOD 264 Advanced Auto Body Specialty Lab II (4)

A continuation of ABOD 263. Students continue to develop advanced specialty skills on live production projects. (By arrangement)

ABOD X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

ABOD 297 Cooperative Education (1-5)

Cooperative Education offers students the opportunity to integrate career, social and personal development into the educational process. The cooperative education program allows students to integrate classroom study with a paid work experience related to their fields of study. It is recommended that a student has successfully completed one year of academic study.

ABOD 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(ACCT) ACCOUNTING**ACCT 102 Fundamentals of Accounting (3 credits)**

This course is designed for non-accounting majors. Coverage includes elements of the financial statements and the full accounting cycle. (F/F-Online)

ACCT 118 Applied Accounting (3)

This course is designed for non-accounting majors and has a special emphasis on the applications of accounting software. The course introduces students to the accounting cycle, basic accounting policies and procedures, and exposes students to accounting software applications. QuickBooks Pro is used to give students direct experience with setting up and working with accounting software. (S/S-Online)

ACCT 200 Elements of Accounting I (4)

This course is a study of financial accounting concepts. Topics include the reporting of current and fixed assets, current liabilities, income and expense recognition, and the financial statements. (F/F-Online)

ACCT 201 Elements of Accounting II (4)

The emphasis of this course is on managerial and financial accounting issues. Topics include the reporting of long-term liabilities and investments; the accounting for corporations, partnerships and LLCs; the statement of cash flows; and the use of accounting information for analysis and decision making. Prerequisite: ACCT 200. (S/S-Online)

ACCT 215 Business in the Legal Environment (3)
(Previously BUSN 230/231)

The legal environment of business, governmental regulation, contracts and property. The study of the legal and regulatory environment in which business firms operate. Topics include contract, environmental, criminal, tort law, business ethics and social issues. (F/F-Online)

ACCT 231 Income Tax Procedures (3)

A study of federal income tax laws and regulations. Includes the preparation of forms 1040A, 1040, and supplementary income reporting from sole proprietorships, farming, rental, capital gains, partnerships, and corporations. (As needed)

ACCT X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

ACCT 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(AGEC) AG ECONOMICS**AGEC 141 Introduction to Agribusiness Management (1 credit)**

This is an introductory course dealing with the economic importance of the agribusiness community and the potential for employment with the agribusiness industry. (F, S)

AGEC 145 Farm Records (3)

This is a basic course in farm balance sheets, accounts, inventories, enterprise and production records, and various other financial records. The course also includes, but is not limited to, crop and feed check, monthly inventory, and family living expenses. The course will cover paper-based as well as computerized farm recordkeeping systems. (F, S)

AGEC 231 Professional Selling Skills (3)

AGEC 231 explores some of the human elements of agribusiness. It is designed for students studying agriculture who plan a professional career in agribusiness. The course is also highly practical for students outside of agriculture who are interested in pursuing a career in professional selling. It recognizes the wide diversity of backgrounds, interest areas and problems young professionals are likely to face as they begin their careers. The approach taken in this class is highly pragmatic and attempts to give the student more than a glimpse of a wide array of concepts of human behavior and professional selling techniques. (S)

AGEC 236 Sales Presentation Techniques (2)

This course focuses on pre-sales planning, sales presentations; both face to face and electronic, and sales follow up techniques. Communication skills and product research will be emphasized. Students will plan, prepare, and conduct a sales meeting. Computer generated sales tools will be created and sales presentations will be video recorded for peer review. (S)

AGEC 242 Introduction to Agricultural Management (3)

Farm or agribusiness management concepts, measuring management performance, developing and improving management skills such as managing risk, managing income taxes, farm business analysis, controlling and using land, human resource management, and machinery management. (F, S)

AGEC 244 Introduction to Agricultural Marketing (3)

A study of the agricultural marketing system to include cash marketing, commodity futures trading, branded products merchandising and the interrelationship of the government and international trade. (F)

AGEC 245 Commodity Market Analysis (3)

Addresses advanced commodity market concepts and tools. Includes the study and application of fundamental and technical analysis of the grain and livestock markets. Prerequisite: AGECE 244 (S)

AGEC 246 Introduction to Agricultural Finance (3)

Introduction to agricultural finance provides background in farm and agribusiness credit use and evaluation. Discussion of specific financial conditions on farms and in agribusiness. (S)

AGEC 247 Agricultural Land Resource Acquisition (2)

The study and application of management and financial considerations involved with renting and purchasing farmland. (S)

AGEC 248 Introduction to Risk Management and Insurance (3)

This course presents principles of loss control, insurance, and financial risk management, as they apply to current farm operations. Basic concepts of financial risk management, crop insurance, property, liability, and disability insurance, life and health insurance, and functional and financial operations of insurers will be examined. Primary emphasis is placed on applying risk management principles to farm operations in order to manage risk exposure and improve financial security and profitability. (S)

AGEC X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

See also Agriculture (AGRI), Animal Science (ANSC), Plant Science (PLSC) and Soil Science (SOIL)

(AGRI) AGRICULTURE**AGRI 110 Rural Safety (2 credits)**

Agriculture is one of the most hazardous industries in the nation. Farming is one of the few industries in which the families (who often share the work and live on the premises) are also at risk for fatal and nonfatal injuries. This class is designed to address the many safety concerns and issues that face modern farm workers and their families. (F)

AGRI 135 Applied Math (2)

This course will include a review of mathematics including fractions, decimals, percentages and basic algebra. The course will emphasize problem-solving in agriculture applications using spreadsheet software. (F)

AGRI 191 First Year Seminar (1)

This course is designed as a forum for presentations on a variety of agriculture topics and to strengthen communication skills including the use of professional speaking skills, demonstrating professional etiquette, and challenging critical thinking skills through questioning presenters. (S)

AGRI 241 Farm Management Education (1-6)

Farm Management Education is designed as a practical study of the farming business for farm families currently engaged in managing their farms or ranches.

AGRI 242 Advanced Farm Management Education (1-4)

This course continues the application of farm management principles for decision-making. Prerequisite: AGRI 241 or department approval.

AGRI 275 Introduction to Precision Agriculture (3)

This course is designed to introduce the student to precision production agriculture. Students will receive hands-on experience using hand-held global positioning systems and a vehicle equipped with a differentially corrected global positioning system. Students will use software that collects, analyzes and creates maps which can be used in agronomic decision-making. (F)

AGRI 291 Second Year Seminar (1)

This course will hone your abilities to present current agricultural topics in a professional manner to a large group of your peers. Furthermore, you will practice your professional etiquette during presentations, challenge your critical thinking skills through questioning presenters and increase your knowledge of current agricultural topics. (S)

AGRI X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

AGRI 197/297 Internship (Agriculture Department) (1-9)

Provides opportunities to explore career interests and develop professional skills through work experiences. Under supervision of the employer and the instructor while receiving credit. May be repeated. (F, S, Su)

AGRI 299 Special Topics (1-9)

A course designed to meet special departmental needs.

See also Ag Economics (AGEC), Animal Science (ANSC), Plant Science (PLSC) and Soil Science (SOIL)

(ANSC) ANIMAL SCIENCE**ANSC 114 Introduction to Animal Sciences (3 credits)**

General principles of the livestock industry and relationship to mankind. (F, S)

ANSC 116 Animal Reproduction (3)

This course will investigate the anatomy, physiology and endocrinology of animal reproduction and the techniques for the control and manipulation of reproductive processes. (S)

ANSC 118 Livestock Health Management (3)

This introduction to infectious diseases affecting livestock provides students with an introduction to infectious diseases and details the animal husbandry practices influencing the host-pathogen interactions. (Alternating – S)

ANSC 123 Feeds and Feeding (3)

Principles of feeding livestock including digestive systems, nutrient requirements, nutrient characteristics and sources utilized in the formulation of balanced rations. (F)

ANSC 220 Livestock Production (3)

Livestock production is intended to cover the general production and management of livestock species in North Dakota. Emphasis will be placed on beef, dairy, swine and sheep. Specific topics will include: production systems, genetics and breeding systems, herd health, nutrition, reproduction and waste management. (S)

ANSC 223 Large Ruminant Nutrition (3)

Large ruminant nutrition will explore the parts and functions of the ruminant digestive system. Nutritional requirements for various production phases of beef and dairy cattle will be discussed. Feedstuff value in the ruminant digestive system will be taught. (Alternating – S)

ANSC 236 Introduction to Range Management (2)

Principles of range management which include plant identification, range evaluation and range improvement. (S)

ANSC 252 Large Ruminant Production (3)

Large ruminant production will explore common production practices of beef and dairy in the upper Midwest. A focus of the class will be making production decisions based on profitability and efficiency. (S)

ANSC 260 Introduction to Equine Studies (3)

A review of evolution, historical roles of the horse, breeds, and the modern day equine industry. Introduction to anatomy, physiology, selection, nutrition, health care, and stable design/management. A lab component will accompany this course. (F)

ANSC X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

See also Ag Economics (AGEC), Agriculture (AGRI), Plant Science (PLSC) and Soil Science (SOIL)

(ARCT) ARCHITECTURAL DRAFTING AND ESTIMATING TECHNOLOGY**ARCT 101 Architectural Drafting I (3 credits)**

This course is a beginning Architectural Drafting course and will cover basic drafting skills as applied to residential drafting concepts. These concepts include sketching, interior planning, exterior style, blueprint reading and code interpretation. The students will learn the step-by-step process for designing and laying out a set of working drawings for a residential home. (F, O)

ARCT 102 Architectural Drafting II (5)

This course is a continuation of residential construction. Students will draw a complete set of working drawings for a two-story house. Stair sections, framing plans, truss construction and a study of kitchen layouts and elevations are included. Prerequisite: ARCT 101. (S, O)

ARCT 110 Graphic Communications (3)

This course is an introduction to print reading, sketching, and manual drafting. The course will cover the proper use of tools and equipment, freehand lettering techniques, technical drafting skills, sketching, orthographic projection, and isometric drawing in addition to a basic understanding of residential print reading. After completion of this course, the student will have the necessary requirements to enter into studies in Architectural Drafting and Estimating or the Construction Management Technology program. (F, O)

ARCT 120 AutoCAD for Architecture (3)

This course is an introduction to the operation and application of computer-aided drafting utilizing AutoCAD 2012 software. Drawing and editing commands are studied and utilized in final projects. (F)

ARCT 121 Building Information Modeling (2)

This course is an introduction to Building Information Modeling (BIM). We will specifically be using the latest version of the Autodesk Revit Architecture software. We will use the BIM software in conjunction with Residential Design and create a virtual model. (S)

ARCT 133 Residential Methods and Materials (3)

This course is an introduction to residential methods of construction and the terminology and use of residential building materials. This course will also introduce basic mechanical and electrical equipment, their functions and space requirements as they relate to residential construction. Students may visit job sites to examine the latest methods of residential construction. (F, O)

ARCT 134 Structural Wood Design (2)

A course to introduce the sizing of structural members used in light wood frame building construction. A working knowledge of building codes and sizing terminology is emphasized. Prerequisite: ARCT 133. (S, O)

ARCT 144 Construction Estimating I (3)

This course is an introduction to residential material and labor estimating. The basic principles of construction estimating are covered. Material lists, calculations and costs are made for several different houses and pole type construction. Prerequisite: ARCT 133 or BCT 133. (S, O)

ARCT 201 Architectural Drafting III (4)

This course involves the development of a partial set of working drawings for a two story eight-plex apartment building. Students will use REVIT Architecture software to develop all of their project drawings. Prerequisite: ARCT 102 and ARCT 121. (F, O)

ARCT 202 Architectural Drafting IV (4)

This course includes an extensive introduction to pre-engineered metal buildings and a more in-depth coverage to light commercial conventional buildings. Students will use REVIT Architecture software to develop all of their project drawings. Prerequisite: ARCT 201. (S, O)

ARCT 212 Architectural Presentation Techniques (3)

Course material covers the techniques of graphic communication, projection and introduction to color media as tools for architectural presentations. Special presentation software is introduced and utilized to provide rendered presentations using a computer. A course requirement is the coordination and completion of the student's portfolio for assessment purposes. A PowerPoint is created as a final project to present the student's portfolio work. Prerequisite: ARCT 201. (F, O)

ARCT 223 Renovation and Design (3)

This course is a practical introduction to the techniques of upgrading, rehabilitation and design of older residential and/or commercial structures to meet the needs of today's customer. Prerequisites: ARCT 102, ARCT 133 and ARCT 144. (F, O)

ARCT 224 Plane Surveying (1)

This course is a study of elementary plane surveying and the equipment used. Practical field problems are involved using the engineer's level and transit. (F)

ARCT 231 Commercial Methods and Materials (2)

This course is a continuation of study for construction methods, terminology and use of construction materials with an emphasis on commercial construction. Students will write a research report on specific construction materials as assigned. This course will also introduce basic mechanical and electrical equipment, their functions and space requirements as they relate to commercial construction. Students may visit job sites to examine the latest methods of commercial construction. Prerequisite: ARCT 133. (F, S, O)

ARCT 234 Structural Steel Detailing I (3)

The primary objective of this class is to broadly cover the subject of structural steel drafting, emphasizing the process of preparing structural steel design and fabrication drawings for commercial building applications. To that end, the student is introduced to a wide variety of practical drafting examples and assignments that structural steel design or detail drafters might encounter in an on-the-job situation. Job responsibilities of the major players in the structural steel design and drafting field are fully discussed. The design of beams, columns and connections are also discussed so the student is conversant in the terminology and aware of the design process. (S, O)

ARCT 241 Construction Estimating II (3)

This course covers manual and computer-assisted estimating procedures. Several light commercial and multi-family buildings will be estimated. Labor costs will be included with several of the projects. The study of metal building terminology and the Butler Advantage software is also covered. Prerequisite: ARCT 144. (F, O)

ARCT 242 Construction Estimating III (3)

This course covers manual and computer-assisted takeoff procedures for material and labor on commercial buildings. Students will become familiar with contracting and bidding procedures. Students will also be introduced to using an estimating digitizer to do take-offs. Prerequisites: ARCT 144 and ARCT 241. (S, O)

ARCT X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

ARCT 297 Cooperative Education (1-5)

Cooperative Education offers students the opportunity to integrate career, social and personal development into the educational process. The cooperative education program allows students to integrate classroom study with a paid work experience related to their fields of study. It is recommended that a student has successfully completed one year of academic study.

ARCT 299 Special Topics (1-15)

A course designed to meet special departmental needs.

(ASC) ACADEMIC SERVICES CENTER**ASC 060 English Language and Grammar Skills (1-2 credits)**

This course teaches grammar, punctuation, mechanics, spelling, and vocabulary based on individual needs. Emphasis is on grammar and usage in sentence structure. Upon recommendation of the instructor, this course may be repeated for additional credit. (F, S, Su)

ASC 062 Medical Vocabulary (1-2)

Presents medical vocabulary as an introduction or supplement to curricular studies. Emphasis on meaning, structural analysis, pronunciation and spelling. Upon recommendation of the instructor, this course may be repeated for additional credit. (F, S)

ASC 067 English as a Second Language (1-2)

Helps students who speak English as a second language to communicate more effectively in daily life. Areas of concentration include speaking, listening, reading, and writing. Upon recommendation of the instructor, this course may be repeated for additional credit. (F, S, Su)

ASC 070 Computer Prep (1)

Introduces students to personal computer use. Includes fundamentals of computer systems and basic application of software programs. Prepares students for college computer courses. Upon recommendation of the instructor, this course may be repeated for additional credit. (F, S, Su)

ASC 071 Introduction to Keyboarding (1)

Offers students with no computer experience the opportunity to practice keyboarding and word processing skills. Upon recommendation of the instructor, this course may be repeated for additional credit. (F, S, Su)

ASC 075 College Study Skills (1)

Provides an overview of basic study skills. Includes outlining, note taking, underlining, effective textbook reading and test taking. Also discussed are self-motivational techniques and general study tips. Learning and listening strategies, memory techniques, time management, and cooperative learning are also discussed and practiced. Upon recommendation of the instructor, this course may be repeated for additional credit. (F, S, Su)

ASC 082 Effective Reading (3)

Provides strategies to improve reading efficiency by building vocabulary and improving basic reading, writing, and study skills. (F, S, Su, O)

ASC 083 Speed Reading (1-2)

Designed to improve reading efficiency by the use of computerized programs and lessons to increase reading rate, while still maintaining good comprehension, and developing greater flexibility of reading speed. (F, S, Su)

ASC 084 Critical Reading (2)

Develops critical reading comprehension and thinking skills through interpretation of selected reading materials. Includes distinguishing between fact and opinion, drawing inferences and conclusions, analyzing the organization of material, and seeing relationships. (F, S, Su, O)

ASC 086 College Writing Prep I (2)

This is a writing course designed to help students gain the skills of sentencng and paragraphing. Through conferencing, the instructor and student identify and prioritize writing problems. This course is designed to prepare students for College Writing Prep II. (F, S, Su, O)

ASC 087 College Writing Prep II (2)

This course is a writing course designed to help students gain the skills of paragraphing and essay writing. Through conferencing, the instructor and student identify and prioritize writing problems. This course offers a transition to entry-level English composition courses. (F, S, Su, O)

ASC 088 Composition Lab (1)

Provides supplemental and developmental instruction for students currently enrolled in an English 110 course. Instruction in grammar and essay writing is based on student need with time allowed for the English course assignments. This course may be repeated when additional English courses are taken. (F, S, Su, O)

ASC 089 Math Companion Lab (1)

To provide supplemental and developmental instruction for students taking any mathematics course. This course is taken the same semester as the required math course. Instruction based on student need with time allowed for application to math course assignments. This course may be repeated when taking another math course. This course may be required due to Compass test results and the course placement policy. (F, S)

ASC 090 Math Prep (2)

This course improves basic math computational skills: addition, subtraction, multiplication, and division of whole numbers, fractions, and decimals. Includes a study of percents and application of percents. This course may be required due to Compass test results and the course placement policy. (F, S, Su)

ASC 091 Algebra Prep I (2)

This course will examine real numbers, fundamental operations, variables, equations and applications. Course may not transfer. Prerequisite: ACT math score of 13-15, appropriate Compass score, or successful completion of ASC 090. (F, S, Su, O)

ASC 092 Algebra Prep II (2)

This course will examine systems of linear equations and their applications, rules of exponents, scientific notation, polynomials, and radicals. Course may not transfer. Prerequisite: ACT-MATH score of 16-18, appropriate Compass score, or successful completion of ASC 091. (F, S, Su, O)

ASC 093 Algebra Prep III (2)

This course will examine the real number system, factoring, quadratic equations, rational expressions, and functions. Course may not transfer. Prerequisite: ACT math score of 19-20, appropriate Compass score, or successful completion of ASC 092. (F, S, Su, O)

ASC 095 Pre-Trigonometry (1)

Teaches students how to solve for unknowns of a triangle using trigonometry functions and Law of Sines and Cosines. Discusses polar/rectangular coordinates and graphing. Upon recommendations of the instructor, this course may be repeated for additional credit. (F, S)

ASC 096 Pre-Chemistry (1-2)

Teaches elements, AMU, scientific notation, metrics, unit conversions, moles, chemical equations and reactions. Upon recommendation of the instructor, this course may be repeated for additional credit. (F, S)

ASC 097 Pre-Anatomy (1-2)

Introduces fundamental concepts involved in the various systems of the human body using a variety of instructional materials. The class can be taken as an introduction or a supplement to Human Structure and Function (BIOL 115). (F, S)

ASC 099 Special Topics (1-9)

A course designed to meet special departmental needs. Upon recommendation of the instructor, this course may be repeated for additional credit.

ASC 180 Prior Learning Assessment (1)

This course is designed for the adult learner to assemble their knowledge from work experiences, leisure, independent study, etc. into a portfolio for faculty evaluation of potential college academic credits. (O)

ASC 293 Peer Tutor (1-3)

Offers successful students the opportunity to tutor individuals or groups in content areas of instruction in a supervised setting. ASC materials available for support. Upon recommendation of the instructor, this course may be repeated for additional credit. (F, S, Su)

ASC 293A Peer Assistant (1-3)

Trains students who want to share their college success with others needing academic/goal-setting support or note taking assistance. Required attendance at training sessions and at weekly individualized meetings with assigned students. Upon recommendation of the instructor, this course may be repeated for additional credit. (F, S, Su)

(AUTO) AUTOMOTIVE TECHNOLOGY**AUTO 103 Power Trains/Brakes (3 credits)**

A lecture, demonstration, and performance type course covering brakes, driveshafts, differentials, clutches, standard transmissions and transaxles. Included in the course is the study of operation, construction differences, and repair procedures and use of special tools. This is a half semester course. (F, S)

AUTO 133 Power Trains I (1)

An applied automotive course intended for the student who is interested in pursuing a career in automotive technology or related fields. This course is a lecture, demonstration, and performance course that covers the basic mechanical principles and fundamentals of operation, disassembly, and adjustment procedures of the following components: manual transmissions, transaxles, clutches, driveshafts, u-joints, half shafts and CV joints. (F, S)

AUTO 134 Power Trains II (1)

An applied automotive course intended for the student who is interested in pursuing a career in automotive technology or related fields. This course is a lecture, demonstration, and performance course that covers the basic mechanical principles and fundamentals of operation, disassembly, and adjustment procedures of the following components: differentials, transfer cases, and automatic transmissions. (F, S)

AUTO 143 Steering, Suspension and Wheel Alignment (3)

A lecture, demonstration, and performance type course covering steering gears, power steering pumps, steering linkage, suspension systems, two and four wheel alignment, and wheel balance. Included in the course is the study of the operation, construction differences, diagnosing, and repair procedures of the steering, suspension and wheel alignment systems. This is a half semester course. (F, S)

AUTO 155 Brakes I (1)

An applied automotive course intended for the student who is interested in pursuing a career in automotive technology or related fields. This course is a lecture, demonstration, and performance course that covers the principles of operation, disassembly, and adjustment procedures of the following components: brake system hydraulics, boost systems, drum and disc brake systems. (F, S)

AUTO 161 Automotive Electronic Systems (2)

This is a lecture, demonstration, and performance type of course which covers the principles of electricity as it applies to electrical circuits along with wire schematic reading, and component and connector locations to locate and find electrical faults. This includes the study of Ohms Law, Snap-On Multi-meter and Ethos certification. (F, S)

AUTO 163 Automotive Charging and Starting (3)

This is a lecture, demonstration, and performance type of course which covers the principles of electricity and applies it to electrical circuits, batteries, starters, and alternators. It will include Ohm's Law, schematic reading, test instruments, starter testing and repair, alternator testing and repair and learning electrical fundamentals as well as troubleshooting starter and alternator electrical problems. (F, S)

AUTO 165 Automotive Electrical and Electronics (5)

This is a lecture, demonstration, and performance type of course which covers the principles of electricity as it applies to electrical circuits, schematics, batteries, starters, and alternators. This includes the study of Ohm's Law, Multi-meter functions and faults found in electrical circuits along with many hands on practices, and Multi-meter certification. This is a half semester course. (F, S)

AUTO 188 Driveability Procedures I (5)

A lecture, demonstration and performance type course covering the basics of engine diagnosis in the areas of engine condition, fuel delivery, ignition systems, emission control and scan tool diagnostic procedures to include hands-on training in all of these areas. This will also include industry-based training and operations of Snap On scan tools. This is a half semester course. Prerequisites: AUTO 165. (F, S)

AUTO 206 Chassis Repair/Body Electrical Theory (3)

A lecture and discussion class covering the operation, diagnosing, servicing of the chassis mechanical and electrical system. The systems covered will be anti-lock braking, four-wheel alignment, supplemental restraints, 4WD and AWD, automatic climate control, anti-theft systems, cruise control and other chassis related systems. The course will begin with a review of fundamentals of the systems mentioned and lead to how the system operates on the vehicle. This is a half semester course. Prerequisites: AUTO 103, AUTO 143, AUTO 165 and TECH 109. (F, S)

AUTO 207 Chassis Repair/Body Electrical Lab (4)

A production lab class where the student works on customer owned vehicles. The students are in charge of writing repair orders, diagnosing vehicle problems, repair of the vehicle and figuring labor time of the individual labor charges for the services they performed. Lab work will be performed on the following units: brakes, alignment suspension and steering, electrical accessories, instrumentation, air conditioning, standard transmissions/transaxles, clutches, differentials, and many other areas which pertain to the chassis. This is a half semester course. Prerequisites: AUTO 103, AUTO 143, AUTO 165 and TECH 109. (F, S)

AUTO 209 Advanced Chassis Repair and Body Electrical (4-8)

A production lab class where the student works on customer owned vehicles. The students are in charge of writing repair orders, diagnosing vehicle problems, repair of the vehicle and figuring labor time of the individual labor charges for the services they performed. Lab work will be performed on the following units: brakes, alignment, suspension and steering, electrical accessories, instrumentation, air conditioning, standard transmissions/transaxles, clutches, differentials, and many other areas which pertain to the chassis. Prerequisites: AUTO 103, AUTO 165, AUTO 143, TECH 109, AUTO 206 and AUTO 207. Must be arranged with Automotive Department chairman. (F, S)

AUTO 216 Engine Repair Theory (3)

The theory of engine rebuilding. Topics covered are: proper removal, installation, cleaning, valve grinding, cylinder head servicing, engine bearings, hydraulic lifters, camshaft servicing, cooling, oiling systems and engine noises. This is a half semester course. Prerequisites: MFGT 110, AUTO 165, and AUTO 188. (F, S)

AUTO 217 Engine Repair Lab (4)

This course involves production work on automobiles that are brought into the shop for engine work. Students perform all types of engine work using the latest rebuilding equipment. They also determine engine noises and repairs to follow. This is a half-semester course. Prerequisites: MFGT 110, AUTO 165 and AUTO 188. (F, S)

AUTO 219 Advanced Engine Rebuilding (4-8)

An advanced course in engine rebuilding including complete cylinder head service, camshaft degreasing and other related areas. This is a half-semester course. Must be arranged with Automotive Department chairman. (F, S)

AUTO 226 Automatic Transmission/Transaxles Theory (3)

A lecture, discussion class covering the operational principles of automatic transmissions, automatic transaxles and hybrid transmissions. A study of fluid couplings, torque converters, planetary gears systems, hydraulic and electronic controls, oil circuits, valve body assemblies, linkage and band adjustments, pressure checks, and hydraulic, electronic, and mechanical diagnostic procedures for transmission failures. This is a half semester course. (F, S)

AUTO 227 Automatic Transmission/Transaxles Lab (4)

A lab course where automatic transmissions/transaxles are disassembled, inspected, assembled and adjusted according to manufactures/industry procedures and specifications, then checked on an automatic transmission dynamometer. Students will apply their knowledge by diagnosing, servicing, removing and installing transmissions/transaxles. This is a half semester course. (F, S)

AUTO 229 Advanced Automatic Transmissions/Automatic Transaxles (4-8)

An advanced course in automatic transmission/transaxles service, including overhaul procedures, and hydraulic and electrical diagnosis procedures. Computer controlled shifting and clutches will be diagnosed using volt/ohmmeters and scan tools. Diagnosis and repair will be performed on current models. This is a half-semester course. Must be arranged with Automotive Department chairman. (F, S)

AUTO 285 Light Duty Diesel (2)

A lecture, discussion class covering the operational principles of the light duty diesel vehicles used in the passenger vehicle market. A study of diesel fuels, fuel delivery systems, diesel fuel injectors, exhaust emissions systems, air delivery, and diagnostic checks, using scan tools and fuel pressure test equipment to diagnose system failures. (F, S)

AUTO 286 Driveability Procedures Theory (3)

This course covers the operation and testing of the following: emission controls, and ignition systems and fuel systems on domestic and foreign passenger vehicles. The student will be instructed in using diagnostic equipment to test various vehicles. The student will also be instructed using ShopKey Pro. This is a half semester course. Prerequisites: AUTO 165 and AUTO 188. (F, S)

AUTO 287 Driveability Procedures Lab (4)

This is a lab course where the student will diagnose and perform repairs to customer vehicles with driveability problems. Students will use scan tools, digital multi-meters, battery testers, lab scopes and other test equipment to diagnose problems found in electrical systems. The student will repair vehicles according to manufacturer's procedures and specifications. This is a half semester course. Prerequisites: AUTO 165 and AUTO 188. (F, S)

AUTO 289 Electronic and Computer Systems (4-8)

An advanced automotive electronics course emphasizing the diagnosis and repair of the computerized systems currently found in the automotive industry. The course offers extensive training in the various electronic ignitions, fuel injection, emission, electronic instrumentation and other electronic control devices now being used by most automobile manufacturers. Students will be working on a wide variety of current model automobiles. This is a half-semester course. Must be arranged with Automotive Department chairman. Prerequisites: AUTO 165, AUTO 188, AUTO 286 and AUTO 287.

AUTO X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

AUTO 297 Cooperative Education (1-5)

Cooperative education offers students the opportunity to integrate career, social and personal development into the educational process. The cooperative education program allows students to integrate classroom study with a paid work experience related to their fields of study. It is recommended that a student has successfully completed one year of academic study.

AUTO 299 Special Topics (1-8)

A course designed to meet special departmental needs.

(BADM) BUSINESS ADMINISTRATION AND MANAGEMENT**BADM 103 Leadership Techniques (1 credit)**

This course provides students with the opportunity to develop or hone their leadership skills through the Collegiate DECA, a national organization of college students preparing for a variety of career areas. Activities promoted by DECA integrate with and enhance the student's college curriculum. Students will participate in leadership activities and conferences. Membership in Collegiate DECA is a requirement. (S)

BADM 110 Introduction to eBusiness (3)

This is a study of e-commerce which provides a foundation for understanding the e-marketing environment and presents planning considerations that contribute to effective e-marketing operations. Practical strategies for building a Website with its own unique qualities that will attract visitors and turn them into customers. (O)

BADM 201 Principles of Marketing (3)

This course is an overview of marketing and distribution and all activities that direct the flow of goods from producer to consumer. The course focuses on the components of the marketing mix — product, price, place, and promotion — and examines the consideration that needs to be made to effectively implement a marketing plan. The student will take learned knowledge and translate it into a marketing plan for an existing or fictitious business. (F, O)

BADM 202 Principles of Management (3)

This course is a study of the management activities of planning, organizing, directing, and controlling. Various internal and external factors which affect business will be explored, including how marketing and management decisions can contribute to the overall success of a business venture. (S, O)

BADM 203 Leadership Techniques (2)

This course is a continuation of BADM 103, which provides students with the opportunity to develop or hone their leadership skills through the Collegiate DECA organization. Collegiate DECA is a national organization of college students preparing for a variety of career areas, with specific emphasis on the areas of marketing, management, merchandising and entrepreneurship. Activities promoted by Collegiate DECA integrate with and enhance the student's college curriculum. There is a focus on service learning and on the responsibility of today's business leaders. Students will need to participate in leadership activities and conferences throughout the school year. Membership in Collegiate DECA is a requirement and this organization is the vehicle used to enable students to put into action the skills they have acquired. Prerequisite: BADM 103 and BUSN 282. (As needed)

BADM 205 Supervisory Management (3)

Introduction to management theory and applications intended to increase supervisory effectiveness. Topics include planning, leading, organizing, controlling, coordinating and decision-making at the supervisory level. (As needed)

BADM 217 Promotion and Advertising I (3)

This is a study of the integrative role of the use of promotion to inform, persuade or remind consumers of the business or organization. This includes a discussion on how to utilize the elements of promotion (advertising, publicity, sales promotion, personal selling) in a coordinated way to meet organizational objectives. Students will develop and present an advertising/promotional campaign for a product or business as a culminating course activity. (F, O)

BADM 223 Quality as an Organizational Strategy (3)

This is an overview of the history and evolution of thought in total quality improvement. Trends in this field and management's role in planning for quality are presented. Processes and concepts that yield data are also included. This course is designed as an overview that provides a basis for understanding a particular organization's approach to total quality improvement. (As needed)

BADM 230 Marketing Information Analysis (3)

This course will present students with the fundamentals of marketing research for understanding the role of research in managerial strategic planning, defining the problem, designing research instruments, and analyzing data to make the proper recommendations. (S/S-Online)

BADM 234 Customer Service (1)

Students will learn how to build a loyal, long-term customer relationship by meeting the needs and wants of customers, handling difficult customers with tact and skill, respecting diversity, and providing superior customer service in person, online, and via telephone in a variety of customer service environments. (F-Online)

BADM 235 eMarketing (3)

This course is an overview of marketing and all activities that direct the flow of goods from producer to consumer. The course focuses on the components of the marketing mix – product, price, place, and promotion – and examines the considerations that need to be made to effectively implement a marketing plan. Students will take learned knowledge and translate it into a marketing plan for an existing or fictitious business. (As needed)

BADM 240 Sales (3)

A basic course in the principles and psychology of selling with an emphasis on techniques and human relations in the selling situation. The steps of a sale including feature-benefit analysis, handling objections, and closing the sale are included. Students participate in exploring product knowledge, understanding and analyzing the consumer, and investigating the competition using experiential exercises. (F, S, O)

BADM 241 Sales Management (3)

Professional sales management integrates sales and marketing management. Emphasis is on relationship selling, which seeks to establish long-run partnerships with customers based on trust, quality and mutual respect. More attention is given to industrial sales than to consumer sales, selling products and services to businesses. This includes planning and organizing the sales force, estimating the market potential and developing, directing, motivating and leading the sales force, as well as consideration of controlling and evaluating sales performance. Prerequisite: BADM 240. (As needed)

BADM 244 Sales Seminar (3)

This course is designed to address the direct, industrial and professional salesperson's approach to problem-solving and understanding the buyer's needs and communicating that understanding to the buyer. The student will develop an awareness of the selling process toward mutual satisfaction for both the seller and buyer of goods and/or services. (S, O)

BADM 250 eManagement (3)

This course provides an introduction to the basic roles, practices, and techniques of managers in modern business. Students learn essential managerial skills in organizing, staffing, and leading, emphasizing the electronic presence. (As needed)

BADM 251 Personal Finance (2-3)

Personal Finance studies the economic management of personal finances. The course provides an overview of various decision-making concepts, tools and practical knowledge to assist the student in effective management of personal financial affairs. Topics include: budgeting, borrowing, career choices, consumer credit, financial statements, insurance, real estate, retirement planning, tax planning, transportation, savings and investing. (S-Online)

BADM 260 Principles of Retailing (3)

A comprehensive presentation of retailing principles and practices in the development of world-wide retailing and the organization of retail institutions. Topics include target marketing, competition analysis, location and layout design. (As needed)

BADM 262 Retail Management (3)

A strategy oriented study of retail management. An overview of retailing from a mid-management level. Topics include managing growth and diversification, store location, trade area analysis, merchandise strategy and performance, effective pricing, inventory valuation, customer communication and managing retail service. (As needed)

BADM 272 Process Improvement (3)

This course is based on the Plan-Do-Check-Act (PDCA) Cycle and is supported with a set of tools. It attempts to provide information in the improvement of processes in a less technical fashion than designed experiments. In cases where experiments are not necessary, simpler tools may provide enough process information to indicate process improvement. This course uses process flowcharts and variance analysis tools to identify complexity and non-value-added steps, and seek to eliminate, reduce, combine, or simplify the main three areas of irrationality, inconsistency, and waste. (As needed)

BADM 275 Scientific Methods I (3)

This course introduces students to team problem-solving methods and provides an introduction to tools for problem-solving. When problems arise in a process within an organization, students will learn to analyze the situation to solve the problem rather than treat the symptoms of the problem. During this course, the Seven Planning and Management Tools as well as the Plan-Do-Check-Act (PDCA) Cycle will be applied during activities and exercises. (As needed)

BADM 276 Scientific Methods II (3)

This course is actually a two-part course that builds off of the foundation of scientific methodology set in Scientific Methods I. First, a use of Statistical Process Control (SPC) measures in problem-solving are required of students in exercises. Second, a look at Hoshin Planning allows students the opportunity to use strategic planning and identify action for development of plans in organizations. Prerequisite: Scientific Methods I. (As needed)

BADM 281 Organizational Behavior (3)

Organizational Behavior is a study that investigates the impact that individuals, groups, and structure have on behavior within an organization, and then applies that knowledge to make organizations work more effectively. The course will focus on how managers can improve productivity, reduce absenteeism and turnover, and increase employee citizenship and job satisfaction. (S, O)

BADM 282 Human Resource Management (3)

A course that is a survey of human resource management, including job analysis, recruitment, selection, performance appraisal, compensation, training and labor relations. The impact of environmental influences, such as legislation, court decisions and unions on human resource activities are addressed. (F, O)

BADM 291 Career Seminar (3)

The student has the opportunity to participate in various projects and activities to demonstrate and perhaps improve his/her competency level in regard to desired student outcomes of the Business Management program. Activities will consist of a number of topics utilizing team interactions, role-playing, problem identification, problem-solving, creative thinking, decision-making, verbal and written communications and other personal and professional development exercises necessary for successful employment in business. (S, O)

BADM X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

BADM 297 Cooperative Education (1-5)

Cooperative Education offers students the opportunity to integrate career, social and personal development into the educational process. The cooperative education program allows students to integrate classroom study with a paid work experience related to their fields of study. It is recommended that a student has successfully completed one year of academic study.

BADM 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(BCT) BUILDING CONSTRUCTION TECHNOLOGY**BCT 102 Core Curriculum (2 credits)**

Core Curriculum from the National Center for Construction Education and Research (NCCER), consists of eight modules which are: "Basic Safety," "Construction Math," "Hand Tools," "Power Tools," "Blueprints," "Basic Rigging," "Communication Skills" and "Employability Skills." This course is a prerequisite for all NCCER "Craft Level Training," (regardless of the craft). (F)

BCT 110 Concrete and Sitework (4)

This course is an introduction to the techniques of forming, placing, and finishing concrete. Students will gain experience and knowledge of footings, walls, and flat work as well as the tools used in the concrete construction industry. The course is conducted during the first eight weeks of the fall semester and is primarily lab. The students actually prep the sub-grade, construct the form-work, install the reinforcement, place and finish the concrete, strip and clean the forms, and backfill the work site as required. Skid steer operation as well as the use of other construction equipment is incorporated into this hands-on training experience. (F)

BCT 111 Concrete Theory (2)

This course gives the students an understanding of proper procedures and techniques for placing, finishing, jointing, curing, and protection of concrete flatwork. It prepares them to successfully complete the American Concrete Institute (ACI) Examination which is administered by a representative from the North Dakota Concrete Council at the conclusion of the course. Successful completion of this examination gives them a certification as "ACI Concrete Flatwork Technician," an industry recognized accomplishment. (F)

BCT 115 Introduction to Light Commercial Construction (2)

This course is an introduction to framing techniques to include constructing a floor system, framing of walls, constructing and installing rafters, applying sheathing, installing windows and doors, installing siding and soffits, and installing shingles. Both wood and metal is used in the construction of garden sheds and other utility type structures. The students use blueprints to construct these projects and work in small groups of three or four. This course is primarily lab. (F)

BCT 130 Wood Frame Construction (7)

This course is primarily laboratory focused consisting of framing techniques to include constructing a floor system, applying tongue and groove subflooring, framing of walls, applying sheathing, placing rafters, sheathing the roof, applying house wrap, installing windows and doors, installing soffits, installing siding accessories and siding, and installing shingles. The students use blueprints to frame a house and are offered the opportunity to act as the foreman for different phases of the construction. (S)

BCT 133 Carpentry Fundamentals (3)

Carpentry fundamentals from the National Center for Construction Education and Research (NCCER), consists of ten modules: "Orientation to the Trade," "Building Materials, Fasteners, and Adhesives," "Hand and Power Tools," "Reading Plans and Elevations," "Floor Systems," "Wall and Ceiling Framing," "Roof Framing," "Introduction to Concrete and Reinforcing Materials," "Windows and Exterior Doors" and "Basic Stair Layout." (F)

BCT 140 Residential Print Reading (2)

A study of residential and light commercial construction prints. Emphasis is placed on the basic understanding and interpretation of line work, symbols and details commonly shown in residential construction.

BCT 210 Light Commercial Construction (7)

This course provides experience and knowledge of how to work with commercial construction materials. Methods of constructing pre-engineered structures, and steel construction including commercial floor, roof, and interior wall systems will be taught. Equipment usage and safety will be emphasized. (S)

BCT 220 Project Supervision (3)

This course will be a study in construction job site responsibilities such as supervision, coordination, scheduling, conflict resolution and interpretation of construction documents. The emphasis will be on site management. Prerequisite: BCT 210 or department approval. (S, O)

BCT 222 Construction Safety (2)

This course is designed to parallel the 29CFR1926 OSHA Construction Industry Regulations and to conform to the National Center for Construction Education and Research (NCCER). The course covers both the compliance as well as best practices in the construction industry as they pertain to safety. Upon completion of this course students will receive a "30 Hour OSHA Safety Card" and a "Certificate of Completion" from the NCCER. Attendance at each of the 30 hour sessions is mandatory. Note: Students successfully completing this course online will not receive the above listed certifications, but will instead receive an OSHA Campus wallet card which will expire in three years. (S, O)

BCT 224 Building Layout (2)

This course provides the knowledge and skills required to accurately layout a building site. It provides hands-on experience with the combination of lecture and lab. (F)

BCT 230 Interior Finishing for Light Commercial Construction (7)

This course provides experience and knowledge of the skills and techniques to perform in the field of finish carpentry. Methods of laying out and installing drywall, millwork, cabinets and finish hardware will be emphasized. (S)

BCT 233 Carpentry Framing and Finishing (3)

Carpentry framing and finishing from the National Center for Construction Education and Research (NCCER), consists of twelve modules which are: "Commercial Drawings," "Roofing Applications," "Thermal and Moisture Protection," "Exterior Finishing," "Cold-Formed Steel Framing," "Drywall Installation," "Drywall Finishing," "Doors and Door Hardware," "Suspended Ceilings," "Window, Door, Floor, and Ceiling Trim," "Cabinet Installation" and "Cabinet Fabrication." (S)

BCT 240 Commercial Print Reading (3)

This course will present and reinforce concepts regarding elements commonly found in commercial structures. Included are types of construction, specifications, site work, structural steel construction, reinforced concrete construction, mechanical and electrical systems and finish construction found on commercial projects. Students will become familiar with terms and symbols that are commonly used in commercial blueprints. (F, O)

BCT X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

BCT 297 Cooperative Education (1-5)

Cooperative education offers students the opportunity to integrate career, social and personal development into the educational process. The cooperative education program allows students to integrate classroom study with a paid work experience related to their fields of study. It is recommended that a student has successfully completed one year of academic study.

BCT 299 Special Topics (1–9)

A course designed to meet special departmental needs.

(BIOF) BIO-FUELS**BIOF 101 Fundamentals of Alternative Energy and the Environment I (3 credits)**

This course is an overview of the alternative methods of energy production currently available for use and those that are nearing implementation in the near future. The course is designed to expose students to the spectrum of energy production methods other than petroleum based, the methods used to make the energy, the science behind each energy method, the environmental impact of their use, and the economics of their implementation. Topics covered include bio-fuels, biomass, solar, wind, hydrogen fuel cells, geothermal, gasification, nuclear and hydroelectric. (O)

BIOF 102 Fundamentals of Alternative Energy and the Environment II (3)

This course explores the relationship between humans and their environment. Topics covered include: agricultural, industrial, and urban pollution; waste management and treatment; greenhouse effect and global warming; natural resource consumption/management and population growth; conventional and alternative energy sources, nuclear energy; and effects of natural disasters. Emphasis is placed on understanding current environmental issues from a scientific standpoint. Cross reference with BIOL 124. (O)

BIOF 201 Fundamentals of Bio-fuels Production (3)

This is a lab/lecture course designed to expose students to the spectrum of bio-fuels currently or soon to be in use, the production methods used to make the bio-fuels, the science behind the production methods, and the laboratory instrumentation, practices and applications utilized in research and industry settings involved in bio-fuels production. BIOF 201 is designed to: 1) discuss the methods of production, utilization, economics and environmental impact of starch/corn based and lignocellulosic based ethanol; waste oil, seed based and algae based bio-diesel; bio-mass conversion to syngas, liquid fuels and other products; 2) expose students to a broad range of industry standard laboratory equipment, bioreactors/fermentators, techniques and processes basic to industrial manufacturing of bio-fuels; 3) develop a basic understanding of theory behind, applications of and procedures utilized in the proper use of the technologies; and 4) develop minimum levels of competency in the proper operation and maintenance of equipment. Prerequisites: BIOF 101, CHEM 116. (F)

BIOF 220 Pilot Plant Operation and Advance Process Control (3)

This course is a lab/lecture course designed to train students in the safe operation of a pilot plant size ethanol fermentation system. Emphasis is placed on the process control system, its calibration, operation and safety aspects associated with production of ethanol using a corn based dry mill process and with chemical analysis, characterization of the product, and quality assurance/quality control of ethanol production. Students will be able to: 1) discuss the different methods of production of ethanol from starch and cellulose based starting materials and outline the specific steps involved with each, 2) safely operate a pilot plant size fermentation system from processing of the raw materials to production of the product to chemical analysis and quality control of final product, 3) program, calibrate and maintain various types of sensors/actuators/transducers involved in the process control system of the pilot plant fermenter, 4) disassemble, clean and sterilize, and reassemble those parts of the pilot plant that require routine cleaning and maintenance, 5) analyze and interpret process data from the fermenter while adjusting the system to maximize production efficiency, and 6) develop minimum levels of competency in the proper operation and maintenance of the equipment. Prerequisites: ELEC 254, ELEC 255, BIOF 201. Corequisite: NANO 211. (S)

BIOF X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

BIOF 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(BIOL) BIOLOGY**BIOL 111 Concepts of Biology (3 credits)**

Concepts of Biology is an introductory level non-majors transferable class that focuses on basic science literacy including the topics of cellular and molecular biology, genetics, evolution, taxonomy and environmental biology. Corequisite: BIOL 111L. (F-Fargo, S-Wahpeton) *ND:LABSC*

BIOL 111L Concepts of Biology Lab (1)

Concepts of Biology Lab is an introductory level non-majors transferable class that focuses on basic science literacy including the topics of cellular and molecular biology, genetics, evolution, taxonomy and environmental biology. Corequisite: BIOL 111. (F-Fargo, S-Wahpeton) *ND:LABSC*

BIOL 115 Human Structure and Function (3)

A one-semester course that integrates the structure and function of the human body and is an introduction to basic chemistry, the cell, tissues and all major organ systems. Corequisite: BIOL 115L. (F, S, O) *ND:LABSC*

BIOL 115L Human Structure and Function Lab (1)

A one-semester course that integrates the structure and function of the human body. This course is a hands-on experience utilizing a variety of learning tools and is an introduction to basic chemistry, the cell, tissues and all major organ systems. Corequisite: BIOL 115. (F, S, O) *ND:LABSC*

BIOL 124 Environmental Science (3)

This course explores the relationship between humans and their environment. Emphasis is placed on understanding current environmental issues from a scientific standpoint. Topics explored in the course include climate change, energy, natural resource consumption/management, pollution, population growth, sustainability, and waste management. Corequisite: BIOL 124L. (F-Wahpeton, S-Fargo, Su-Online) (Cross Reference BIOF 102) *ND:LABSC*

BIOL 124L Environmental Science Lab (1)

This course explores the relationship between humans and their environment. Emphasis is placed on understanding current environmental issues from a scientific standpoint. Laboratory activities will address: climate change, energy, natural resource consumption/management, pollution, population growth, sustainability, and waste management. Corequisite: BIOL 124. (F-Wahpeton, S-Fargo, Su-Online) *ND:LABSC*

BIOL 150 General Biology I (3)

The first semester of a two-semester sequenced study of the fundamental topics of biology with an emphasis on cellular biology. Corequisite: BIOL 150L. (F, O) *ND:LABSC*

BIOL 150L General Biology I Lab (1)

A laboratory course to be taken in conjunction with BIOL 150. Course focus is on biomolecules, cell structure, metabolism and membrane transport. Corequisite: BIOL 150. (F) *ND:LABSC*

BIOL 151 General Biology II (3)

The second semester of a two semester sequenced study of the fundamental topics of biology, with an emphasis on organismal biology. The course is designed for science majors and focuses on evolution, taxonomy, and ecology. Prerequisites: BIOL 150 and BIOL 150L. Corequisite: BIOL 151L. (S) *ND:LABSC*

BIOL 151L General Biology II Lab (1)

The second semester of a two semester sequenced study of the fundamental topics of biology, with an emphasis on organismal biology. The course is designed for science majors and utilizes a variety of learning tools to study evolution, taxonomy, and ecology. Prerequisites: Biology 150 and Biology 150L. Corequisite: BIOL 151. (S) *ND:LABSC*

BIOL 170 General Zoology (3)

A survey of the animal kingdom, from simple to complex. Major invertebrate and vertebrate animal groups will be covered with emphasis on structure, function, life history characteristics and evolutionary advancements of each. Topics of animal ecology, with emphasis on regional species, concludes the course. Three one-hour lectures per week. Prerequisite: BIOL 150 or BIOL 151 or consent of instructor. Corequisite: BIOL 170L. (S, even years) *ND:LABSC*

BIOL 170L General Zoology Lab (1)

A laboratory course to be taken in conjunction with BIOL 170. The structure and function of representatives of all major animal groups will be examined. Dissection and use of the microscope will be emphasized. The course will include a field trip to local terrestrial and aquatic habitats. One three-hour lab per week. Corequisite: BIOL 170. *ND:LABSC*

BIOL 213 General Pathology (3)

A general overview of the disease process and the mechanisms by which the human body copes with disease. Also a survey of the more common diseases affecting various body systems. Prerequisite: BIOL 115 or Corequisite: BIOL 221 or approval of instructor. (S, O)

BIOL 220 Anatomy and Physiology I (3)

The first semester in the study of structure and function of the human body as an integrated whole. Corequisite: BIOL 220L. (F, S, Su, O) *ND:LABSC*

BIOL 220L Anatomy and Physiology I Lab (1)

A self-directed laboratory study of structure and functions of the human body that examines the general plan of body cells, tissues, and the skeletal, muscular, and nervous systems. This course emphasizes actual "hands-on" learning utilizing a variety of learning tools. This is the first semester of a two-semester course. Corequisite: BIOL 220. (F, S, Su, O) *ND:LABSC*

BIOL 221 Anatomy and Physiology II (3)

The second semester in the study of structure and function of the human body as an integrated whole. Prerequisite: BIOL 220. Corequisite: BIOL 221L. (F, S, Su, O) *ND:LABSC*

BIOL 221L Anatomy and Physiology II Lab (1)

A self-directed laboratory study of structure and functions of the human body that includes the anatomy and physiology of the endocrine, circulatory, respiratory, digestive, urinary, and reproductive systems. This course emphasizes actual "hands-on" learning utilizing a variety of learning tools. This is the second semester of a two-semester course. Corequisite: BIOL 221. (F, S, Su, O) *ND:LABSC*

BIOL X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

BIOL 299 Special Topics (1-9)

A course designed to meet special departmental needs.

See also Microbiology (MICR)

(BIOT) BIOTECHNOLOGY**BIOT 101 Introduction to Biotechnology I (3 credits)**

This course is the first part of a two course sequence designed to serve as an introduction to the field of biotechnology, its historical development, its current and future status and the technologies used to achieve the progress to date. All aspects of biotechnology's impacts on our society are explored including the agriculture, medical, food science, pharmaceutical and environmental segments. The course covers the science behind the developments, the ethical challenges and societal implications associated with the past, current and future developments. Specific focus is given to developing a foundational understanding of the vocabulary and basic science associated with this field along with an appreciation for the extent the biotechnology field plays in the US and world economies. (O)

BIOT 102 Introduction to Biotechnology II (3)

This course is the second part of a two course sequence designed to serve as an introduction to the field of biotechnology, its historical development, its current and future status and the technologies used to achieve the progress to date. All aspects of biotechnology's impacts on our society are explored including the agriculture, medical, food science, pharmaceutical and environmental segments. The course covers the science behind the developments, the ethical challenges and societal implications associated with the past, current and future developments. Specific focus is given to developing a foundational understanding of the vocabulary and basic science associated with this field along with an appreciation for the extent the biotechnology field plays in the US and world economies. Prerequisite: BIOT 101. (O)

BIOT 210 Biotechnology Methods I (3)

This course is the first semester of a two semester sequence of courses designed to train laboratory technicians in the fundamental technologies, procedures and processes utilized within the biotechnology industry. This course will emphasize technical skills development, record keeping and communication skills, compliance with federal regulations and conformity to cGMP/cGLP standards. The course will meet for one hour of lecture and four hours of lab each week. Additional lab time may be required for completion of certain units. Prerequisite: NANO 205. (O)

BIOT 220 Biotechnology Methods II (3)

This course is the second semester of a two semester sequence of courses designed to train laboratory technicians in the fundamental technologies, procedures and processes utilized within the biotechnology industry. This course will emphasize technical skills development, record keeping and communication skills, compliance with federal regulations and conformity to cGMP/cGLP standards. The course will meet for one hour of lecture and four hours of lab each week. Additional lab time may be required for completion of certain units. Prerequisite: BIOT 210. (O)

BIOT 230 Fundamentals of Bioprocessing (3)

This course is designed to train laboratory technicians in the fundamental technologies, procedures and processes utilized within the biotechnology industry in the manufacturing/bioprocessing of biologically derived products. The course will emphasize the basic science, cellular metabolism and growth techniques used in the industry, specific examples of bioprocessed products currently on the market, compliance with federal regulations and conformity to cGMP/cGLP standards. Prerequisite: BIOT 210, BIOT 220. (O)

BIOT X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

BIOT 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(BOTE) BUSINESS, OFFICE AND TECHNOLOGY EDUCATION**BOTE 108 Business Mathematics (3 credits)**

Review of mathematical fundamentals with emphasis on business applications and problem-solving. The fundamentals of the four basic operations involving whole numbers, fractions and decimal numbers and proceeding into business computations involving bank records, payroll, simple and compound interest, percentages, promissory notes, markups, purchasing, selling, present value and annuities. Note: This course may not be used with MATH 123 to fulfill mathematics requirements for the associate of applied science degree. (F, S, O)

BOTE 171 Medical Terminology (4)

Study of prefixes, suffixes and root words of medical terminology and their meaning, spelling and pronunciation. Emphasis on building a working medical vocabulary based on body systems. Study of the location, functions, and terminology of the organs of the various systems of the body. Web-based instruction. (F, S, Su, O)

BOTE 277 Medical Office Procedures (3)

Explore the concepts, processes and procedures encountered in the physician office management setting, including professionalism, interpersonal skills, ethics and the law, managing the office environment, health records, billing and coding procedures, and financial and practice management. Application of concepts using technology. Web-based instruction. (F, O)

BOTE X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

BOTE 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(BUSN) BUSINESS MANAGEMENT**BUSN 120 Fundamentals of Business (3 credits)**

An introduction to the basic principles of business organizations and enterprises in society which provide a function for personal business and entrepreneurial decision-making. Beneficial for individuals as employees or entrepreneurs. Explores the American business system, ownership forms, labor management relations, banking and finance, risk management, the legal environment and the government's role in business. (F/F-Online)

BUSN 140 Insurance (3)

Introduces the student to the theory of insurance risk, hazards and perils and how companies are formed. The concept of self-insurance and the law of large numbers. All basic insurance lines are covered. (As needed)

BUSN 170 Entrepreneurship (3)

This is an introductory course focusing on understanding the characteristics and role of the entrepreneur in the free-market economy. Students will develop an awareness of the opportunities for business ownership and develop some of the skills needed to effectively run a business. A capstone project will allow students to develop a business plan for a venture of their choosing. (S/S-Online)

BUSN 250 Principles of Real Estate (3)

General introduction to real estate as a business and as a profession that is designed to acquaint the student with the wide range of subjects and terminology necessary to the practice of real estate. This introductory course in fundamentals will include the nature of real estate and ownership, principles and concepts of title transfer, title insurance, real estate marketing, financing, leasing, taxation, insurance, development, appraising, ethics, and state license law. (As needed)

BUSN 253 Banking (3)

A study of banking principles including banking terminology, documents, check processing, deposit functions, loan processing, investments and bank accounting systems. Bank services, customer relations and the bank's role in the community also are included. (As needed)

BUSN 254 Financial Statement Analysis (3)

A course that interprets and analyzes accounting data and the financial statements with the use of Microsoft Excel. Topics include ratio analysis, budgeting and forecasting, time value of money, and capital budgeting. Prerequisite: CIS 101 or CSCI 116. (S)

BUSN 282 Professional Development (1)

This course will address professional skills which are necessary for students in their future role as both employees and supervisors. It aims to stimulate enthusiasm, interest and preparations for interpersonal skills and leadership development. Membership in Collegiate DECA is a requirement and this organization is the vehicle used to enable students to put into action the skills they have acquired. There will be an overnight excursion to attend a leadership conference. (F)

BUSN 297 Internship (2)

The development of business skills through work experience. A required total of 180 hours of supervised work at an approved business organization. Students will perform tasks as established in a training agreement between the business and the college. Two total semester credits required (by arrangement 2 credits per semester). (F, S, Su as arranged)

BUSN X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

BUSN 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(CAD) COMPUTER AIDED DRAFTING**CAD 120 Introduction to AutoCAD (3 credits)**

This course is an introduction to the operation and application of computer-aided drafting utilizing the latest version of AutoCAD software. Drawing and editing commands are studied and utilized in a final project along with layers, dimensioning and text styles. (F, S, O)

CAD X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

CAD 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(CHEM) CHEMISTRY

CHEM 115 Introductory Chemistry (3 credits)

Introductory chemistry is a one-semester course designed to be an introduction to fundamental concepts used in general chemistry. The course topics include measurement, atomic theory, chemical bonding, ionic and covalent compounds, naming, shape, intermolecular forces, states of matter, solutions, reaction rates, equilibrium and acid-base chemistry. Prerequisite: ASC 092 and/or ASC 093 or equivalency exam. (F) *ND:LABSC*

CHEM 115L Introductory Chemistry Laboratory (1)

CHEM 115L is the laboratory component of CHEM 115. It is designed to provide hands-on experience with the concepts discussed in the lecture portion, and to provide an introduction to standard practices in the chemistry laboratory, such as safety, techniques and documentation of experimental work. Corequisite: CHEM 115. (F) *ND:LABSC*

CHEM 116 Introduction to Organic and Biochemistry (3)

This course is a one-semester course designed to be an introduction to organic chemistry and biochemistry. The course topics include alkanes, alkenes, alkynes, aromatics, alcohols, ethers, aldehydes, ketones, carboxylic acids, esters, amines, amides, carbohydrates, lipids, amino acids, proteins, nucleic acids, enzymes and metabolism. Prerequisite: CHEM 115. (S) *ND:LABSC*

CHEM 116L Introduction to Organic and Biochemistry Laboratory (1)

CHEM 116L is the laboratory component of CHEM 116. It is designed to provide hands-on experience with the concepts discussed in the lecture portion, and to provide an introduction to standard practices in the organic and biochemistry laboratory, such as safety, techniques and documentation of experimental work. Prerequisite: CHEM 115L. Corequisite: CHEM 116 (S) *ND:LABSC*

CHEM 121 General Chemistry I (4)

This course is the first semester of a two-semester sequence in general chemistry. General Chemistry I is focused on the fundamental concepts of chemistry, such as measurement, matter, molecules, ions, chemical equations, ideal gases, atomic structure, ionic and covalent bonding, periodicity and molecular geometry. Corequisite: MATH 103 or department approval. (F) *ND:LABSC*

CHEM 121L General Chemistry I Laboratory (1)

CHEM 121L is the laboratory component of CHEM 121. It is designed to provide hands-on experience with the concepts discussed in the lecture portion, and to provide an introduction to standard laboratory practices, such as safety, techniques and documentation of experimental work. Corequisite: CHEM 121. (F) *ND:LABSC*

CHEM 122 General Chemistry II (4)

This course is the second semester of a two-semester sequence in general chemistry. General Chemistry II involves the applications of the first semester topics toward the study of intermolecular forces, solutions, reaction rates, equilibrium, solubility and complex ions, acids and bases, thermodynamics, electrochemistry and nuclear chemistry. Prerequisite: CHEM 121. (S) *ND:LABSC*

CHEM 122L General Chemistry II Laboratory (1)

CHEM 122L is the laboratory component of CHEM 122. It is designed to provide hands-on experience with the concepts discussed in the lecture portion, and to provide additional experience with standard laboratory practices, such as safety, techniques and documentation of experimental work. Prerequisite: CHEM 121L. Corequisite: CHEM 122. (S) *ND:LABSC*

CHEM 241 Organic Chemistry I (4)

This course is the first semester of a two-semester sequence in organic chemistry intended for students in the sciences and pre-professional programs. Organic Chemistry I is focused on the study of structure and properties of organic compounds, with an emphasis on structure and bonding, nomenclature, stereochemistry, reactions, mechanisms and synthesis. Prerequisite: CHEM 121 and 122. (F) *ND:LABSC*

CHEM 241L Organic Chemistry I Laboratory (1)

CHEM 241L is the laboratory component of CHEM 241. It is designed to provide hands-on experience with the concepts discussed in the lecture portion, and to provide an introduction to standard practices in the organic laboratory, such as safety, techniques, reactions, product analysis and documentation of experimental work. Prerequisites: CHEM 121L and 122L. Corequisite: CHEM 241. (F) *ND:LABSC*

CHEM 242 Organic Chemistry II (4)

This course is the second semester of a two-semester sequence in organic chemistry intended for students in the sciences and pre-professional programs. Organic Chemistry II is further focused on the relationship of reactivity of organic compounds, with an emphasis on reactions, synthesis, mechanisms and spectroscopic methods. Prerequisite: CHEM 241. (S) *ND:LABSC*

CHEM 242L Organic Chemistry II Laboratory (1)

CHEM 242L the laboratory component of CHEM 242. It is designed to provide hands-on experience with the concepts discussed in the lecture portion, and to provide further experience with standard practices in the organic laboratory, such as safety, techniques, reactions, multi-step syntheses, product analysis and documentation of experimental work. Corequisite: CHEM 242. Prerequisite: CHEM 241L. (S) *ND:LABSC*

CHEM 260 Elements of Biochemistry (4)

Protein structure, function conformation and dynamics; enzymes; DNA-RNA; structure and flow of genetic information; biological membranes; and metabolism. Prerequisites: CHEM 241. (S)

CHEM 260L Elements of Biochemistry Lab (1)

Laboratory to accompany Elements of Biochemistry 260. Corequisite: CHEM 260. (S)

CHEM X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

CHEM 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(CIH) Case IH

CIH 106 Case IH Shop Service Management (2 credits)

This course covers operational policies followed by the dealership service department. Included will be discussion on shop service management, publications, tech manuals, ASIST (Technical Information Reference Tool) and eTIM (Electronic Technical Information Manual).

CIH 110 Case IH Internship I (4)

The student will receive on-the-job experience at a Case IH dealership. This will consist of performing basic repair procedures in the service department. This internship will occur the fourth 8-weeks of the first year. (S)

CIH 210 Case IH Internship II (4)

The student will receive on-the-job experience at a Case IH dealership. This will consist of performing basic repair procedures in the service department. This internship will occur the first 8-weeks of the second year. (F)

CIH 215 Case IH Engine Rebuild (6)

A theory and lab course covering Case IH engine operating principles, cylinder and piston service, valve service, crankshaft and bearing service, lubrication systems, rebuilding procedures, measurement fundamentals and basic engine troubleshooting. Prerequisite: DTEC 115. (F)

CIH 216 Case IH Equipment Operation and Adjustments (4)

This course will cover the operation, adjustments and repair of Case IH harvesting and planting equipment. Equipment inspections and calibration is included in this course. Students may operate and make field adjustments to this equipment for optimum performance, conditions permitting. (Su)

CIH 225 Case IH Power Trains (4)

A lab/lecture course covering the power train systems used in Case IH equipment. Mechanical shift, power shift and CVT transmissions will be covered in this course. Students will disassemble, reassemble, adjust and test these components found on Case IH equipment. (Su)

CIH 255 Case IH Electrical/Electronics Diagnostics (5)

This course involves the understanding of electrical sensors, actuators, and computer operation which is applied to Case IH equipment. Techniques of circuit diagnostics will be demonstrated and practiced using the electrical diagnostic manual, DVOM, test light, and special manufactures tools. Electrical work will involve the Case IH equipment which utilizes electronics to control mechanical operation. The student will perform hands-on testing, computer diagnostics, and calibration of various Case IH components and equipment.

CIH 260 Case IH Advanced Farming Systems (3)

A lab/lecture course designed to introduce the student to the Case IH Advanced Farming Systems (AFS). Basic GPS equipment guidance systems, operation and diagnostics will be utilized. Types of GPS signals and their applications currently used by Case IH Accuguide systems will be covered. AFS display setup and applications used on current Case IH equipment will be performed.

CIH 265 Case IH Hydraulics Systems (5)

A lab/lecture course covering the diagnostics, service and repair of the hydraulic functions on Case IH agricultural and mobile equipment. Open-center, closed-center and load sensing systems are covered as well as steering, hydrostatic drives and hydraulic functions of Case IH equipment.

CIH X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

CIH 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(CIS) COMPUTER INFORMATION SYSTEMS

CIS 101 Computer Literacy (2 credits)

This course is designed to provide non-Computer Science majors with an introductory-level course in computer usage that prepares them for contemporary work environments. It is a hands-on lab-based course intended to introduce the student to the Windows operating system, word processing, spreadsheet processing, PowerPoint presentations and Cloud Computing. (Credit awarded for CIS 101 or CSCI 116, not both.) (F, S, Su, O) *ND:COMPSC*

CIS 105 Microcomputer Spreadsheet (Excel) (3)

This course is designed to teach the use of spreadsheet software and the types of applications adaptable to this software. (O)

CIS 128 Hardware I (3)

This course covers the fundamentals of computer hardware and software. This course helps students prepare for the CompTIA A+ Essentials exam (220-701), which covers the fundamentals of computer technology, networking, and security, and validates the communication skills and professionalism required of all entry-level IT professionals. Students who complete this course will be able to describe the internal components of the computer, assemble a computer system, install an operating system, and troubleshoot using system tools and diagnostic software. Students will also be able to connect to the internet and share resources in a networked environment. Topics included are laptops and portable devices, wireless connectivity, security, safety and environmental issues, and communication skills. Hands-on activities are essential items of the course. Virtual learning tools are integrated into the course. (F)

CIS 129 Hardware II (3)

This course covers the advanced concepts of computer hardware and software. It is designed to build on the knowledge and skills attained in CIS 128. This course helps students prepare for the CompTIA A+ Practical Application exam (220-702). It implements more of a hands-on orientation and scenarios in which troubleshooting and tools must be applied to resolve problems. Prerequisite: CIS 128. (S)

CIS 164 Networking Fundamentals I (4)

Introduces the architecture, structure, functions, components, and models of the Internet and computer networks. The principles of IP addressing and fundamentals of Ethernet concepts, media, and operations are introduced do provide a foundation for the curriculum. By the end of the course students will be able to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes. (F, O)

CIS 165 Networking Fundamentals II (4)

Describes the architecture, components, and operations of routers and switches in a small network. Students learn how to configure a router and a switch for basic functionality. By the end of this course students will be able to configure and troubleshoot routers and switches and resolve common issues with RIPv1, RIPv2, single-area and multi-area OSPF, virtual LANs, and inter-VLAN routing in both IPv4 and IPv6 networks. (S)

CIS 166 Windows Support (3)

In this course the student will develop skills to support Windows including setup, configuration, customization, optimization, network integration, administration, troubleshooting, messaging and other support issues. (As needed)

CIS 180 HTML and CSS (3)

This course will introduce students to HTML, XHTML and CSS. The students will learn how to write HTML code. The student will be able to identify and apply various codes and styles when creating a Web page. This will include writing HTML and CSS code for color, links, images, alignment, text styles, tables, forms, formatting values, frames, and adding multimedia content such as sound and video files. Correct design aspects will be used along with learning about planning a Website, typography, promoting and maintaining a Website, and ways to attract visitors to your site. (F, S, Su, O)

CIS 181 Web Authoring and Image Editing Software (3)

This course will introduce students to graphic editing, animation and Web authoring software. Students will learn how to utilize these software packages to create and edit images, design Web pages and Websites. The student will be able to identify and apply various tools associated with each software when creating a Web page. The students will employ various styles to design and create Web pages including layers, image maps, animation, frames and tables. In addition, students will utilize tools in various software packages to assist in developing Web pages with color, links, images, alignment, text styles, tables, forms, formatting, and frames. Prerequisite: CIS 180. (S, Su, O)

CIS 182 HTML Mobile (3)

This course provides students with the concepts of HTML and CSS to create responsive websites that respond to any screen size. Students use media queries to support different viewports, utilize fluid layouts, and learn how to address cross-browsers responsive challenges such as menus and resolution displays. Students will use HTML, CSS, JavaScript and other tools to focus on performance and responsiveness for any viewport. (S)

CIS 188 Application Design (3)

This course provides an introduction to the field of human-computer interaction (HCI). Students will learn practical principles and guidelines needed to develop high quality interface designs—ones that users can understand, predict, and control. Students explore theoretical foundations, design processes, examples of direct manipulation, menu selection, and form fill-in to gain an understanding of excellence in design. Current HCI topics are explored with balanced emphasis on mobile devices, Web, and desktop platforms. It addresses the profound changes brought by user-generated content of text, photo, music, and video and the raised expectations for compelling user experiences. (F, S)

CIS 191 First Year Seminar (1)

This course provides students with the knowledge and opportunity to create an online portfolio where they can showcase their education and skills to obtain employment in their field of study. Students use tools in an online portfolio environment to create a product that includes their resume, documentation of their employment and education history, along with references. The goal is to create a usable and easily accessible platform for students to demonstrate their employability skills to prospective employers. (S)

CIS 197 Internship (1-3)

The internship is an on-campus experience for the student. The student will work right out of the Information Technology department with IT support staff. Prerequisite: First-year core classes. (F, S, Su)

CIS 212 Microsoft Windows Operating System Client (3)

The purpose of this course is to offer all the critical information students need to successfully move into a role as an IT professional and support Windows Client OS in a business environment. Many hands-on exercises are included which allow students to practice skills as they are learned. (F)

CIS 215 Implementing a Microsoft Windows Server Environment (4)

This course provides students with the knowledge and skills necessary to install and configure Microsoft Windows Client computers that are part of a workgroup or domain. In addition, this course provides the skills and knowledge necessary to install and configure Windows Server to create file, print, Web and terminal servers. (F, O)

CIS 216 Implementing a Microsoft Windows Network Infrastructure (4)

This course teaches students, through lectures, discussions, scenarios, demonstrations, chapter review questions, textbook exercises, and classroom labs, the skills and knowledge necessary to configure, manage, and troubleshoot a Windows network infrastructure. (S)

CIS 220 Operating Systems (UNIX) (3)

This course will focus on the Linux operating system. Students will learn how to use basic Linux command-line commands as well as various Linux graphical user interfaces. Students will also work with and learn basic system administration for Linux. (F, S, O)

CIS 232 Graphics Design (3)

The students will explore and learn the concepts and skills behind a comprehensive vector-draw software application. They will learn how to apply smart design principles to multimedia products such as dynamic graphics, animation, and Websites. Students will create everything from simple graphics, icons, and text to complex and multi-layered illustrations, all of which can be used within a page layout, in a multimedia presentation or on the Web. (F, O)

CIS 233 Vector Graphics and Web Animation (3)

This course will introduce students to a development tool that allows them to create interactive experiences, often by using animation. Students will create complex animations for the Web, use drawing tools and tools for creating interactive controls such as navigation buttons and menus. Students will also learn how to incorporate sounds and video into an application and use the software's publishing capabilities to create Webs sites and Web-based applications, such as games. Students will also utilize specific tools in this software package such as ActionScript, behaviors and components. (S, O)

CIS 234 Networking (Windows NT) (4)

This class will teach students how to configure, customize, optimize, integrate and troubleshoot Microsoft Windows NT operating systems in a single domain environment, focusing on implementing intranets and using Microsoft technology. (As needed)

CIS 235 Digital Video Basics (3)

This course will introduce students to a digital video editing application. Students will learn how to gather loose artwork, video clips, bitmap images and vector graphics, and bring them together to create a new video product. Students will gain an understanding of how to work with transitions, clips, audio, titles, video effects and animating clips. In this course they will also explore editing techniques and exporting options into a movie, frame, Edit Decision List or a filmstrip. (S, O)

CIS 241 IT Forensics I (4)

This course introduces the student to the fundamental concepts of digital forensics. Labs using primarily open source, free software and a variety of hardware reinforce the concepts discussed in classroom instruction. This class is primarily a hands-on experience. (F)

CIS 242 IT Forensics II (4)

This course teaches the student to apply the concepts of digital forensics. Labs using primarily open source, free software and a variety of hardware reinforce the concepts discussed in classroom instruction. This class is primarily a hands-on experience. The student will create a digital forensics workstation and will apply digital forensic analysis techniques to process and analyze digital evidence. (S)

CIS 244 Web Server Management (3)

This course provides the student with an introduction to the basics of a Web server management role. The textbook covers installation, configuration and administration of Web servers. The student will be exposed to topics for both Linux and a Microsoft Windows server environment. They will work with Microsoft Windows Server and/or Red Hat Linux, Internet Information Services (IIS), Apache Web server, Microsoft SQL Server, MySQL, Microsoft Exchange Server, sendmail and more. (Assumes students have a basic background in networking.) (S, O)

CIS 267 Intermediate Networking I (4)

Describes the architecture, components, and operations of routers and switches in a large and complex network. Students learn how to configure routers and switches for advanced functionality. By the end of this course students will be able to configure and troubleshoot routers and switches and resolve common issues with OSPF, EIGRP, STP, and VTP in both IPv4 and IPv6 networks. Students will also develop the knowledge and skills needed to implement DHCP and DNS operations in a network. Prerequisites: CIS 164, CIS 165. (F)

CIS 268 Intermediate Networking II (4)

Discusses the WAN technologies and network services required by converged applications in a complex network. The course enables students to understand the selection criteria of network devices and WAN technologies to meet network requirements. Students learn how to configure and troubleshoot network devices and resolve common issues with data link protocols. Students also develop the knowledge and skills needed to implement IPSec and virtual private network (VPN) operations in a complex network. Prerequisites: CIS 164, CIS 165, CIS 267. (S)

CIS 279 Security Awareness and Policy (1)

This course is intended to provide a basic survey of the importance of Information Technology security awareness and data confidentiality. This security awareness-training course walks users through every aspect of Information Security in a broad, easy to understand way. It explains to the user the value of securing data, both for themselves and the organization. The class will introduce legislation, local, state and federal privacy policies and liability of individuals and institutions related to data confidentiality and integrity, to include HIPAA and Gramm Leach Bliley act. This course will introduce basic concepts of risk management, security policies, common threats and countermeasures. Best practices in access control and password policies will also be covered. (F, O)

CIS 280 Fundamentals of Network Security I (4)

Introduction to Network Security course focusing on the overall security processes with particular emphasis on hands-on skills in the following areas: security policy design and management; security technologies, products and solutions; secure router design, installation; configuration and maintenance; AAA implementation using routers; Intrusion Detection implementation using routers; and Virtual Private Networks implementation using routers. (F)

CIS 281 Fundamentals of Network Security II (4)

Introduction to Network Security course focusing on the overall security processes with particular emphasis on hands-on skills in the following areas: firewall design, installation, configuration and maintenance; AAA implementation using firewalls; Intrusion Detection implementation using firewalls; and Virtual Private Networks implementation using firewalls. Prerequisite: CIS 280. (S)

CIS 282 Computer System Security (4)

This course introduces the basics of network security. The student will be introduced to computer network vulnerabilities and threats and how to safeguard computer networks from those vulnerabilities and threats. This course will expose the student to network security planning, network security technology, network security organization and the legal and ethical issues associated with network security. Prerequisite: CIS 164. (F)

CIS 283 Computer System Security Advanced (4)

Designed to provide participants with an in-depth understanding of the various methods used for attacking networks and computer systems. Students will learn the concepts, principles and techniques, including applied exercises, for attacking and disabling a network. These methodologies are intended to provide insight into the use of detection strategies and countermeasures needed to properly secure network servers, hardware and clients. Prerequisite: CIS 282. (S)

CIS 284 Managing Network Security (4)

Increases the scope and depth of the skills and knowledge acquired in Network Security Fundamentals by focusing on the advanced capabilities of network defense strategies including Virtual Private Networks, Host Intrusion Detection Systems and Network Intrusion Detection Systems. Students will learn the evolution and current best practices of applying these technologies, which are universally deployed in networks of all sizes. (S)

CIS 290 Network Security Design (Capstone) (4)

This course affords the network security specialist the opportunity to conduct a vulnerability analysis upon a network in order to practice or refine the attack methodologies with the hacker tools and techniques to which the student was exposed during the various program courses. The student must demonstrate the ability to design, plan and execute a vulnerability analysis against an organization network. The student must prepare a written report of the security design, attack methodology, tools and techniques. (S)

CIS X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

CIS 297 Cooperative Education (1-5)

Cooperative Education offers students the opportunity to integrate career, social and personal development into the educational process. The cooperative education program allows students to integrate classroom study with a paid work experience related to their fields of study. It is recommended that a student has successfully completed one year of academic study.

CIS 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(CJ) CRIMINAL JUSTICE**CJ 160 The Legal System (4 credits)**

Function and ethics of the legal assistant in the law office and legal system. An introduction to the federal and state court systems, personnel in the legal field, and the historical development and nature of the law. (S)

CJ 201 Introduction to Criminal Justice (3)

Examination of the criminal justice system and process including crime, law-making, criminality, prosecution, police, courts, and corrections. (F) *ND:SS*

CJ 232 Administration of Justice (3)

For criminal justice students or laymen; designed to broaden the understanding of the student concerning the various agencies involved in the administration of criminal law. Emphasis is placed upon the more important law-enforcement functions and interrelationships from arrest to executive pardon. (S)

CJ 297 Internship (1-4)

Cooperative education offers students the opportunity to integrate career, social and personal development into the educational process. The cooperative education program allows students to integrate classroom study with work experience related to their fields of study. It is recommended that a student has successfully completed one year of academic study. (F, S)

(CMT) CONSTRUCTION MANAGEMENT TECHNOLOGY**CMT 120 Surveying Fundamentals (2 credits)**

This course covers the instruction and practice in the use of surveying instruments and equipment. Types of surveys, units of measure, elementary leveling, field notes, and benchmarks are covered. (F)

CMT 121 Plane Surveying (2)

This course is a continuation of CMT 120. The course will cover the instruction and practice in the use of surveying instruments and equipment. Types of surveys, field notes, benchmarks, traversing with transits or total stations, traverse calculations, bearing calculations, remote elevations and distances are covered. (S)

CMT 130 Green Building Fundamentals (2)

This course is designed to cover the fundamental understanding of sustainable construction practices and your role in the Green Environment. We will be taking a look at ways to preserve the environment, save energy, and make good choices regarding the health of the planet. Through the introduction of new construction practices and products, you will see how the greening of America has already taken root. (S)

CMT 234 Asphalt Technology (1)

This course covers the origin, refining process, and properties of asphalt cement along with its uses as a cementing material in modern day street and highway paving projects. (F)

CMT 251 Construction Documents and Specifications (3)

This course is designed to cover the fundamental understanding of construction contracts and specifications. Various contract delivery methods and an understanding of contract language will be studied. Navigating and interpreting construction specifications will be another focus in the course. Students will utilize actual specifications from several construction projects in the learning process. The course will primarily cover the 16 divisions of the CSI Master Format and an introduction the new CSI Format of 49 divisions. (S, O)

CMT 252 Project Management (3)

This course focuses on the processes and tasks required for successful management of construction projects. Students will gain a thorough understanding of all aspects of project coordination and contract administration. Topics will include record keeping and documentation, contract interpretation, submittals, meeting minutes, change orders, pay requests, quality control, claims and disputes. Ethics as it relates to project management and customer relations will also be discussed. Prerequisite: BCT 220. (S, O)

CMT 253 Construction Scheduling (3)

Students will study the importance of planning and scheduling in construction. This course will provide students with the fundamental skills necessary to plan and schedule the entire construction process. Students will work with several scheduling techniques commonly used in the construction industry and incorporate the use of scheduling software to schedule projects for a timely and economically successful completion. Prerequisite: BCT 220. (S, O)

CMT 265 Residential Project Experience (1)

This course provides students with the opportunity to be on a team that competes in the National Association of Home Builder's Residential Construction Management Competition. The event gives students the opportunity to apply skills learned in the classroom to a real construction company by completing a management project/proposal. Proposals are submitted to a group of construction company executives who act as judges. During the International Builder's Show, students defend their proposals to the judges in front of an audience. All students must be a member of the Home Builder's Association in order to enroll in the course. (F)

CMT 297 Cooperative Education (1-5)

Cooperative Education offers students the opportunity to integrate career, social and personal development into the educational process. The cooperative education program allows students to integrate classroom study with a paid work experience related to their fields of study. It is recommended that a student has successfully completed one year of academic study.

CMT 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(COMM) COMMUNICATION**COMM 110 Fundamentals of Public Speaking (3 credits)**

The theory and practice of public speaking with emphasis on content, organization, language, delivery and critical evaluation of messages. (F, S, Su, O) *ND:COMM*

COMM 212 Interpersonal Communication (3)

This is a class about the joys and challenges of romantic, platonic, family, and work relationships. Interpersonal communication studies the theory and practice of communication skills affecting day-to-day interactions with other people. Topics may include using verbal and nonverbal symbols, interactive listening, resolving interpersonal conflict, and developing and maintaining personal/professional relationships. This course is designed to develop insights and skills to help maximize success and minimize failures in interpersonal interactions. Developing sensitivity to our behavior choices and their consequences and enlarging our repertoire of interpersonal communication skills are the desired outcomes for this course. (F, S, Su)

COMM 216 Intercultural Communication (3)

This course provides an introduction to communication between people from different cultures. Course content focuses on the application of theory and research to intercultural communication. (F, S, Su)

COMM X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

COMM 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(COOP) COOPERATIVE EDUCATION**COOP 197 Cooperative Education (1-5 credits)**

Cooperative Education provides you the opportunity to explore career interests and develop professional skills through work experiences that are designed to unite career, social and personal growth in your education. This program requires supervision of the employer and program coordinator.

COOP 297 Cooperative Education (1-5)

Cooperative Education offers students the opportunity to integrate career, social and personal development into the educational process. The cooperative education program allows students to integrate classroom study with a paid work experience related to their fields of study. It is recommended that a student has successfully completed one year of academic study.

(CSCI) COMPUTER SCIENCE**CSCI 101 Introduction to Computers (3 credits)**

General hardware and software issues such as terminology and environments. Applications such as: word processing, spreadsheets, databases and Internet usage. An introduction to the subject of Computer Information Systems including computer personnel, hardware and software. Students will be required to identify the various units of a computer and their functions; compare computer systems; utilize various number systems; research current issues surrounding computers and their use; examine the elements of computer program planning and coding; and be knowledgeable in the variety of programming languages available. Word processing, spreadsheet and database software packages will be used to familiarize the student with computer concepts and usage. (F, S) *ND:COMPSC*

CSCI 102 Fundamentals of CyberLaw (3)

This course addresses issues which have arisen as a result of the explosive growth of the Internet and World Wide Web. It covers the following topics: copyright and trademark issues, defamation, privacy, liability, electronic contracts, tax issues and the ethics of the Internet. (S, O)

CSCI 116 Business Use of Computers (3-4)

3 credits – This course is designed to teach the use of Microsoft Office in the business environment covering the most critical topics of Windows and Microsoft Office, to include Word, Excel, Access and PowerPoint, along with Cloud Computing. Students will be able to apply technology skills to enhance both their personal and professional lives. Additional topics include email basics and use of the Internet. No prior computer experience is assumed.

4 credits – This course adds on to the 3 credit version by reflecting upon the role various forms of electronic and digital technology can play in today's information age. Students will integrate the Office applications and be introduced to additional technologies including Pivot Tables, OneNote and sharing documents in their Cloud Storage. (Credit awarded for CIS 101 or CSCI 116, not both.) (F, S, Su, O) *ND:COMPSC*

CSCI 122 Visual Basic (3)

Introduction to programming in the BASIC/Visual BASIC Language. The concepts of object oriented programming will be integrated into all programming assignments. These concepts include the design and construction of a Windows program using Visual BASIC tools and creating graphics, text and data within the Windows environment. (F, Su, O) *ND:COMPSC*

CSCI 125 Beginning COBOL (II) (3)

An introduction to programming in the COBOL language using structured design and top-down testing. Business-oriented projects will involve input and output files, printed reports with headings and page breaks, arithmetic operations including packed decimal fields, and decision and looping statements. Students must write appropriate program documentation and adhere to rigid programming standards. (F, O) *ND:COMPSC*

CSCI 133 Database Concepts I (SQL) (3)

This course provides students with an introduction to database concepts. The students will use the select statement to query databases and produce the correct outcomes. Students will use functions, join multiple tables and create sub-queries. (F, O)

CSCI 134 Database Design and Management (3)

This course focuses on the steps used for designing a relational database. Students will design and implement a relational database. (F, S)

CSCI 135 Web Programming (XML) (3)

This course will introduce students to JavaScript, Extensible Markup Language (XML), and Principles of Web design. The students will learn about using JavaScript to affect the appearance and characteristics of a Web page. JavaScript allows you to create dynamic content and make the Web page interactive. The student will also be able to identify and apply various scripting languages such as HTML, Cascading Style Sheets (CSS), JavaScript, XML, and XSL Style Sheets. Students will also learn to author Web pages utilizing principles of Web design. The students will learn how to apply CSS rules and properties to enhance tables, forms, frames, images, colors, etc. Prerequisite: CIS 180. (S, O)

CSCI 160 Computer Science I (4)

An introduction to computer science including problem-solving, algorithm development and structured programming in a high-level language. Emphasis on design, coding, testing and documentation of programs using accepted standards of style. An introductory course in applying structured computer programming logic and concepts. A structured, systematic approach will be used in program development including problem analysis, structured logic design, program coding, program testing, debugging and documenting. An object-oriented language will be used for programming projects. Concepts of programming will include screen generation, keyboard and file input, data validation of input data, arithmetic formulas and functions, logical operations, and design and production of organized output. (F, S, O) *ND:COMPSC*

CSCI 161 Computer Science II (Java) (4)

Advanced concepts in computer science including data structures, algorithm analysis, standard problems such as searching and sorting and memory management issues. A continuation of CSCI 160. Programming concepts to be demonstrated and utilized within programs include: using output screens with menus, various looping structures, file input and output, writing and utilizing functions, using arrays, multidimensional arrays, structures and pointer data types, and searching and sorting using array data structures. Program efficiency and debugging techniques will be included. Prerequisite: CSCI 160. (F, S) *ND:COMPSC*

CSCI 162 Mobile Application Capstone (3)

This course uses concepts learned in CSCI 160 and CSCI 161 to develop web applications suitable for use by today's mobile users. It is meant to be a capstone type course. (S)

CSCI 172 Intermediate Visual Basic (3)

This course is a continuation of CSCI 122 Visual BASIC. The class teaches students how to access sequential files and random access files. It teaches students how to use database management systems, set up menus and create reports. It also teaches students how to set up and use variable arrays and create a Web page with Visual BASIC. Prerequisite: CSCI 122. (S, O)

CSCI 175 Intermediate COBOL (II) (4)

An intermediate-level programming in the COBOL language as a continuation of CSCI 125. Students will be introduced to systems analysis and design concepts. Control breaks, multi-level array processing, sorting, sequential file maintenance and sub-programs will be covered. Prerequisite: CSCI 125. (S, O)

CSCI 183 Database Concepts II (SQL) (3)

Continuation of CSCI 133. The students will design databases, create and modify the tables, create views, create stored procedures and create cursors. Prerequisite: CSCI 133. (S, O)

CSCI 230 Web Database I (ASP/PHP) (3)

This course teaches beginning and intermediate students the fundamentals of Web applications. This includes the concepts and theories of creating and building Web applications. Students will learn about database planning, designing and programming. To practice and demonstrate their learning of web application fundamentals, students will create programs using PHP. (F, O)

CSCI 231 Web Database II (ColdFusion) (3)

This course introduces the student to concepts of creating dynamic Websites by using ColdFusion Markup Language. The students will learn how to extract information from databases to provide current information about products and services. They will also learn how to add and change database records based on user selections, keep information up-to-date, and enhance their Web-based skills. (Prior knowledge base: Internet, HTML, Microsoft Access 2000, Netscape Navigator or Internet Explorer, and relational database concepts.) (S)

CSCI 263 Computer Science III (Java) (3)

This course is a continuation of CSCI 160 and CSCI 161. Programming concepts to be demonstrated and utilized within Java programs include: Graphics, Class Inheritance, Java Swing components, Layout Managers, Exception Handling, File input/output and Multithread animation. Prerequisites: CSCI 160, CSCI 161. (F, O)

CSCI 290 Programming Capstone (4)

This course is a summative course. Students taking this class will be required to combine skills gained from previous CIS/CSCI classes. This class will require the student to use the following languages and tools: SQL, Visual Basic.NET, ASP.NET, Java and HTML. Prerequisites: CSCI 160/161, CSCI 122/172, CSCI 133/183. (S)

CSCI 297 Internship (3-5)

The development of computer skills through work experience (440 hours of work in a computer center environment). Prerequisite: Department approval. (F, S, Su)

CSCI X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

CSCI 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(CT) CIVIL ENGINEERING AND SURVEYING TECHNOLOGY**CT 111 Civil Plans and Specifications (2 credits)**

This course is an introduction to basic fundamentals of civil engineering and surveying. Emphasis is placed on familiarization, reading and understanding highway/heavy plans, specifications and contracts. Basic freehand lettering and manual drafting techniques and daily journaling are also introduced. (S)

CT 113 Introduction to Civil Design Applications (3)

This course is a continuation of CAD 120 along with an introduction to AutoDesk Land Desktop. The major focus is placed on commands required to complete a working set of drawings utilizing Autodesk Land Enabled Map 2005 and Land Desktop software. Emphasis is placed on practical use of the critical commands covered in CAD 120 as well as more complex commands (such as dimensioning, blocks/attributes, symbol libraries, attribute extractions, an introduction to paper space and others). A basic introduction to AutoDesk Land Desktop will be integrated in this program. (S, O)

CT 121 Plane Surveying (4)

Instruction and practice in the use of surveying instruments and equipment. Types of surveys, units of measure, elementary leveling, transit problems, field notes and benchmarks are included. Survey transverse and triangulation calculations and adjustments including map plotting, latitudes and departures, open and closed traverses, error analysis, inverting between points, and intersection of lines are also covered. Equipment utilized will be automatic levels, transits and total stations. (F, O)

CT 122 Advanced Surveying (4)

A study of advanced survey traverse and triangulation calculations and adjustments including: error analysis, subdivision of sections, contouring, route locations, grade determinations, earthwork measurements, map plotting, inverting between points and intersection of lines. Students also perform field work in mapping property corner searches, offsets, construction location and grade staking. Equipment utilized will be total stations and data collectors. Prerequisites: CT 121 and MATH 136. (S, O)

CT 132 Materials Testing/Quality Control (4)

This course covers the actual hands-on performance of laboratory and field tests on soils and aggregates used for the construction of civil engineering, highway/heavy project, including the materials, design, placement, and testing procedures of freshly mixed and hardened bituminous and concrete mixes. Most of the course is devoted to the performance of standardized lab and field procedures along with the necessary measurements, calculations and reports required for an accurate analysis. (S)

CT 142 Construction Safety for Civil Technicians (1)

This course will cover safety issues as they pertain to Civil Engineering and Surveying Technicians. Most of the course will be lecture, video and group discussion. (O)

CT 211 Introduction to Geographic Information Systems (3)

This course looks at Geographic Information Systems (GIS) and how they are used. Students will look at all aspects of GIS in terms of design, maintenance, analysis and industry usage. This class will teach students GIS concepts while applying those concepts to unit assignments. Students will apply all concepts to a final project. Prerequisite: CAD 120. (F-Online)

CT 212 GIS Applications (3)

This course will provide the general knowledge and applications a student will need to perform advanced analysis of data, data management and file transformation, data collection and compilation of spatial data, web mapping and data in the cloud. This course will be based on hands-on projects. (S)

CT 214 Highway and Street Design (3)

This course covers the fundamentals of highway and street design. Included in the course are design safety considerations, design cost effectiveness, geometric features, construction plan development, blueprint reading and other highway design criteria. A construction design project will be developed during the course. Prerequisites: CT 111. (S)

CT 215 Land Use Planning and Development (3)

This course will take an undeveloped parcel of land and develop it into a residential subdivision. The parcel boundary will be surveyed in an earlier surveying class using a total station and data collector. The point file will be downloaded into AutoDesk software for design and drafting use. Prerequisite: CT 221. (S)

CT 221 Surveying Procedures (4)

This course is comprised of field work, with emphasis on data collection procedures, and drawing with Civil 3D, following standards set by ALTA. The students will collect boundary and topographic data utilizing the latest technology in equipment, such as Total Stations, GPS, Robotic Total Stations, etc. The students will take an area of campus, divide it up between groups, perform survey work, merge data files and draw the entire project following ALTA Standards. Prerequisites: MATH 136 and CT 122. (F)

CT 222 Advanced Surveying Procedures (4)

This course is comprised of field work and classroom work. The classroom work includes theoretical work in highway and railroad curve alignment, compound curves and reverse curves. The field work includes advanced GPS such as static networks, advanced alignment stakeout, infill surveys, and a student project performed on their own following procedures taught for boundary research, data collection, data analysis and the creation of a certificate of survey for the project. Prerequisites: MATH 136 and CT 221. (S,O)

CT 223 Boundary Control and Legal Principles (3)

The study of the laws and systems of land description and subdivision including: history of land ownership; terminology used in real property law; methods of property transfer; abstracts of titles; types of titles; filing and recording deeds; legal principles of retracements; reversing rights; riparian and littoral rights; mining claims; and preparation of metes and bounds descriptions and records of surveys. (F, O)

CT 232 Water Management Technology (4)

This course covers the fundamentals of water supply and distribution, water treatment processes, sanitary sewage and collection methods, sewage treatment processes, storm water collection, along with the environmental effects caused by improper water and sewage handling. Included in the course are topics on hydraulics, hydrology, chemical and biological testing, water distribution and collection systems and water and sewage treatment facilities storm water management, and the concepts of municipal solid waste disposal. Prerequisite or Corequisite: MATH 134. (S, O)

CT 235 Water Resource Technology (3)

This course focuses on water as a resource and covers topics on water quality and pollution along with drinking water, wastewater and storm water. Distribution systems, treatment processes, purification practices are discussed in detail as well as hydraulics and hydrology. (S)

CT 241 Statics and Strength of Materials (2)

This course covers an introduction to static forces in equilibrium and their effects on objects. Included in the course are force vectors, moments, friction, stress/strain relationships and the various properties of materials. The engineering method of analytical problem-solving is stressed along with the neat and orderly method of showing the problem-solving procedure. Prerequisites: MATH 134, MATH 136. (F, O)

CT 243 Research and Analysis (3)

This class serves as a capstone class and will focus on land and real property ownership. Students will gain an understanding of recording practices and will conduct research projects in the County Recorder's Office. (F, O)

CT 261 Machine Control and Project Layout (2)

This course will provide the skills necessary to setup control on a construction site, recreate 3D models for proper equipment operation, provide proper data for machine control, compute volumes of project and what is needed for quality control of a project. (F)

CT X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

CT 297 Cooperative Education (1-5)

Cooperative Education offers students the opportunity to integrate career, social and personal development into the educational process. The cooperative education program allows students to integrate classroom study with a paid work experience related to their fields of study. It is recommended that a student has successfully completed one year of academic study.

CT 299 Special Topics (1-15)

A course designed to meet special departmental needs.

(CULA) CULINARY ARTS**CULA 101 Food Preparation Laboratory (8 credits)****CULA 102 Food Preparation Laboratory (9)**

Provides practical experience with the tools, equipment, materials and products used in food service and hospitality industry. Includes the properties and composition of food along with the basic knowledge of meats, produce, dairy products and staple groceries. Practical experience in the preparation of appetizers, salads, soups, sauces, meats, seafood, vegetables and farinaceous products. Practical experience in fabrication and preparation of beef, veal, pork, lamb, poultry and seafood along with the theory of service for these items. Practical experience in preparing and serving of food products is achieved through various banquets, special functions, daily preparation, fabrication and serving individuals and groups throughout both semesters. NOTE: The hospitality industry utilizes items that contain alcohol to flavor and flame food products that will be served to customers. These items include wine, flavored liquors, and spirits. The Culinary Arts Department, in an attempt to offer experiences and products that are as close to the work environment as possible, utilizes the same types of products in the preparation and service of food items prepared in the laboratory. Prerequisite for CULA 102: CULA 101, CULA 110. (CULA 101, F; CULA 102, S)

CULA 110 Sanitation and Safety (2)

A study of health and sanitation conditions as well as effective sanitary application measures, types of organisms and adulterates responsible for food contamination and spoilage. Special emphasis is placed on the conditions conducive to the transmittal and methods of preventing the growth of organisms and contaminating food products. The HACCP system of food protection is introduced. Personal hygiene and appearance is a significant part of sound sanitation practices and is stressed throughout the course. The National Restaurant Association's ServSafe® Certification Program is a nationally recognized food safety program, and the students are required to become ServSafe® Certified. Safety procedures and laws are reviewed and practiced in relationship to food and personal safety. Corequisite: CULA 101. (F)

CULA 119 Culinary Nutrition (2)

A study of basic nutrition, including how nutrients are utilized in the body. The requirements of the various nutrients in the body, and suggested daily nutritional needs are covered. A study of food products and their impact on the nutritional needs of the customer. The hospitality industry's role and responsibility in providing for the nutritional needs of the general public is emphasized. A computer analysis software program is used to evaluate diets throughout the course. Corequisite: CULA 101. (F)

CULA 120 Menu Planning (2)

Includes principles and practices related to preparing menus. Included are menu formats, preferences of the public, and trends within the industry. Menus are planned to meet nutritional needs and the desires of our ever changing customers that are eating in various institutional and commercial food services. Students research, prepare and complete a menu project that is a large portion of the course. A nutrition computer analysis software program is used as a tool to aid in evaluating the menus in the course. This course allows the student to earn a certificate from National Restaurant Association Educational Foundation's Management First Program™. The Manage First Program™ focuses on the key competencies defined by today's restaurants, hospitality and foodservice leaders. Corequisites: CULA 102 and CULA 121. (S)

CULA 121 Food Cost and Portion Control (2)

The study of the principles involved when operating a sound food service operation combined with the study of the basic principles of effective food cost control and the procedures used by various operations. Practice in the application of these procedures and principles is achieved through various projects and specific units. Computer programs are introduced to aid in menu costing, inventory control and recipe sizing. This course allows the student to earn a certificate from National Restaurant Association Educational Foundation's Management First Program™. The Manage First Program™ focuses on the key competencies defined by today's restaurants, hospitality and foodservice leaders. Corequisite: CULA 120. (S)

CULA 201 Principles of Baking and Specialty Desserts (9)

A study of the basic baking ingredients and how they function in the baking process. Practical application in preparation of pies, cakes, yeast breads and pastries as they would be prepared in hotel and restaurant kitchens. A wide variety of pastry and dessert products are prepared by students and many are utilized in the campus Dining Services facilities. Skills in recipe interpretation and conversion, accuracy in weighing of ingredients, proper mixing methods, and correct baking procedures are emphasized. (NOTE: Products will be prepared using flavored liqueurs and other spirits. Refer to CULA 101.) Prerequisites: CULA 101 and CULA 102. (F)

CULA 202 Short Order Cookery (2)

Training in grill, fryer and broiler cookery, sandwich and breakfast preparation. Actual short-order preparation experience is available through a campus restaurant operated by students. Corequisite: CULA 222. (F)

CULA 203 Gourmet Foods/Catering and Banquet Service (8)

This course is a continuation of food preparation techniques as taught in previous courses with opportunities for more specialized preparations. A variety of ethnic cuisines are explored, some of which are prepared and served in the campus restaurant. Food planning, purchasing and receiving procedures are studied. Catering projects and special functions serve as opportunities to practice these procedures along with food and labor costing. (See CULA 101 regarding the use of alcohol in food preparation). Prerequisites: CULA 101 and CULA 102. Corequisites: CULA 202 and CULA 221. (S)

CULA 220 Dining Room Service (1)

An overview of the operation of the restaurant dining room including personnel management and training, day-to-day operations and controls. Practical experience in customer relations is provided in an actual dining room setting. Corequisite: CULA 221. (F)

CULA 221 Principles of Restaurant Management (2)

Basic principles of food service management emphasizing food and labor management and problem-solving. Menu development, costing and inventory are practiced utilizing computer software designed for food service use. Corequisite: CULA 220. Prerequisites: CULA 120 and CULA 121. (F)

CULA 222 Restaurant Service and Production Management (2)

Dining room service and management applications such as sales forecasting, record of sales, inventory, point of sale operation, customer service and sales are practiced by students throughout the semester in an actual restaurant setting. Students and faculty practice a management style which emphasizes the team approach to attaining a common goal. (See CULA 101 regarding the use of alcohol in food preparation). Prerequisites: CULA 120 and CULA 221. Corequisites: CULA 202 and CULA 203. (S)

CULA X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

CULA 297 Cooperative Education (1-5)

Cooperative education offers students the opportunity to integrate career, social and personal development into the educational process. The cooperative education program allows students to integrate classroom study with a paid work experience related to their fields of study. It is recommended that a student has successfully completed one year of academic study.

CULA 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(DAST) DENTAL ASSISTING

(DAST 101, 102 and 103 are not part of the accredited dental assisting program and are for employees currently working in a dental office.)

DAST 101 Dental Radiology: Health and Safety (2 credits)

This course is for Dental Assistants that are currently working in a dental office and are planning to take the Dental Assisting National Board (DANB) Exam. The course will provide a review of the critical content in the radiation health and safety component of the DANB exam as well as test-taking strategies to enhance performance on the exam. The majority of the DANB test sites now require students to take the computerized format of the exam and taking an online course should make you more confident with the format when you take the DANB exam. Prerequisite: Student must be currently employed in a dental office with a minimum of three months Dental Assisting experience. (S, O)

DAST 102 Infection Control (2)

This is a preparation course for the Infection Control segment of the Dental Assisting National Board (DANB) examination. It is designed for Dental Assistants who are currently employed in the dental office with at least three months of chairside experience and who are preparing to take the examination. The course will provide relevant information through reading assignments, summaries, class discussion sessions and examinations. Upon completion of this course, the student will have knowledge in all areas of infection control and be prepared for the DANB examination. (S, O)

DAST 103 General Chairside (2)

This is a preparation course for the General Chairside segment of the Dental Assisting National Board examination. It is designed for Dental Assistants who are currently employed in the dental office one year and who are preparing to take the examination. The course will provide relevant information through reading assignments, summaries, class discussion sessions, and examinations. Upon completion of this course, the student will have knowledge in general chairside and be prepared for the Dental Assisting National Board examination. (O)

DAST 105 Office Practice and Management (1)

A study of the business aspects of dentistry including resumes and interviewing, staff and patient management, office communication skills, inventory and recall systems, dental forms, business records, and legal and ethical aspects of dentistry. Prerequisite: Satisfactory completion of DAST 111. (S)

DAST 111 Introduction to Chairside Assisting (3)

This course is a study of dental team dynamics, infectious disease development and methods of control, didactic and laboratory instruction in basic chairside procedures, patient communication and restorative dentistry. Prerequisite: Acceptance into the Dental Assisting program. Hybrid. (F)

DAST 115 Dental Radiology for the Dental Assistant (3)

This course is designed to provide a fundamental knowledge of dental radiology. Emphasis will be placed on operator and patient safety, quality assurance, radiology principles and radiographic imaging and developing laboratory competency in basic radiology skills. The didactic part of this course will be online. Prerequisite: Acceptance into the Dental Assisting program. Hybrid. (F)

DAST 120 Dental Assisting Expanded Functions (2)

This course is an introduction to dental assisting expanded functions legal in this region. The course will focus on pre-clinical and clinical skills associated with coronal polishing, fluoride application, pit and fissure sealants, dental dam, excess cement/bonding removal, suture removal, periodontal dressing and orthodontic procedures. Prerequisite: Satisfactory completion of DAST 111. (S)

DAST 132 Clinical Training I (3)

A continuation of Introduction to Chairside Assisting (DAST 111). The course will focus on dental specialties, management of patients with special needs, medical emergencies, the history of dentistry, and encompasses educational and licensure requirements for dental professionals, and professionalism in the dental field. Prerequisite: Satisfactory completion of DAST 111. (S)

DAST 132L Clinical Training I: Clinic (2)

This course will provide the student with an opportunity to begin developing clinical skills by assisting in a variety of clinical assignments. The course will focus on assisting in the general and specialty dental offices and actively participating in the NDSCS Allied Dental Education Clinic. Prerequisite: Satisfactory completion of DAST 111. (S)

DAST 133 Clinical Training II (4)

A continuation of Clinical Training I (DAST 132). The primary focus of this course is to provide dental assisting experience in selected dental offices. A capstone mockboard project will be completed in this course. Prerequisite: Satisfactory completion of DAST 132L. (Su)

DAST 144 Biodental Science (2)

This course includes a study of oral embryonic development, oral histology and oral pathology. An introduction to dental pharmacology is included in this course. This course also serves as a basic introduction to nutrition and its role in the maintenance of oral health. Prerequisite: Satisfactory completion of DAST 111. (S)

DAST X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

DAST 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(DCAT) CATERPILLAR DEALER SERVICE TECHNICIAN

DCAT 110 Caterpillar Engine Fundamentals (4 credits)

A lecture/lab course covering engine operating principles, cylinder and piston service, valve service, crankshaft and bearing service, lubrication systems, rebuilding procedures and measurement fundamentals on Caterpillar engines. Caterpillar engines are used for lab disassembly and assembly.

DCAT 111 Introduction to Caterpillar Service (2)

This course introduces the student to the Caterpillar organization history and the different parts of the company. Instruction and lab experiences in the shop include safety, shop operation and a major emphasis on how to obtain information using CAT Specific Software Systems.

DCAT 112 Fundamentals of Hydraulics (3)

A lecture/lab course designed to teach the basic hydraulic fundamentals. Identification and function of the various components used in Caterpillar hydraulic systems will include vane pumps, gear pumps and piston pumps. Also covered is ISO hydraulic symbol identification and tracing oil flows used in Caterpillar hydraulic systems. Lab exercises include disassembly and assembly of Caterpillar hydraulic components.

DCAT 113 Caterpillar Fuel Systems (3)

A lecture/lab course introducing the student to fuel systems used on Caterpillar engines. Combustion chamber design, injectors and injection pumps are covered in this class. Also covered are diagnosing faults in fuel injection and combustion systems, and lab exercises include disassembly and assembly of fuel components used in Caterpillar fuel systems.

DCAT 114 Fundamentals of Electricity (3)

A lecture/lab course that introduces the student to basic electrical and electronic fundamentals needed by a technician to properly diagnose and repair the complex electrical systems installed on Caterpillar machines. Included is the study of Ohm's law, series and parallel circuits, test instruments and various components found on Caterpillar equipment. The course does not teach specific machine systems.

DCAT 115 Air Conditioning Fundamentals (3)

A lecture, discussion and lab-type course covering the basic theory and operating principles of air-conditioning systems as they relate to Caterpillar equipment. Lab exercises consist of leak detecting, evacuation, reclaiming, charging, component repair and use of test equipment to diagnose and repair malfunctions. (Su)

DCAT 116 Fundamentals of Transmission and Torque Converters (3)

A lecture/lab course that covers the various transmissions, torque converters and differentials used in Caterpillar equipment. This course also covers constant mesh, sliding gear, hydrostatic synchromesh and power shift transmissions involving planetaries. At the completion of this course, the student will have working knowledge of basic power train theory. (Su)

DCAT 117 Machine Hydraulic Systems (3)

A lecture/lab course designed for inspecting, testing, servicing and diagnosing Caterpillar hydraulic systems and components. Students will conduct testing and adjusting procedures on Caterpillar equipment, utilizing Caterpillar service procedures and test equipment. (Su)

DCAT 150 Internship I (2)

This internship is to follow DCAT 110 and DCAT 111. The student will maintain a daily log book. The intern dealer will provide a mentor for the student. During the course of the internship period, an evaluation will be completed between the mentor, instructor, manager and student. (F)

DCAT 151 Internship II (2)

This internship is to follow DCAT 112, DCAT 113 and DCAT 114. The student will maintain a daily log book. The intern dealer will provide a mentor for the student. During the course of the internship period an evaluation will be completed between the mentor, instructor, manager and student. (S)

DCAT 200 Undercarriage/Final Drives (3)

A lecture/lab course that introduces the student to undercarriage and drive systems used on the many different types of Caterpillar track machines. Also covered are final drives and braking systems used in Caterpillar track and wheel equipment. This course is a continuation of DCAT 116 Fundamentals of Transmissions and Torque Converters.

DCAT 201 Machine Electronic Systems (3)

A lecture/lab course that covers the electronic systems used on Caterpillar equipment. This course provides the background needed to diagnose and repair the electronics and computerized circuits found on Caterpillar equipment and engines. Basic electronic concepts, component function and system operation are covered. Caterpillar's procedures are taught to identify malfunctions and to test the system properly.

DCAT 202 Engine Performance (2)

A lecture/lab course that teaches the skills necessary to make CAT engines run at peak performance. The student will be provided with a thorough understanding of the necessary diagnostic skills required for troubleshooting Caterpillar engines and fuel systems. Emphasis will be placed upon knowledge and skills necessary to assure product reliability and performance.

DCAT 203 Diagnostic Testing (2)

A lecture/lab course that teaches the skills necessary to make CAT engines run at peak performance. The student will be provided with a thorough understanding of the necessary diagnostic skills required for troubleshooting Caterpillar engines and fuel systems. Emphasis will be placed upon knowledge and skills necessary to assure product reliability and performance.

DCAT 204 Machine Specific Systems (3)

This course is designed to expose students to different types of specialty equipment used for various operations, utilizing CAT equipment. Testing and adjustment of equipment will also be covered as per Caterpillar service procedures.

DCAT 250 Internship III (6)

This internship is to follow DCAT 200 and DCAT 201. The student will maintain a daily log book. The intern dealers will provide a mentor for the student. During the course of the internship period an evaluation will be completed between the mentor, instructor, manager and student. (F)

DCAT 251 Internship IV (6)

This internship is to follow DCAT 202 DCAT 203 and DCAT 204. The student will maintain a daily log book. The intern dealers will provide a mentor for the student. During the course of the internship period an evaluation will be completed between the mentor, instructor, manager and student. (S)

DCAT X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

DCAT 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(DHYG) DENTAL HYGIENE**DHYG 101 Pre-Clinic (1 credit)**

This course provides basic information discussing the life cycle of plaque, disease development and methods of controlling and preventing dental diseases. Prerequisite: Acceptance into Dental Hygiene or Dental Assisting program. Corequisite: DHYG 101L or DAST 111. (F)

DHYG 101L Pre-Clinic Lab (3)

This course provides basic instruction in fundamental principles of clinical dental hygiene instrumentation, prevention of disease transmission, dental hygiene assessment, implementation and evaluation procedures. Prerequisite: Acceptance into the Dental Hygiene program. (F)

DHYG 102 Clinic I (1)

This course provides instruction on fundamentals of medical histories/ medical emergencies, principles of root morphology, ultrasonic scaler, prophylaxis, aspiration and tobacco cessation, professionalism and patient motivation. Prerequisites: DHYG 101, DHYG 101L. Corequisite: DHYG 102L. (S)

DHYG 102L Clinic I Lab (4)

This course provides instruction and continuing information on fundamental principles of clinical dental hygiene. Clinical dental hygiene is that portion of the dental hygiene curriculum focused on developing the cognitive, affective and psychomotor skills necessary for delivery of preventive, educational and therapeutic services to the public. This comprehensive care involves an assessment of patient needs, planning for treatment and disease control, implementation of various clinical dental hygiene services and an evaluation of both patient and operator efforts and the results. Prerequisites: DHYG 101, DHYG 101L. Corequisite: DHYG 102. (S)

DHYG 103 Clinic II (1)

This course provides a continuation of fundamental principles of clinical dental hygiene. Areas of focus will be local anesthesia and pain control, trauma, caries risk assessment and prevention counseling, sealant application, child management, family abuse, and hypersensitivity. Prerequisite: DHYG 102. Corequisite: DHYG 103L. (Su)

DHYG 103L Clinic II Lab (3)

This is a continuation of DHYG 102L. This course provides instruction and continuing information on fundamental principles of clinical dental hygiene, periodontal assessment, periodontal treatment planning and case assessments. Clinical dental hygiene is that portion of the dental curriculum necessary for delivery of preventive, educational and therapeutic services to the public. This comprehensive care involves an assessment of patient needs, planning for treatment and disease control, implementation of various clinical dental hygiene services and an evaluation of both the patient and operator efforts and the results. Students participate in off-campus clinical experience with a diverse patient population. Prerequisite: DHYG 102L. Corequisite: DHYG 103. (Su)

DHYG 110 Oral Anatomy (2)

This course provides basic instruction in root and tooth anatomy, charting of human dentition, muscles, TMJ and occlusion. Clinical consideration of dental anatomy is stressed. Prerequisite: Acceptance into Dental Hygiene or Dental Assisting program. (F)

DHYG 112 Oral Embryology and Histology (1)

This course is a study of tissue morphology, embryonic development and histologic features of the structure of the oral cavity. Prerequisite: Acceptance into Dental Hygiene program. (F)

DHYG 114 Dental Radiology (3)

A survey of the nature and behavior of principles of x-ray production, biological effects of radiation, radiation safety, quality assurance, techniques associated with exposure, processing, and mounting of radiographs and interpretation of dental radiographs. Recent concepts of dental imaging, digital radiographics, software, and state and federal regulations. Prerequisite: Acceptance into Dental Hygiene. (F)

DHYG 145 Periodontics I (1)

A study of the etiology and clinical characteristics of periodontal diseases. Provides information on tissues of the periodontium, epidemiology, disease classifications, causative factors, assessment and treatment planning. Prerequisite: Acceptance into Dental Hygiene program. (S)

DHYG 201 Clinic III (1)

This course provides basic instruction, care and management of special needs patients. Prerequisites: DHYG 103, DHYG 103L. Corequisite: DHYG 201L. (F)

DHYG 201L Clinic III Lab (4)

A continuation of DHYG 102L and DHYG 103L. This course provides instruction and continuing information on fundamental principles of dental hygiene. Clinical dental hygiene is that portion of the dental hygiene curriculum focused on developing the cognitive, affective and psychomotor skills necessary for delivery of preventive, educational and therapeutic services to the public. This comprehensive care involves an assessment of patient needs, planning for treatment and disease control, implementation of various clinical dental hygiene services, and an evaluation of both the patient and operator efforts and the results. Students participate in off-campus clinical experiences with a diverse patient population. Prerequisite: DHYG 103L. Corequisite: DHYG 201. (F)

DHYG 202 Clinic IV (1)

The course provides instruction in continuing information on fundamental principles of clinical dental hygiene. Specific topics to be discussed include: dental specialties, rubber dam, periodontal dressing and suture removal, nitrous oxide analgesia, total treatment planning and review and analysis of patient care through written and oral patient case assessments and presentations. Prerequisite: DHYG 201. Corequisite: DHYG 202L. (S)

DHYG 202L Clinic IV Lab (4)

Continuation of DHYG 102L, 103L and 201L. This course provides instruction on continuing information on fundamental principles of clinical dental hygiene, periodontal assessment, periodontal treatment planning and case assessments. Clinical dental hygiene is that portion of the dental curriculum necessary for delivery of preventive, educational and therapeutic services to the public. This comprehensive care involves an assessment of patient needs, planning for treatment and disease control, implementation of various clinical dental hygiene services and an evaluation of both the patient and operator efforts and the results. Students participate in off-campus clinical experiences with a diverse patient population. Prerequisite: DHYG 201L. Corequisite: DHYG 202. (S)

DHYG 209 Head and Neck Anatomy (1)

This course involves the study of the structure and function of the osteology, muscles, blood supply, nerves and lymphatics of the head and neck as a whole and TMJ and mandibular functions. Corequisite: DHYG 103L. (Su)

DHYG 210 Local Anesthesia (1)

A clinical application course designed to provide the student with the knowledge and clinical skills to administer safe and effective local anesthesia. In addition, alternate methods of pain control are included in this course. Prerequisite: DHYG 209. Corequisite: DHYG 103. (Su)

DHYG 212 Oral Pathology (1)

A study of fundamental disease processes involving the oral cavity and its related structures. The course includes the use of assessment and critical thinking skills in differentiating normal from abnormal conditions. Prerequisite: BIOL 213. Corequisite: DHYG 103L. (Su)

DHYG 220 Community Dental Health (2)

This course is an overview of the basic principles of dental public health, epidemiological methods, statistical measurement and analysis. It is designed to prepare the student to function in a community as a professional, provide the basis for lifelong learning and evidence-based decision making. The course also provides information followed by experience in APIE for diverse target populations. Corequisite: DHYG 201L. (F)

DHYG 242 Dental Materials (3)

A study of the characteristics, physical properties, selection, manipulation, uses and care of dental materials. Includes laboratory experience in the manipulation and preparation of those materials commonly used in dental practice. Safety precautions relating to each material and procedure are incorporated. Prerequisite: Acceptance into Dental Hygiene or Dental Assisting program. (F)

DHYG 243 Dental Jurisprudence (1)

A study of the legal and ethical aspects of dental hygiene practice in relation to standards at the state and national level. In addition, this course includes writing a résumé, interviewing, recall systems, risk management and office communications. Corequisite: DHYG 202L. (S)

DHYG 245 Periodontics II (1)

This is a continuation of the study of periodontology. This course will include information on plaque control, advanced instrumentation, surgical procedures, implants, emergencies, systemic factors, and treatment and maintenance for the periodontal patient. Prerequisite: DHYG 145. (F)

DHYG X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

DHYG 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(DTEC) DIESEL TECHNOLOGY**DTEC 109 Air Conditioning for Diesel Technology (2 credits)**

A lecture, discussion and lab-type course covering the design and principles of operations of various air conditioning systems, including agriculture, construction and trucking equipment. Work in lab consists of leak detecting, evacuation, reclaiming, charging, component comprehension, electrical systems and troubleshooting for various units. (F, S)

DTEC 115 Introduction to Light and Medium Duty Engines (4)

A theory and lab course covering rebuilding of heavy duty gas and light- and medium-duty diesel engines. Students will troubleshoot, disassemble, rebuild and assemble an engine during this class. Learning modules include: measurement fundamentals, basic engine operating principals, cylinder and piston service, cylinder head rebuilding and valve reconditioning, crankshaft and bearing service, and lubrication and cooling systems. Engines designed for the use of alternative fuels such as LPG and CNG are also covered. This class is a prerequisite for DTEC 215, CIH 215 and JDAT 215.

DTEC 125 Introduction to Heavy Duty Drive Systems (4)

A lecture and lab type course which provides the student with theory and hands-on operation and repair of shop safety, operation, bearings-seals, heavy duty steer axles, drive axles, medium and heavy duty truck suspension, wheel end assemblies, and braking systems. Heavy duty vehicle inspection is also covered in this course.

DTEC 155 Electricity for Diesel Technology (4)

An introductory lab/theory class in electrical fundamentals. A practical approach to the study of electricity including Ohm's Law, power, series and parallel circuits, direct and alternating current, with strong emphasis on diagrams and troubleshooting. This class is designed for technicians in the Diesel Technology field. (F, S)

DTEC 164 Introduction to Mobile Hydraulics (4)

This course is a study of hydraulic system fundamentals and various components used in a typical mobile hydraulic system. Component disassembly and reassembly will take place to aid in the understanding of component and system operation. Various components will be tested on a test bench to help the student understand how the components contribute to the overall operation of the system and will be used to evaluate the students' performance. Experiments will be performed on lab equipment to aid in the understanding of mobile hydraulic principles.

DTEC 185 Diesel Fuel Injection Systems (4)

This course introduces students to diesel fuel injection systems. The students will study the design and operation of a variety of diesel fuel systems. Students will be required to inspect, disassemble, assemble, performance test, adjust fuels system components.

DTEC 215 Heavy Duty Diesel Engines (7)

A lecture and lab type course of current heavy-duty diesel engines. Students gain knowledge in operation, troubleshooting, rebuilding and tuning all types of diesel engines. Work includes disassembly, assembly, injection timing and adjustment common to diesel engines used in the agricultural, transportation and industrial industries.

DTEC 225 Heavy Duty Drive Systems (7)

A lecture and lab type course which provides the student with theory and hands-on operation and repair of the latest types of heavy-duty drive systems that the agricultural, transportation and industrial industries use on their equipment. (F, S)

DTEC 255 Heavy Duty Chassis Electrical Systems (7)

A lecture and lab type course covering the theory of operation, repair and diagnostic procedures used on heavy-duty truck and tractor electrical systems, electronic engines and transmissions. This is a half-semester course. (F, S)

DTEC 265 Mobile Hydraulic Systems Diagnostics and Repair (7)

DTEC 265 is a lab/lecture course covering the service diagnostics and repair of the hydraulic functions on agricultural and industrial equipment. Open center, closed center, and closed center load sensing systems are covered as well as steering, hydrostatic drives, 3 point hitches, and hydraulic functions of today's equipment. Prerequisite: DTEC 164.

DTEC X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

DTEC 297 Cooperative Education for Diesel Technology (1-5)

The Cooperative Education program for Diesel Technology allows the students to apply classroom study with a paid work experience related to their fields of study at a department approved work site. It is recommended that the student has completed one year of Diesel Technology. (Su)

DTEC 299 Special Topics (1-15)

A course designed to meet special departmental needs.

(ECAL) ELECTRICAL TECHNOLOGY**ECAL 100 Introduction to Electricity (3 credits)**

An introductory lecture class in electrical fundamentals. A practical approach to the study of electricity including Ohm's law, power, series and parallel circuits, direct and alternating current, with strong emphasis on diagrams and troubleshooting. (F, S)

ECAL 101 Electrical Fundamentals (5)

This course examines the basic components used in electrical circuits. The course stresses the appropriate terminology, units and uses of the various components in DC (direct current) environment only. Also, circuit analysis is stressed with circuits connected in series, parallel and series/parallel configurations. (F)

ECAL 102 Electrical Fundamentals (5)

This course examines the basic components used in electrical circuits. The course stresses the appropriate terminology, units and uses of the various components in an AC (alternating current) environment. Also, circuits are analyzed with components in series, parallel, and series/parallel. Prerequisites: ECAL 101, MATH 136. (S)

ECAL 103 Electrical Code Study (4)

An in-depth study of the National Electrical Code Chapters 1, 2, 3 and portions of Chapter 4. Wiring methods and materials, and equipment for general use are covered. State (ND and MN) electrical codes are also covered. (F)

ECAL 105 Electrical Safety I and NFPA 70E (1)

This course is a study of electrical safety and the rules for safe work practices set forth by OSHA and NFPA 70E, the standard for electrical safety in the workplace. In this course you will look at procedures to work safely around electrical systems and how to create an electrically safe work environment. (F)

ECAL 111 Electric Meters and Motors (3)

A practical, hands-on course using various electrical testing equipment to troubleshoot and test electric motors, components, and wiring systems. A study of single and three phase AC motors, their construction features and operating characteristic's. This lecture/lab class emphasizes electric motor terminology, identification of motor types, enclosures, mounts, motor selection, connections, maintenance, testing and troubleshooting. Students are also introduced to motor loads, protection, controls, and devices used to connect motors to their loads such as pulleys, v-belts, gearboxes, and couplings. (F, S)

ECAL 133 Basic Wiring (3)

This is an introduction to basic electricity, basic wiring methods, and materials and tools used in the electrical industry. Actual circuit layout and installation is done according to the rules of the National Electrical Code and other applicable state and local codes. (F, S)

ECAL 137 Electrical Drafting (2)

This is a lecture and laboratory course dealing with the application of Computer Aided Drafting (CAD), using AutoCAD drafting software, as well as some reading and interpretation of blueprints from an electrician's perspective. (F, S)

ECAL 197 Cooperative Education (1-5)

Cooperative education offers students the opportunity to integrate career, social and personal development into the educational process. The cooperative education program allows students to integrate classroom study with a paid work experience related to their fields of study. It is recommended that a student has successfully completed one year of academic study.

ECAL 201 Alternating Current Theory (5)

This course is a study of three-phase alternating current circuits, electrical instruments and the theory, operation and connection of transformers. Students will study the theory, operation and connection of three-phase wye and delta circuits and the relationship of voltage, current and power in these circuits. Students will also study the harmonics of the effects of the building electrical systems. Prerequisite: ECAL 102. (F)

ECAL 203 Advanced Electrical Code Study (3)

This course is a continuation of ECAL 103. Chapters 4 through 8 of the National Electrical Code (NEC) are studied in this course. There is special emphasis on hazardous locations and applications. Prerequisite: ECAL 103. (S)

ECAL 204 Electrical Planning and Estimating (4)

This course is a culmination of all the student's previous learning experiences. It incorporates code classes, lighting and design, AutoCAD, wiring labs and theory classes. The course is designed to teach the student how to read and understand a set of prints in conjunction with a specification book, familiarize the student with the various materials, an emphasis on layout procedures, labor, and two different estimating techniques to develop a reasonable "bid" price for various projects. (S)

ECAL 205 Electrical Design and Lighting (3)

A class discussion course dealing with electrical material and equipment sizing, layout and application, applicable wiring codes, regulations and rules, and characteristics of common electrical distribution systems as used in industrial plants and commercial building locations. Included is a study of short circuit current, current limiting and coordination, power factor correction and electrical rates. This course includes the study of modern illumination principles, calculation procedures and equipment for lighting installations. (S)

ECAL 211 AC Measurements (4)

This lecture/lab course consists of a series of experiments to investigate the characteristics of single-phase and three-phase electrical circuits. The connections and testing of transformers in both single-phase and three-phase configurations are stressed. Students also learn the operation of three phase motors from conventional sources. Corequisite: ECAL 201. (F)

ECAL 223 Electronic Devices (4)

This course covers the foundations of electronics, the devices used in electronic circuits, how they function, and the proper handling of electronic components. This course will also cover the proper operation and use of test equipment such as multimeters and oscilloscopes used in industry for testing and troubleshooting equipment. (F)

ECAL 224 Automated Industrial Controls (5)

This is a lecture/lab course that will cover digital electronics, basic pneumatic and hydraulic principles, and basic robot operations and programming. The final lab projects will include principles from all elements covered. (S)

ECAL 233 Commercial Wiring Laboratory (3)

This course will introduce the student to many different wiring methods and equipment used in the electrical industry in commercial and industrial electrical environments. Provide examples of tools, materials and procedures utilized by electricians in the fast paced and rapidly changing electrical field of today. Prerequisites: ECAL 103, ECAL 133. Corequisite: ECAL 203. (S)

ECAL 237 House Wiring Rough-In (1)

This course will introduce the student to the logistics and procedures involved with wiring of a residential dwelling. (F)

ECAL 238 House Wiring Trim-Out (1)

This course will introduce the student to the logistics and procedures involved with the proper trim-out of a residential dwelling. (S)

ECAL 241 Basic Motor Controls (3)

A lecture and laboratory class oriented to the study of electromechanical control system concepts. Experiments are designed to illustrate the principles, applications, connection and installation procedures of electrical controllers. Special emphasis is placed on the analysis and development of motor control circuits. (F, S)

ECAL 242 Advanced Drives (2)

This is a lecture and laboratory course dealing with the theory, construction, application, installation, and programming of Variable Frequency Drive (VFD) motor controllers. VFDs are an increasingly common method of controlling motors and their related processes. Students will program a variety of controllers to learn the limitations and capabilities of each device. We will also be configuring programmable controllers to communicate with the drives, as well as communications with Human Machine Interfaces (HMIs). This course is a two credit class that will meet for one hour four times per week. (S)

ECAL 243 Programmable Controllers (3)

This is a lecture and laboratory course dealing with the theory, construction, application, installation and programming of microprocessor-based programmable controllers. Logic networks solving typical industrial control problems are developed and programmed into a variety of controllers to learn the limitation and capabilities of each machine. (F, S)

ECAL 245 Medium and High Voltage (1)

This lecture/lab course covers medium- and high-voltage electrical theory, conductors, insulators, overcurrent devices, testing, termination, safety precautions and safety equipment. (F, S)

ECAL 246 Alarm, Communications and Data Systems (3)

Installation and maintenance of alarms, communications and data is considered a specialty branch of electrical work. In this course you will understand the unique terminology associated with these systems, describe the relationship between these systems and life safety by various codes and standards that affect both commercial and residential buildings. The course will describe the characteristics and functions of various alarm system components, explain the different types of circuitry (hard wired and wireless) that connects these components and describes the theory behind conventional, addressable and analog systems to better understand how these systems function. The lab portion of this class includes handling and splicing of fiber optics, networking, structured wiring, data, satellite communications, all types of alarms (fire, security and community warning-tornado-civil defense) and video surveillance/recording. (These technology/revolutionary-based systems are subject to rapid change and every effort will be made to reflect any changes in technology. (F)

ECAL 247 Industrial Safety Systems (2)

This is a lecture/lab course that covers common industrial safety practices and the systems that are put in place to protect from injury. (F)

ECAL 248 Advanced PLC's (3)

This course is a continuation of ECAL 243 PLC's. This course will expose the learner to more advanced PLC programming concepts. This course will also expose the learner to different types and manufacturers of PLC's. HMI's and multiple communication protocols will also be included as topics in the lecture/lab course. (S)

ECAL 249 Industrial Network Fundamentals (2)

This is a lecture/lab course that covers common industrial machine communication. Students will learn Ethernet protocols along with navigating industrial software to establish communication. (F)

ECAL 261 HVAC and Building Systems (2)

This is a lecture/lab course which examines the basic components used in refrigeration and air conditioning systems and their electrical circuits. The course focuses on identifying whether the system has failed due to an electrical problem or a mechanical problem. The building envelope is studied to verify proper size equipment or to use electric heat. Energy usage/efficiency will be discussed to maximize savings where possible. Lastly, building usage and scheduling will be studied where systems allow further control of the system to reap energy savings (introduction of building automation). (F)

ECAL 262 Predictive/Preventative Maintenance (2)

This course is a discussion course of different maintenance types and the equipment used to perform the technician level portion of the tasks. Included in this discussion will be the use of thermography and vibration analysis in the predictive maintenance program and different areas of concern that they can be used to monitor and detect problems. Additional items of discussion will be oil analysis, ultrasound and precision alignment. (S)

ECAL 263 Distributed Electrical Systems (3)

This course is a lecture/discussion course which examines today's need for more flexible energy systems. The basic components used in distributed generation systems will be discussed as well as the various types (solar, wind, engine drive, etc.). The NEC and wiring perspectives of various systems will also be studied. The students will be required to do research into modern systems as well as consult various industry resources for additional information. (F)

ECAL X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

ECAL 297 Cooperative Education (1-5)

Cooperative Education offers students the opportunity to integrate career, social and personal development into the educational process. The cooperative education program allows students to integrate classroom study with a paid work experience related to their field of study. It is required that a student has successfully completed one year of academic study.

ECAL 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(ECON) ECONOMICS**ECON 105 Elements of Economics (3 credits)**

An introductory survey of basic economic principles including supply and demand, national income analysis, business cycles, money and the monetary system, and an analysis of competitive and imperfect market structures; as well as a review of selected contemporary economic issues. (F, O) ND:SS

ECON 201 Principles of Microeconomics (3)

Nature, method, and scope of economic analysis; economic scarcity, resources, specialization of labor; supply-demand analysis; production and cost analysis; product and resource market structures, distribution of income; international trade. (F, S) ND:SS

ECON 202 Principles of Macroeconomics (3)

Aggregate income and employment analysis; business cycles, unemployment, inflation and economic growth; fiscal policy; money and monetary policy; the U.S. economy and the world economy. (S) ND:SS

ECON X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

ECON 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(ELEC) ELECTRONICS TECHNOLOGY**ELEC 100 DC Circuit Analysis (4 credits)**

Theory/lab of DC resistive circuits using Ohm's Law and Kirchhoff's Laws with advanced analysis utilizing various circuit theorems and conversions will be studied. Computer analysis of DC resistive circuits along with the study of power, energy, capacitors and inductors in DC applications also will be examined. (F, O)

ELEC 101 AC Circuit Analysis (4)

A theory/lab course studying the fundamentals and applications of trigonometry, including right and oblique triangles, the Law of Sines, the Law of Cosines, vectors, angular velocity, graphs, complex numbers, series and parallel RL, RC, and RLC circuits and filters. Prerequisites: MATH 103 and ELEC 100. (S)

ELEC 140 Semiconductor Circuit Analysis I (4)

This is a lecture/lab course emphasizing the operating principles of various devices using a PN semiconductor junction to include diodes, diode circuits, special purpose diodes and bipolar transistors. Prerequisite: ELEC 100. (S)

ELEC 144 Electronic Lab I (5)

A laboratory course which covers fabrication, computer simulation and troubleshooting of DC resistor electronic circuits. Capacitive and Inductive Reactance are introduced using Microsoft Excel to graph circuit responses, along with considerable use of measurement equipment in proving of various electronic circuit laws and theorems. Corequisite: ELEC 100. (F)

ELEC 145 Electronic Lab II (4)

A laboratory course that covers fabrication, computer simulation and troubleshooting of DC and AC electronic circuits. Analysis of semiconductor circuits utilizing diodes, special diodes and bipolar transistors is emphasized. Prerequisite: ELEC 144. Corequisite: ELEC 140. (S)

ELEC 150 Introduction to Electronics (4)

Introductory lecture/lab course for non-electronics technology majors. Topics include electrical circuits, analog electronic circuits, digital electronic circuits and electronic fabrication. (F)

ELEC 151 Introduction to DC Topics (2)

The class provides an online learning experience for the student interested in learning about electronics technology. The course utilizes a computer based textbook connected to a high tech training console, and along with a variety of test equipment, the student takes the class in their own school. Electronics is the study, design, and use of electrical circuits to manipulate electrical signals. So whether it's cell phones, MP3 players, or power plant instrumentation, this course prepares the student for career paths such as telecommunications, biomedical, computer networking, automotive technology, and engineering, just to name a few. (F)

ELEC 152 Advanced DC Topics (2)

Theory/lab analysis of DC resistive circuits using Ohm's Law and Kirchhoff's Laws with advanced analysis utilizing various circuit theorems and conversions will be studied. Computer analysis of DC resistive circuits along with the study of power, energy, capacitors and inductors in DC applications also will be examined. Prerequisites: ELEC 151. (F)

ELEC 181 Digital Circuits I (4)

Digital Electronics I is a theory/lab course in digital integrated circuits with industrial applications. This will include a study of number systems, logic gates, Boolean algebra, combination logic circuits, IC specifications, interfacing, encoding, decoding and displays. (F)

ELEC 182 Digital Circuits II (4)

Digital Electronics II is a theory/lab course to include advanced digital integrated circuits with industrial applications. This will include a study of D and JK flip-flops, counters, registers, multiplexers, demultiplexers, A/D and D/A converters, digital systems and an introduction to microcomputer hardware and cabling. Prerequisites: ELEC 181. (S)

ELEC 241 Semiconductor Circuit Analysis II (4)

A continuation of ELEC 140 Semiconductor Circuit Analysis I. This lecture/lab course familiarizes the student with the operating principles of various transistor and thyristor circuits including bipolar transistors in amplifiers, voltage regulator circuits, and thyristor applications. Prerequisite: ELEC 140. (F)

ELEC 242 Linear Electronics (3)

A lecture/lab study of linear devices and systems. Includes advanced usage of test equipment, considerable usage of op-amps and circuits and linear applications. Prerequisite: ELEC 241. (S)

ELEC 244 Advanced Linear Systems (3)

A lecture/lab course continuing on the topics from Linear Electronics ELEC 242. Topics to include switching power supplies and sensor theory and applications. (S)

ELEC 248 Microcontroller Applications (4)

A lecture/lab course on PIC microcontroller systems and applications concentrating on the PICmicro® 16F84A and PICBasic Pro Compiler. Prerequisites: ELEC 140 and ELEC 182. (F)

ELEC 250 Test, Measurement and Data Acquisition (4)

This course uses LABVIEW, a graphical method of computer programming. It includes a study of the steps required to develop a computer program. The emphasis of these programs will be on applications related to the electronics industry. (F)

ELEC 251 Network Operating Systems (2)

Network Operating Systems is an intensive introduction to multi-user, multi-tasking network operating systems. Characteristics of the Linux, Windows 2000, NT and XP network operating systems will be discussed. In the lab, students will explore a variety of topics including installation procedures, security issues, back-up procedures and remote access. (S)

ELEC 253 Introduction to Instrumentation (3)

This course introduces the basic concepts of instrumentation and process control. The focus of the course is on negative feedback proportional control loops and their application in industry. This course will focus on the understanding of those systems used in the process control industries. (S)

ELEC 254 Instrumentation and Control Systems (4)

This lecture/lab course covers the concepts of process control. Concepts include the terminology and functions of the devices used in control systems. The primary focus of this course will be on the role the controller plays in a process. (S)

ELEC 255 Process Measurement and Control Valves (4)

This lab/lecture course deals with the operation and function of devices used to measure the process output of a control loop. Control valves and actuators are also included. Lab time is spent on experimentation and calibration of the devices. (S)

ELEC 261 Electronic Communications (5)

A lecture course covering the various types of transmission of intelligence over distance by RF carrier. This course begins with the limiting effects of bandwidth, spectrum and noise on RF communications. Various types of modulation are introduced and continues with the types of circuitry utilized in RF communications. Antenna and transmission line theory and wave propagation is also covered. Prerequisite: ELEC 140. (S)

ELEC 262 Electronic Communications II (3)

This lecture course is a continuation of RF communications topics. Topics covered include digital communications, basic television, satellite communications, GPS and cellular systems. Prerequisite: ELEC 261. (S)

ELEC 265 FCC License Preparation (1)

A course to assist the student in preparing for the Federal Communication Commissions General Radiotelephone License examination. This license is required for maintenance of transmitters in the aviation, maritime or international broadcast field. Prerequisite: ELEC 261. (S)

ELEC X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

ELEC 297 Cooperative Education (1-5)

Cooperative Education offers students the opportunity to integrate career, social and personal development into the educational process. The cooperative education program allows students to integrate classroom study with a paid work experience related to their fields of study. It is recommended that a student has successfully completed one year of academic study. (F, S)

ELEC 299 Special Topics (1-15)

A course designed to meet special departmental needs.

(EMS) EMERGENCY MEDICAL SERVICES**EMS 100 Emergency Medical Responder (EMR) (2 credits)**

This is an entry-level emergency medical responder (EMR) course which will prepare the student for employment or a volunteer position in a variety of pre-hospital settings. This course will prepare students to provide initial stabilizing care to the sick or injured prior to the arrival of a higher level of Emergency Medical Services (EMS) professionals. This course focuses on the core skills, knowledge and protocols within the EMR scope of practice as defined by the U.S. Department of Transportation. Students will be prepared to identify, assess, manage, and treat various types of pre-hospital traumatic and medical emergencies. (F, S, Su)

EMS 101 Introduction into EMS (2)

This course prepares students with the fundamentals of Emergency Medical Services (EMS). During this course, students will learn about the history of EMS, EMS systems and operations, legal and ethical aspects of EMS, documentation, and disaster and initial hazmat response in EMS. (F, S, Su)

EMS 110 EMT Fundamentals (2)

This is an introductory course which will prepare the student to work in the emergency medical field as an Emergency Medical Technician (EMT). This course will prepare the student to identify, assess, manage, and treat various types of pre-hospital traumatic and medical emergencies. The student will learn to perform various aspects of emergency medical care and ambulance operations under the scope of practice set forward by the U.S. Department of Transportation. (F, S, Su)

EMS 110L EMT Fundamentals Lab (1)

The purpose of the laboratory is to discuss, perform and relate the concepts taught in the EMT fundamentals course. This will be done in group discussion, group and individual scenarios. This is a hands-on course where the physical and mental skills necessary for the appropriate assessment and treatment of patients will be taught and tested in small groups and/or individually. Students should be prepared for rigorous questioning and skill demonstration in front of the instructor and their peers. (F, S, Su)

EMS 110P EMT Practicum (1)

This course will introduce the EMT student to pre-hospital operations and patient care. During this course, students will have the opportunity to ride with ambulance services and assist preceptors in the care of pre-hospital patients. The student will function under the direction of a preceptor. (F, S, Su)

EMS 150 AEMT Fundamentals (2)

This course will prepare the student for careers at the next level of pre-hospital emergency medicine. In this course students will learn to identify, assess, manage, and treat various types of pre-hospital traumatic and medical emergencies. The primary focus of the Advanced Emergency Medical Technician (AEMT) is to provide basic and limited advanced emergency medical care and transportation for critical and emergency patients under the scope of practice set forward by the U.S. Department of Transportation. (S)

EMS 150L AEMT Fundamentals Lab (1)

The purpose of the laboratory is to discuss, perform and relate the concepts taught in the AEMT fundamentals course. This will be done in group discussion, group and individual scenarios. This is a hands-on course where the physical and mental skills necessary for the appropriate assessment and treatment of patients will be taught and tested in small groups and/or individually. Students should be prepared for rigorous questioning and skill demonstration in front of the instructor and their peers. (S)

EMS 170 Trauma I (2)

This course prepares the student to identify, assess, manage, and treat various types of trauma emergencies. This is the first of a two-part series. (S)

EMS 180 Pharmacology I (1)

This is part one of a two-part series that prepares the students for the objectives associated with pharmacology in the pre-hospital setting. Students will learn the pathophysiological effects of drugs on the body and medications associated. (S)

EMS 201 Systems and Communications in EMS (1)

This is an introductory course for students pursuing the Paramedic (EMT) Technology program. It will build on the knowledge gained during the student's EMT-basic education and experiences as well as introducing the student to the expanded role of the paramedic. Topics include but are not limited to: roles and responsibilities, illness and injury prevention, history of EMS, medical/legal issues and ethics. (F)

EMS 203 Pharmacology II (2)

This is the second of a two-part course that prepares the students for the objectives associated with pharmacology in the pre-hospital setting. Students will learn advanced pathophysiological effects of drugs on the body and medications associated with advanced treatment modalities. (F)

EMS 204 Medical Emergencies I (2)

This course is the first of a two course series that prepares the paramedic to identify, assess, manage, and treat various medical emergencies. Topics include neurology, endocrinology, immunology, infectious diseases, gastroenterology and associated interventions. (F)

EMS 205 Medical Emergencies II (2)

This course is the second course of a two course series that prepares the paramedic to identify, assess, manage, and treat various medical emergencies. Topics include toxicology, urology, hematology, environmental conditions, behavioral and psychiatric disorders, and associated interventions. (S)

EMS 207 Special Populations in EMS (2)

This course prepares the paramedic student to identify, assess, manage, and treat age related emergencies and other special patient population challenges. This course also introduces the paramedic student to the breadth of teamwork with fellow healthcare, first responder and public safety entities. (S)

EMS 209 Advanced Medical Life Support (2)

In this course students will enhance their skills in treating adult victims of cardiac arrest or other cardiopulmonary emergencies, while earning their American Heart Association ACLS (AHA ACLS) for Healthcare Providers Course Completion Card. Students will also use a series of simulated pediatric emergencies to reinforce the important concepts of a systematic approach to pediatric assessment, basic life support, treatment algorithms, effective resuscitation and team dynamics, while earning their American Heart Association PALS (AHA PALS) for Healthcare Providers Course Completion Card. This will be done in group discussion, group and individual scenarios. This is a hands-on course where the physical and mental skills necessary for the appropriate assessment and treatment of patients will be taught and tested in small groups and/or individually. Students should be prepared for rigorous questioning and skill demonstration in front of the instructor and their peers. (Su)

EMS 215 Cardiology (4)

This course prepares the paramedic student to identify single and multi-lead cardiac rhythms and treat those rhythms considered to be life-threatening with electrical and pharmacological therapy. Skills include, but are not limited to assessment, defibrillation, cardioversion and cardiac rhythm interpretation. (F)

EMS 217 Pulmonology (3)

The course introduces the paramedic student to basic and advanced airway management concepts. Students will understand the intricacies of airway assessment, airway adjuncts, bag-valve-mask, Combitube, EOA, LMA, and intubation. (F)

EMS 218 Cardio-pulmonology (1)

This course prepares the paramedic student to utilize their introductory knowledge of airway management, pharmacology, cardiac conditions and other concepts to understand, recognize and treat various advanced airway conditions. (S)

EMS 219 Trauma II (1)

This course prepares the student to identify, assess, manage, and treat various types of trauma emergencies and prepares the student to perform various aspects of ambulance operations. This is the second in a two-part series and moves into more advanced assessments and treatments. (S)

EMS 222 Medical Emergencies (4)

This course prepares the paramedic to identify, assess, manage, and treat various medical emergencies. Topics include pulmonology, neurology, endocrinology, immunology, infectious diseases, gastroenterology, toxicology, urology, hematology, environmental conditions, behavioral and psychiatric disorders, and associated interventions. (S)

EMS 231 Paramedic Lab I (2)

This is the first in a series of three paramedic lab courses. The purpose of the laboratory is to discuss, perform and relate the concepts taught in the paramedic didactic courses. This will be done in group discussion, group and individual scenarios. This is a hands-on course where the physical and mental skills necessary for the appropriate assessment and treatment of patients will be taught and tested in small groups and/or individually. Students should be prepared for rigorous questioning and skill demonstration in front of the instructor and their peers. (S)

EMS 232 Paramedic Lab II (2)

This is the second in a series of three paramedic lab courses. The purpose of the laboratory is to discuss, perform and relate the concepts taught in the paramedic didactic courses. This will be done in group discussion, group and individual scenarios. This is a hands-on course where the physical and mental skills necessary for the appropriate assessment and treatment of patients will be taught and tested in small groups and/or individually. Students should be prepared for rigorous questioning and skill demonstration in front of the instructor and their peers. (S)

EMS 233 Paramedic Lab III (1)

This is the third in a series of three paramedic lab courses. The purpose of the laboratory is to discuss, perform and relate the concepts taught in the paramedic didactic courses. This will be done in group discussion, group and individual scenarios. This is a hands-on course where the physical and mental skills necessary for the appropriate assessment and treatment of patients will be taught and tested in small groups and/or individually. Students should be prepared for rigorous questioning and skill demonstration in front of the instructor and their peers. (Su)

EMS 234 Paramedic Simulation Lab (1)

The simulation lab is designed to present paramedic students with clinical and field simulation, in a controlled setting, to engage the student and evaluate their skills development, knowledge base and critical thinking skills. This course allows students the opportunity to learn in a risk-free environment, and to improve competence, practice mastery of their patient assessment and management and advance their efficiency. This is a hands-on course where the physical and mental skills necessary for the appropriate assessment and treatment of patients will be taught and tested in small groups and/or individually. Students will receive the opportunity for self-reflection and should be prepared for rigorous questioning and skill demonstration in front of the instructor and their peers to promote an enhanced practicum experience. (F)

EMS 241 Advanced Provider Practicum I (2)

This course will give the student the opportunity to learn and expose the student to real life EMS experiences (BLS and ALS). This course will expose the student to ALS skills, assessments, and other ALS knowledge as well as continue creating a solid BLS foundation. The student will function under the direction of a preceptor. (F, S)

EMS 242 Advanced Provider Practicum II (4)

This course will give the student the opportunity to apply the material learned in the didactic courses to real life EMS experiences. This course will place emphasis on ALS assessments, ALS skills, ALS knowledge as well as continue creating a solid BLS and ALS foundation. The student will function under the direction of a preceptor. (S)

EMS 243 Capstone in Paramedicine (3)

This course determines the preparedness of the student for work in the paramedicine field. All previous coursework will be used by the student to successfully lead an ambulance crew through all patient encounters. Students completing this course will be entry-level competent paramedics. The student will function under the direction of a preceptor and will input patient contact information into the FSDAP data collection system, ESO and the Moodle database. (Su)

EMS 290 Introduction to Community Paramedicine (3)

This course will cover the fundamentals of community paramedicine. It will include the topics of the roles of the community paramedic, social determinants of health, public health, cultural competencies, and safety/wellness of the provider. (F, S, Su)

EMS 291 Medical Issues in Community Paramedicine (4)

Students will learn and discuss assessment techniques, lab procedures, special and home health equipment and the diseases they are most likely to encounter in this role. (F, S, Su)

EMS 291L Medical Issues in Community Paramedicine Lab (1)

Students will learn and practice assessment techniques, lab procedures, special and home health equipment and the treatments for diseases they are most likely to encounter in this role. Corequisite: EMS 291. (F, S, Su)

EMS 298 Community Paramedicine Clinical Experience (2)

This course will put the student into primary and specialty care areas in order gain a deeper understanding of disease processes they may encounter. Course objectives mirror EMS 291 but are applied or observed in a live environment. This class includes a mix of sites from the Fargo-Moorhead area and/or sites local to the student. (F, S, Su)

EMS X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

EMS 299 Special Topics (1-15)

A course designed to meet special departmental needs.

(ENGL) ENGLISH**ENGL 105 Technical Communications (3 credits)**

This course concentrates on business correspondence, informal report writing, technical communication, job preparation, and oral presentation. Prerequisite: Placement test. (F, S, Su-Online)

ENGL 110 College Composition I (3)

An introduction to college-level writing as a process of drafting, revising and editing. This course emphasizes critical reading, writing, thinking and research skills as students write for a variety of audiences and purposes. Students will receive guided instruction in the writing process as they begin writing based on personal experiences. An introduction to proper crediting of source material and research will occur toward the end of the course. Prerequisite: Placement test. (F, S, Su, O) *ND:ENGL*

ENGL 120 College Composition II (3)

Continued practice of college-level writing process and strategies, building on skills learned in English 110. This course refines critical reading, writing, thinking and research skills. Students will practice summary and analysis of texts, as well as synthesizing information from primary and secondary sources. Writing assignments will emphasize logical argument, persuasion and collaboration. Major assignments will require proper crediting of source material and research. Prerequisite: English 110. (F, S, Su, O) *ND:ENGL*

ENGL 125 Introduction to Professional Writing (3)

Advanced practice in college-level writing which emphasizes writing and research in professional settings. Prerequisite: English 110. (F, S-Online, Su-Online) *ND:ENGL*

ENGL 207 Language Studies: Conversational English and American Studies (3)

Assistance in improving English language skills, including listening, speaking, reading and writing for non-native speakers. Also meant to introduce non-native speakers to the culture of the United States through literature, history, music and art. Most important will be the development of spoken English language skills. (F)

ENGL 211 Introduction to Creative Writing (3)

A flexible, introductory workshop course that will introduce students to various genres of creative writing including fiction, poetry, drama and many of the genres found in creative nonfiction. This course concentrates on the techniques, the process and the products valuable to writers of creative writing by providing creative literary works for students to read, respond to, and discuss. (S-Online) *ND:HUM*

ENGL 220 Introduction to Literature (3)

Introduction to Literature studies conventions and characteristics of three genres of literature (fiction, poetry, and drama) and is particularly recommended for students new to the study of literature. Students study terminology and literary concepts in order to interpret, analyze, and critically evaluate selections from stories, poems, and plays. (As needed) *ND:HUM*

ENGL 232 Mythology (2-3)

The study of representative myths, legends and folklore from various cultures with emphasis upon the literary aspects of myth. Standard Greek and Roman myths will be covered as well as significant myths from other cultures. The third credit is optional and requires a major research project. (S) *ND:HUM*

ENGL 240 World Literature Masterpieces (3)

World Literature explores the literature of varied cultures from ancient to modern times. Readings include selected works from many cultures, genres and epochs including selections from India, Asia, Africa, Europe and the Americas. (F-Online) *ND:HUM*

ENGL X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

ENGL 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(ENGR) ENGINEERING

ENGR 212 Fundamentals of Visual Communications (3 credits)

Orientation of job functions in an engineering department along with learning tools of the engineering and technical management professions. Emphasis on hand sketching, print reading, drafting standards, engineering changes and revision documentation for manufacturing and industry. Create visual communications of designs for manufacturing. Understand all phases of design and how to develop three dimensional models using SolidWorks. Emphasis on sketching, parametric modeling of parts, assemblies and critical dimensioning of orthographic drawings for manufacturing and industry. (F)

ENGR X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

ENGR 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(FYE) FIRST YEAR EXPERIENCE

FYE 101 Science of Success (1 credit)

This is a practical one-credit course that provides the tools and skills necessary to get a strong start with the transition for new students at NDSCS. This course will introduce students to campus resources, policies and procedures and cover topics such as time management, study skills, goal setting, wellness, financial literacy and professional development. (F, S, O)

(GEOG) GEOGRAPHY

GEOG X92 Experimental Course (1-9 credits)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

GEOG 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(GEOL) GEOLOGY

GEOL X92 Experimental Course (1-9 credits)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

(HEM) HEMODIALYSIS

HEM 101 Hemodialysis Technology I (4 credits)

Introduction of dialysis technician role in dialysis in an outpatient setting. Identifies normal renal function, causes of renal failure, and principles of dialysis, equipment used in dialysis, specific requirements for hemodialysis and the responsibilities of the dialysis technician. The class meets for 64 hours approximately 2 days a week. (F)

HEM 101L Hemodialysis Technology I Lab (3)

This course provides supervised lab and clinical experiences in which the student applies the theories in the care of dialysis clients. The student will apply the theories and principles of dialysis in the lab and clinical setting. Emphasis is placed on the role and responsibilities of the dialysis technician in the outpatient dialysis center. Class meets for 64 hours in the lab setting and 96 hours of clinical in the outpatient dialysis setting. The class meets for 48 hours of lab and 24 hours of clinical. (F)

HEM 102 Hemodialysis Technology II (3)

This course focuses on the clinical environment for the delivery of hemodialysis and the dialysis technician role in an outpatient setting. Course covers diet and nutrition, dialysis medication, procedures and complication of dialysis, water treatment and dialysis preparation, infection control, safety, patient education, and documentation. This class meets for 38 hours approximately 2 days per week. (S)

HEM 102L Hemodialysis Technology II Lab (3)

This course provides supervised lab and clinical experience in which the student applies the theories in the care of dialysis clients. The student will apply the theories and principles of dialysis in the lab and clinical setting. Emphasis is placed on the role and responsibilities of the dialysis technician in the outpatient dialysis center. Class meets for 24 hours in the lab setting and 64 hours of clinical in the outpatient dialysis setting. (S)

HEM 103 Hemodialysis Technology Practicum (4)

This course provides supervised clinical experiences in which the student applies the theories in the care of dialysis clients. The student will apply the theories and principles of dialysis in the clinical setting. Emphasis is placed on the role and responsibilities of the dialysis technician in the outpatient dialysis center. This is the capstone course and students will be assigned to 192 hours of practicum. (S)

HEM X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

HEM 299 Special Topics (1-9)

A course designed to meet special departmental needs

(HIST) HISTORY

HIST 101 Western Civilization I (3 credits)

An introductory survey of early Western civilization. This course examines the ancient beginnings of civilization with emphasis given to the great civilizations of the Middle East and Southern Europe. The study includes the Byzantine Empire and the development of Western Europe, culminating with the Renaissance. (F) *ND:HIST*

HIST 102 Western Civilization II (3)

An introductory survey of recent Western civilization. The Reformation and Modern Europe are discussed with emphasis on the religious changes, the growth of nation-states, the Napoleonic era, the Industrial Revolution and World War I and II. (O) *ND:HIST*

HIST 103 United States History to 1877 (3)

A survey of U.S. History to 1877 examining the discovery, colonization and establishment of the United States. This course emphasizes the reasons for European immigration and their effects on the development of the United States. Changes in the American government, the Westward movement, land acquisitions and slavery are presented. The Civil War and Reconstruction receive major coverage. (F) *ND:HIST*

HIST 104 United States History Since 1877 (3)

A survey of United States history since 1877. An introduction of America's entry into world politics and its prominence in the Industrial Revolution with a study of progressivism and political change. America's entry into World War I and its outcome also are examined as well as the New Era, the 1920s, and the events which led to economic disaster. FDR's presidency, the Depression and World War II are explored. The Cold War, the complacent years of Truman and Eisenhower, the 1960s, Vietnam and Watergate are discussed. The Reagan and Bush administrations and the new order in Eastern Europe are also presented. (F, S) *ND:HIST*

HIST 207 United States and Current World Affairs (3)

Study of the nature of contemporary political communities around the world, with emphasis on the United States. A special focus of the course is the examination of global and multicultural issues related to the problems of specific world communities. Cross reference: POLS 103. (F) *ND:HIST*

HIST 220 North Dakota History (3)

A survey of North Dakota history including the government and its people. Emphasis is given to geography, the early history of the state prior to statehood and modern history following statehood to the present. (S) *ND:HIST*

HIST 260 Women in America (3)

Women in America from pre-colonial to the present. Focuses on experiences of typical women of the past, including minorities. (S) *ND:HIST*

HIST X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

HIST 299A Special Topics in History (1-3)

Topics in United States history and/or European history to be offered on the basis of student interest. Prerequisite: HIST 104 or HIST 102 or instructor consent. (Upon demand)

HIST 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(HIT) HEALTH INFORMATION**HIT 176 Introduction to Health Information (4 credits)**

An overview of health systems and the health information profession. Students will study the content, use and structure of health records, including data and data sets, primary and secondary records. Students will be introduced to legal and ethical issues, HIPAA privacy, confidentiality, security standards, and other health information laws and regulations. Students will use virtual health record applications. Web-based instruction. Prerequisites: None. (F, O)

HIT 180 Pathopharmacology (3)

Emphasis is on the specific disease processes affecting the human body systems via an integrated approach to specific disease entities, including the study of causes, diagnosis, and treatment of disease. Pharmacology study of drug action, including the absorption, distribution, metabolism, and excretion of drugs by the body. Emphasis on most commonly prescribed drugs, a drug formulary, matching drugs to common conditions and lab findings. Web-based instruction. Prerequisites and Corequisites: None. (S, O)

HIT 181 Healthcare Delivery Systems (3)

A study of health information management in various health care settings (e.g. long-term care, home health care, ambulatory care, and mental health/drug and alcohol treatment services). Includes documentation requirements, licensure and accreditation standards, quality improvement, reimbursement, utilization, and risk management. Web-based instruction. Prerequisite: HIT 176. (S, O)

HIT 184 Basic Diagnosis Coding (3)

An introduction to the basic coding guidelines using the current coding classification system. Students will practice the application of diagnosis and procedure codes, validating coding accuracy using clinical information found in the health record. Ethical coding standards will be applied and promoted while adhering to current regulations and established guidelines in code assignment. Encoding systems and software with practice applications are included. Web-based instruction. Prerequisites: BOTE 171, BIOL, 220/220L. Corequisite: HIT 180, BIOL 221/221L. (S, O)

HIT 185 Basic Procedure Coding (3)

An introduction to the basic coding guidelines of the Current Procedural Terminology (CPT) nomenclature. Students will practice the application of CPT/HCPCS codes, validating coding accuracy using clinical information found in the health record. Ethical coding standards will be applied and promoted while adhering to current regulations and established guidelines such as the National Correct Coding Initiative. Encoding systems and software with practice applications are included. Web-based instruction. Prerequisites: BOTE 171 or BIOL 220/220L. Corequisite: HIT 180, BIOL 221/221L. (S, O)

HIT 197 Professional Practice I (1)

A virtual internship following completion of all first year courses. Provides an overview of health information services and hands-on experience with technical skills in an online environment designed to simulate the activities that would be completed in a HIM setting. Web-based instruction. Prerequisites: All first year HIT program courses. (Su, O)

HIT 197C Practicum (2)

A combination of a virtual and field-based coding practicum. Students will practice code assignment using a variety of authentic health record types. Students will use a logic-based encoder and apply coding references. The 30-hour onsite component will include additional clinical code assignment and billing methodologies, working alongside a coding professional(s). Emphasis on building speed and accuracy in coding. Web-based instruction. Prerequisite: All program courses. (O - September)

HIT 281 Health Law, Privacy and Ethics (3)

The study of health law, privacy and ethical issues. Application of healthcare legal terminology, concepts, and principles to legal documents related to the practice of HIM. Confidentiality, privacy and security measures will be addressed related to access and disclosure of health information. Study of retention and destruction policies and system security policies. Compliance with laws, regulations and guidelines will be discussed. Health records and health information software applications are used. Web-based instruction. Prerequisite: HIT 176. (S, O)

HIT 282 Health Information Data and Management (4)

A study in the compilation and interpretation of healthcare statistics for clinical indices/databases/registries. Statistical applications and analysis of health care data will be introduced, including concepts related to data quality and integrity. Management topics will include leadership roles, teams, staffing, productivity, labor laws, training and development, strategic planning, financial management, and project management. Software applications will be used for organization, analysis, and presentation of data. Web-based instruction. Prerequisite: HIT 176. (F, O)

HIT 284 Health Care Quality Management (3)

A study of work design and process improvement, utilization management and risk management in health care with a focus on information integrity, data quality and data governance. Other topics include credentialing and medical staff services, teams and committees. Laws, accreditation and regulatory standards will be discussed. Software applications will be used. Prerequisite: HIT 176. (F, O)

HIT 285 Reimbursement Methodologies (3)

A study of health care revenue management including reimbursement, revenue cycle, and chargemaster processes and procedures. Claims practices of major health insurance programs and federal health care initiatives are presented. Compliance strategies, clinical documentation improvement, fraud surveillance measures, and reporting requirements will be discussed. Ethical standards of practice will be applied and promoted. Organization, analysis and presentation of data using software applications. Web-based instruction. Prerequisites: HIT 176, HIT 184, HIT 185. (S, Su, O)

HIT 286 Intermediate Diagnosis Coding (3)

An in-depth study in the application of diagnosis coding to higher level case scenarios using the current classification systems, including diagnosis and procedure coding reviews. Prospective payment systems and SNOMED will be studied. Coding compliance and ethical coding practice reinforced. Grouping system application encoder software will be used. Web-based instruction. Prerequisites: HIT 176, HIT 184, HIT 185. (S, Su, O)

HIT 287 Computer Applications in Health Care (3)

Introduction to systems and common software applications and their use in healthcare informatics including data quality, database architecture and design, health information exchange, data storage and retrieval. System evaluation and acquisition and project management will be discussed. Use of PHRs and patient portals will be explored. Web-based instruction. Prerequisite or Corequisite: HIT 176. (F, O)

HIT 288 Intermediate Procedure Coding (3)

An in-depth study in the application of procedure coding to higher level case scenarios using current classification systems, including diagnosis and procedure coding reviews. Procedure based payment systems will be studied. Coding compliance and ethical coding practice reinforced. Grouping system application and encoder software will be used. Web-based instruction. Prerequisites: HIT 176, HIT 184, HIT 185. (S, Su, O)

HIT 297 Professional Practice II (2)

A virtual and onsite internship following completion of all program courses. Provides hands-on experience with technical skills in an online environment designed to simulate the activities that would be completed in an HIM setting. 40 hours are spent at a HI-related site. Prerequisites: All HIT program courses. (S)

HIT X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

HIT 299 Special Topics (1-4)

A course designed to meet special departmental needs. (F, S, Su)

(HPER) HEALTH/PHYSICAL EDUCATION/RECREATION

HPER 100 Concepts of Fitness and Wellness (2 credits)

A course designed for students of all ages that teaches the facts about exercise and physical fitness. This course is designed to teach the student the role of physical activity in maintaining adequate health and improved quality of life. Also, how to assess, develop and implement a complete lifetime fitness and wellness program and its components. The course is designed to incorporate these ideas through lecture and activity. (F, S, O)

HPER 101 Activity: Intro Level

(Aerobics) (1): Active participation in aerobic activities. Activities include aerobic dance, water aerobics, walking, yoga and aerobic games. (As needed)

(Aquatic Games) (1): In this course students will participate in aquatic games and activities. Students will learn team activities. Students will participate in the shallow water with activities such as water volleyball and water hockey extending into the length of the 25 yard pool to participate in such activities as water football and kickball. (As needed)

(Archery) (1): Active participation in archery involving fundamentals and techniques of basic skills. Stresses shooting techniques, practice for accuracy, and care of equipment. Emphasis on terminology and archery safety rules. (F, Su)

(Beginning and Intermediate Swimming) (1): Teaches swimmers not to fear water, also floating and progressing from basic beginning strokes to more advanced strokes for the intermediate swimmer. (As needed)

(Beginning Downhill Skiing) (1): A course for beginners. Two class meetings plus 20 to 24 hours in instruction and/or practice on nearby commercial slopes. (S)

(Biking and Camping) (1): The active participation in biking and camping over two days in a group setting. Biking is done on the park bike trails of Itasca State Park, Itasca, Minnesota. Covers outdoor activities related to camping such as campfire preparation, no trace camping and outdoor cooking. Students participate in two class meetings and one weekend retreat. Bicycles are provided. (F)

(Billiards and Darts) (1): Active participation in billiards and darts involving fundamentals and techniques of basic skills. Stresses techniques, practice for consistency and care of equipment. Emphasis on terminology, rules, scoring and playing strategy. (F, S)

(Camping and Hiking) (1): Active participation in camping and hiking and the following related activities: planning campfire meals, campsite set up, campfire preparation, campfire cooking, safety, no trace camping, tenting and evening camping entertainment. Students participate in two class meetings and perform the camping and hiking activities during the weekend retreat. Little Yellowstone State Park in Kathryn, North Dakota is a favorite camping and hiking location. (S)

(Intro Level Golf) (1): This course covers active participation in beginning golf. A course designed for beginners. It teaches the beginner the proper grip, stance, swing and rules. (F)

(Intro to Basketball) (1): Students will have an opportunity to learn intermediate basketball skills through demonstration and discussion of strategies for team play. This course will advance the skills of the student who successfully completed the beginning basketball course. Emphasis is on individual participation and competition team play. (As needed)

(Intro to Ice Fishing) (1): A course designed for beginners who will partake in active participation in ice fishing. Class participants will attend two meetings and one weekend outing. Upon completing requirements a grade will be issued. In order to receive a passing grade, participant must attend two days of ice fishing. (As needed)

(Power Walking) (1): Whether this is your first experience in exercise walking, or you are a walking pro, this course provides the fundamentals of power walking techniques, mechanics and flexibility exercises. (As needed)

(Snowboarding) (1): This class is a course for beginners. Two class meetings plus 20 to 24 hours in instruction and/or practice on nearby commercial slopes. (As needed)

(Social Dance) (1): Emphasis on such basic steps as jitterbug, waltz, two-step, polka, fox trot and a few folk dances. Emphasis on dancing the above and distinguishing the differences in the music. (S)

(Strength Training) (1): Active participation in physical activity. A combination of free weights, weight machines and various stations will be utilized in an attempt to improve strength and endurance. (As needed)

(Tae Kwon Do) (1): To introduce students to the basic skills and terminology of Tae Kwon Do, self-defense, physical and mental wellness. (As needed)

(Team Sports) (1): Active participation in seasonal activities including flag football, softball, volleyball and basketball. (As needed)

(Tenting and Canoeing) (1): Covers the active participation in tenting and canoeing in a group setting over two days. Canoeing is done on the Crow Wing River through the Menahga-Huntersville area of Minnesota. Includes outdoor activities related to camping such as outdoor cooking, safety, no trace camping and evening camping recreational activities. Students participate in two class meetings and one weekend retreat. Canoes are provided. (F)

(Trapshooting) (1): This course will be an introductory level course on the art of trapshooting. Safety and etiquette will be a priority and a must! Student will gain an insight into the history, technique, and experience single and skeet shooting. (F, S, Su)

(Wallyball/Volleyball and Racquetball) (1): Active participation in wallyball, volleyball and racquetball with emphasis on basic skills, strategy, rules and terminology. (As needed)

(Water Aerobics) (1): The purpose of this class is to provide the student with an appropriate level of knowledge and skills in water fitness. Vigorous water activities can make a major contribution to the flexibility, strength, and circulatory endurance of individuals. Pressure of the water on the body helps promote deeper ventilation of the lungs, blood circulation automatically increases, and with well-developed activities, both circulation and ventilation increases still more. (As needed)

(Women's Self-Defense) (1): This course will require active participation in the R.A.D. Systems Basic Self-Defense with instruction involving fundamentals and techniques of basic skills. Stressing self-defense techniques, practice for muscle memory and physical exercise. Emphasis on concepts and technique presented. (As needed)

HPER 102 Activity: Intermediate Level

(Advanced Circuit Training) (1): Active participation in physical activity. A combination of free weights, weight machines and various stations will be utilized in an attempt to improve strength and endurance. Designed for the varsity athlete as a supplement to his or her sport. (Hours arranged)

(Advanced Physical Conditioning) (1): Active participation in physical activity. A combination of free weights, weight machines and plyometric exercises will be utilized in an attempt to improve overall physical condition. Designed for the varsity athlete as a supplement to his or her sports. (Hours arranged)

(Advanced Weight Lifting) (1): Active participation in weight lifting. Emphasis on the use of free weights. Stressing strength and endurance development. Designed for the varsity athlete as a supplement to his or her sport. (Hours arranged)

(Advanced Weight Training) (1): Active participation in weight training. A combination of free weights and weight machines are utilized in an attempt to develop and maintain muscle tone. Designed for the varsity athlete as a supplement to his or her sport. (Hours arranged)

HPER 110 Sports Officiating (2)

This course will acquaint students with the rules, qualifications, ethics, techniques, conduct, proper signals and appearance of officiating high school football, basketball and volleyball. Students will also observe and officiate. (F, S)

HPER 150 Athletic Participation

(Basketball) (2): Daily practice and participation in intercollegiate basketball. (F)

(Football) (2): Daily practice and participation in intercollegiate football. (F)

(Softball) (2): Daily practice and participation in intercollegiate softball. (F)

(Volleyball) (2): Daily practice and participation in intercollegiate volleyball. (F)

HPER 151 Athletic Participation

(Basketball) (1): Daily practice and participation in intercollegiate basketball. (S)

(Football) (1): Daily practice and participation in intercollegiate football. (S)

(Softball) (1): Daily practice and participation in intercollegiate softball. (S)

(Volleyball) (1): Daily practice and participation in intercollegiate volleyball. (S)

HPER 197 Practicum in Sports Medicine I (1)

Practicum in Sports Medicine I provides the student athletic trainer with the basic knowledge of policies and procedures of the training room facility. It introduces students to the athletic department members, college athletic team atmosphere, and athletic injury care. Students learn basic athletic injury treatment and first aid procedures through hands-on contact with varsity athletes. Students observe varsity practices and games throughout the semester. Practicum in Sports Medicine I is an arranged time schedule and takes place under the direct supervision of a Certified Athletic Trainer. (F)

HPER 200 Introduction to Parks and Recreation (2)

A beginning course in the study of recreational programs including those in parks, schools, youth agencies, therapeutic institutions, camps, industry and municipal youth agencies. (F)

HPER 201 Introduction to Coaching (2)

This course is designed to allow students to acquire knowledge in base fundamentals of specific skills and positions. Develop a framework of beliefs on issues within the sport. Devise a process of game plan preparation. (F, S)

HPER 207 Prevention and Care of Injuries (3)

This course will provide students with the principles of athletic training. Students will learn prevention, recognition, treatment of athletic injuries, organization and administration of athletic training and basic taping techniques. (S)

HPER 208 Introduction to Physical Education (2)

Designed for students who may be considering a career as a qualified teacher in physical education. Covers the history, philosophy, principles, nature and scope of the professional field of physical education. Related career opportunities in the fields of fitness and sport are also examined. (S)

HPER 210 First Aid and CPR (2)

Provide students with the knowledge and skills necessary to respond to an emergency; to call for help, to help keep someone alive, to reduce pain, and to minimize the consequences of injury or sudden illness until professional medical help arrives. This course is outlined by the American Heart Association and will follow those guidelines. Certification cards are given upon request and only after successfully completing the course. The student must score at or above the 84th percentile on all written exams for certification. (F, S, O)

HPER 213 Taping and Bracing (2)

Taping and bracing will focus on the stabilizing procedures used to assist in the healing process of athletic injuries. A hands-on approach will be used throughout the course. (F)

HPER 217 Personal and Community Health (3)

Focuses on current health attitudes and habits needed for life management skills. Proper health habits, lifestyle management, fitness, nutrition, mental health, stress management, drug usage, heart disease, cancer, human sexuality, childbirth, consumer health and health programs are covered. (S, O)

HPER 218 Personal Trainer Preparation (3)

This course is designed to prepare and qualify students to work as personal trainers. The course bridges the gap between exercise science related course work and the practical skills of personal training. (O)

HPER 220 Emergency Medical Technician I (4)

This class will provide an introduction to Emergency Medical Services (EMS). The roles and responsibilities of the EMT-Basic will be discussed, as well as basic anatomy and physiology, initial patient survey and triage, physical assessment, and interventions for the pre-hospitalized patient. Students will also receive practice in the laboratory setting and gain experience in local clinical settings. (S, Su-Fargo)

HPER 250 Athletic Participation

(Basketball) (2): Daily practice and participation in intercollegiate basketball. (F)

(Football) (2): Daily practice and participation in intercollegiate football. (F)

(Softball) (2): Daily practice and participation in intercollegiate softball. (F)

(Volleyball) (2): Daily practice and participation in intercollegiate volleyball. (F)

HPER 251 Athletic Participation

(Basketball) (1): Daily practice and participation in intercollegiate basketball. (S)

(Football) (1): Daily practice and participation in intercollegiate football. (S)

(Softball) (1): Daily practice and participation in intercollegiate softball. (S)

(Volleyball) (1): Daily practice and participation in intercollegiate volleyball. (S)

HPER X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

HPER 297 Practicum in Sports Medicine II (1)

The purpose of Practicum in Sports Medicine II is to give further instruction toward the principles and practices of athletic training. The instruction will be hands-on and will take place on on-campus facilities under the direction of a Certified Athletic Trainer. Practicum schedule will be arranged individually for the entire semester. (S)

HPER 299 Special Topics (1-4)

A course designed to meet special departmental needs.

(HUM) HUMANITIES

HUM 250 Norwegian Cultural Studies (3 credits)

This course will provide an introduction to the culture, language, and literature of Norway. It will examine cultural and historical topics representative of traditional and modern Norwegian society, including literature, film, history, arts, folk customs, education, and current events. In addition, students will develop a rudimentary proficiency in writing, speaking, and reading Norwegian by learning the fundamentals of Norwegian vocabulary, grammar, and syntax. (F)
ND:HUM

Humanities courses include: Music Appreciation (MUSC 100), Fundamentals of Music (MUSC 101); Mythology (ENGL 232); World Literature Masterpieces (ENGL 240); Ethics (PHIL 210) and World Religions (RELS 203).

(HVAC/R) HEATING, VENTILATING, AIR CONDITIONING AND REFRIGERATION TECHNOLOGY

HVAC/R X92 Experimental Course (1-9 credits)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

HVAC/R 297 Cooperative Education (1-5)

Cooperative Education offers students the opportunity to integrate career, social and personal development into the educational process. The cooperative education program allows students to integrate classroom study with a paid work experience related to their fields of study. It is recommended that a student has successfully completed one year of academic study.

HVAC/R 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(JDAT) JOHN DEERE TECH

JDAT 105 Supervised Occupational Experience I (2 credits)

The student will receive on-the-job experience at a John Deere dealership prior to the first-semester, on-campus classes. This will mainly consist of shadowing personnel in the three areas of the service department. Two weeks will be spent in the set-up area, two weeks in the combine area and two weeks in the tractor area. This work experience will be supervised by the NDSCS John Deere Tech coordinator. (Su)

JDAT 106 John Deere Time Service Management (2)

This course covers operational policies followed by the dealership service department. Included will be discussion on time service management, publications, tech manuals, DTAC and service advisor.

JDAT 110 Supervised Occupational Experience II (5)

The student will receive on-the-job experience in a John Deere dealership. This will allow the student to practice and utilize the skills and knowledge learned during the previous on-campus instructional period. This work experience will be supervised by the NDSCS John Deere Tech coordinator. (S)

JDAT 114 Supervised Occupational Experience III (5)

The student will receive on-the-job experience in a John Deere dealership. This will allow the student to practice and utilize the skills and knowledge learned during the previous on-campus instructional period. This work experience will be supervised by the NDSCS John Deere Tech coordinator. (F)

JDAT 116 John Deere Equipment Operation and Adjustment (4)

This course will cover the operation and adjustment of various types of John Deere equipment. Students will operate and field adjust this equipment for optimum performance.

JDAT 155 Introduction to Electrical/Electronics (4)

A lab/lecture demonstration and performance type of course, which covers the principles of electricity. These types of learning styles will be applied to electrical circuits, batteries, starters and alternators. It will include Ohm's Law, schematic reading, test instruments, starter testing and repair and alternator testing and repair. Applications and testing of solid state devices will be covered in this course. The student will have hands on approach to learning electrical fundamentals as well as repairing and troubleshooting electrical problems on John Deere equipment.

JDAT 165 Introduction to John Deere Hydraulic Systems (4)

This course is a study of hydraulic system fundamentals and various components used in a typical John Deere hydraulic system. Disassembly and reassembly of John Deere components will take place to aid in the understanding of component and system operation. Various John Deere components will be bench tested to help the student understand how the components contribute to the overall operation of the system and will be used to evaluate the students' performance. Experiments will be performed on lab equipment to aid in the understanding of basic hydraulic principles. Online delivery methods from John Deere Company along with table exercises and/or machine tests will be utilized to prepare student for John Deere University Hydraulic Systems Certification.

JDAT 215 John Deere Engine Rebuild (6)

A lab/lecture course covering diesel engines used in John Deere equipment. Students will disassemble, reassemble, adjust and test these engines. The proper use of technical manuals will be stressed.

JDAT 225 John Deere Powertrains (7)

A lab/lecture course covering the power train used in John Deere tractors. Students will disassemble, reassemble, adjust and test these components. Proper use of technical manuals will be stressed.

JDAT 255 John Deere Electrical/Electronics (5)

A lab/lecture course covering electrical and electronic fundamentals applied to John Deere equipment. This course includes the study of Ohm's Law and series and parallel circuits. The proper use of digital multimeters and other testing equipment also will be covered. Techniques of circuit diagnosis will be demonstrated with electrical schematics. The function, operation and testing of semiconductors and transistors are covered. Microprocessor operation, including inputs and outputs, are explained and studied. Tractor circuits including lighting, accessory, safety, instrumentation and gauges are tested. Electronic monitoring systems for planting and harvesting equipment are covered. Prerequisite: JDAT 155.

JDAT 260 Introduction to Ag Management Solutions (AMS) (3)

A lab/lecture course designed to introduce the students to John Deere's Ag Management Solution systems (AMS). Basic GPS equipment guidance systems operation and diagnostics will be utilized. Types of GPS signals and their applications currently used by John Deere Company will be covered. AMS display set-up and application usage on current John Deere equipment will be performed. Prerequisite: JDAT 255.

JDAT 265 John Deere Tractor Hydraulic Systems Diagnosis (5)

A lab/lecture course covering the operation, testing, diagnosis, and repair of the hydraulic systems found on John Deere utility, row-crop and four-wheel-drive tractors.

JDAT X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

JDAT 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(KMTS) KOMATSU**KMTS 106 Introduction to Komatsu Service (3 credits)**

This course introduces the student to the Komatsu organization and the different parts of the company. Instruction and lab experiences in the shop include MSHA safety, forklift training, shop operations and operational policies followed by the dealership service department. Included will be discussion on KOMTRAX, publications, tech manuals and other literature specific to Komatsu products. This course will also introduce the student to the Komatsu Service Certification program. The students will plan a class trip to the Komatsu Training Center at Cartersville, GA to be scheduled sometime in their second year of study. (Su)

KMTS 110 Komatsu Internship I (4)

The student will receive on the job experience at a Komatsu dealership. This will consist of performing basic repair procedures in the service department. This internship will occur the last 8 weeks of the first year. (2nd 8-weeks spring semester)

KMTS 210 Komatsu Internship II (5)

The student will receive on the job experience at a Komatsu dealership. This will consist of performing basic repair procedures in the service department. This internship will occur the first 8 weeks of the second year. (1st 8-weeks fall semester)

KMTS 215 Komatsu Engine and Fuel Systems (4)

A theory and lab course covering the construction, operating principals, cylinder and piston service, valve service, crankshaft and bearing service, lubrication systems, rebuilding procedures, measurement fundamentals, performance and engine troubleshooting associated with Komatsu engines. Fuel system identification, theory of operation and troubleshooting of fuel systems will also be covered in this course. This is an 8 week course. Prerequisite: DTEC 115. (F)

KMTS 220 Komatsu Internship III (6)

The student will receive on the job experience at a Komatsu dealership. This will consist of performing basic repair procedures in the service department. This internship will occur the third 8 weeks of the second year. (1st 8-weeks spring semester)

KMTS 225 Komatsu Powertrains and Undercarriage (4)

A lab/lecture course covering the powertrain systems used in Komatsu equipment. Mechanical shift and power shift transmissions will be covered in this course. Students will disassemble, reassemble, adjust and test these components found on Komatsu construction equipment. The course also introduces the student to undercarriage and drive systems used on different Komatsu Track Machines. Also covered are final drives and braking systems used in Komatsu track and wheel equipment. (Su)

KMTS 255 Komatsu Electrical/Electronics (4)

A lab/lecture course covering electrical and electronic systems for the engine, hydraulics, machine controls and the Tier 4 emission systems as applied to Komatsu construction equipment. Techniques of circuit diagnostics will be demonstrated with electrical schematics. The function, operation and testing of Komatsu equipment will be covered with the Electronic Services Tools. Microprocessor operation including inputs and outputs are explained and covered. Circuits including lighting, accessory, safety instrumentation and gauges are tested. This course will include all Komatsu construction equipment. (S)

KMTS 265 Komatsu Advanced Hydraulic Systems (4)

A lab/lecture course covering the diagnostics, service and repair of the hydraulic functions on Komatsu construction equipment. Open center, closed center and load sensing systems are covered as well as steering, hydrostatic drives and hydraulic functions of Komatsu equipment. (S)

(MATH) MATHEMATICS

Student placement in a mathematics course is subject to ACT-MATH scores or the Compass placement test scores or Academic Services Center approval.

ASC 090 Math Prep (2 credits)

This course improves basic math computational skills: addition, subtraction, multiplication, and division of whole numbers, fractions, and decimals. Includes a study of percents and application of percents. This course may be required due to Compass test results and the course placement policy. (F, S, Su)

ASC 091 Algebra Prep I (2)

This course will examine real numbers, fundamental operations, variables, equations and applications. Course may not transfer. Prerequisite: ACT math score of 13-15, appropriate Compass score or successful completion of ASC 090. (F, S, Su, O)

ASC 092 Algebra Prep II (2)

This course will examine systems of linear equations and their applications, rules of exponents, scientific notation, radicals and factoring. Course may not transfer. Prerequisite: ACT-MATH score of 16-18, appropriate Compass score, or successful completion of ASC 091. (F, S, Su, O)

ASC 093 Algebra Prep III (2)

This course will examine the real number system, factoring, quadratic equations, rational expressions, and functions. Course may not transfer. Prerequisite: ACT math score of 19-20, appropriate Compass score, or successful completion of ASC 092. (F, S, Su, O)

MATH 102 Intermediate Algebra (3)

Properties of the real number system, factoring, linear, exponential and quadratic equations, functions, polynomial and rational expressions, systems of equations, exponents and radicals. (A specific department may choose not to allow this course to count toward total hours required for graduation. May not transfer.) Prerequisite: ASC 092 or placement test. (F, S, Su, O)

MATH 103 College Algebra (3)

Relations and functions, equations and inequalities, real and complex numbers; numerical, graphical and symbolic view of functions; linear, quadratic, polynomial, rational, exponential and logarithmic functions; systems of equations, matrices and determinants. Emphasis on use of real-data application. Prerequisite: ASC 093 or placement test. (F, S, Su, O) *ND:MATH*

MATH 104 Finite Mathematics (3)

A general liberal arts mathematics course for those who don't need extensive algebra or calculus. Linear equations and inequalities; systems of linear equations and inequalities; matrices and linear programming; mathematics of finance; sets, cardinality, elementary probability and statistics. Emphasis on using technology to solve problems. Course is well suited for those majoring in business, health, life sciences, or general liberal arts. Prerequisite: ASC 093 or placement test. (S) *ND:MATH*

MATH 105 Trigonometry (2)

Angle measure, trigonometric and inverse trigonometric functions, trigonometric identities and equations, applications. Students cannot receive credit for both MATH 105 and 107. Prerequisite: ACT score or ASC 093 or departmental approval. (S) *ND:MATH*

MATH 107 Pre-Calculus (4)

Equations and inequalities; polynomial, rational, exponential, logarithmic, and trigonometric functions; applications. Students cannot receive credit for both MATH 105 and 107. Prerequisite: MATH 103 or placement test. Offered only on demand. *ND:MATH*

MATH 108 Business Mathematics

(See BOTE 108)

MATH 120 Basic Mathematics I (2)

A review of whole numbers, fractions and decimal numbers in conjunction with the fundamental application of ratios, rates, unit rates, proportions and percents in solving everyday problems. The application of business and consumer mathematics such as simple and compound interest and purchasing. (F, S)

MATH 123 Basic Mathematics II (2)

This course introduces statistical data reading and calculating. Problem solving applications involving U.S. and Metric measurements. Application of direct measurement, perimeter, area, and volumes and fundamental geometry. (F, S)

MATH 125 Basic Mathematics III (2)

Basic concepts and features of beginning algebra with emphasis on critical thinking and problem solving. Topics include properties of real and rational numbers, arithmetic operations of numbers and expressions, translating verbal expressions to variable expressions, formula manipulations and application of word problems. (F, S)

MATH 130 Technical Mathematics (2)

A review of whole numbers, fractions and decimals using U.S. measurements. The application of ratio and proportion, direct measure, perimeter, area and volume with a construction emphasis. (F, S-Online/Fargo)

MATH 132 Technical Algebra I (2)

A basic algebra course for students enrolled in technology programs. Topics include properties of real numbers, algebraic expressions, solving equations, polynomials, factoring, formula manipulations and problem-solving. (F, S, O)

MATH 134 Technical Algebra II (2)

A continuation of MATH 132. For students who need advanced skills in algebra for application in technical courses or as a preparation for intermediate algebra. Topics include linear and simultaneous equations, quadratic equations, logarithmic and exponential equations, decimal, binary, hexadecimal and BCD base conversions. Prerequisite: MATH 132. (S)

MATH 136 Technical Trigonometry (2)

A study of the fundamentals of trigonometry. Right triangle trigonometry, the Law of Sines, the Law of Cosines and Vectors. Emphasis is placed on problem-solving for the technology fields. Prerequisite: MATH 132. (F, S, S-Online)

MATH 137 Applied Algebra (3)

An intermediate algebra course for students enrolled in technology programs. Topics include properties of real numbers, algebraic expressions, factoring, formula manipulation, graphing, linear equations, quadratic equations, solving systems of equations, simultaneous equations, exponents, radicals and logarithmic equations.

MATH 138 Applied Trigonometry (3)

A theory/lab course studying the fundamentals and applications of trigonometry, including right and oblique triangles, the Law of Sines, the Law of Cosines, vectors, angular velocity, graphs and complex numbers.

MATH 146 Applied Calculus I (4)

Review of algebra, including linear, quadratic, exponential and logarithmic functions. Calculus topics for this course will be limits, continuity, rates of change, derivatives, extrema, anti-derivatives and integrals. Emphasis is placed on real-data application. Course is intended for those majoring in business, management, economics, or the life or social sciences. Prerequisite: MATH 103 or MATH 104 or placement exam. (F) *ND:MATH*

MATH 147 Applied Calculus II (4)

Integrals, multivariable calculus, introduction to differential equations, probability and calculus, sequences and series, introduction to trigonometric functions, derivatives and integrals of trigonometric functions. Emphasis is placed on real-data application. Course is intended for those majoring in business, management, economics or the life or social sciences. Prerequisite: MATH 146. (S) *ND:MATH*

MATH 165 Calculus I (4)

Limits, continuity, differentiation, Mean Value Theorem, integration, Fundamental Theorem of Calculus and applications. Prerequisite: ACT score, placement test, MATH 105 or MATH 107 or departmental approval. (F) *ND:MATH*

MATH 166 Calculus II (4)

Applications and techniques of integration, polar equations, parametric equations, sequences and series, power series. Prerequisite: MATH 165. (S) *ND:MATH*

MATH 210 Elementary Statistics (3)

An introduction to statistical methods of gathering, presenting and analyzing data; estimating means, proportions, confidence intervals, and testing hypotheses; probability and probability distributions; and linear regression and correlation. Prerequisite: ASC 093 or ACT score. (F, S, Su-Online) *ND:MATH*

MATH 227 Applied Linear Algebra (3)

The mathematical study of matrices, determinants, vector spaces, subspaces, inner product spaces, linear transformations, eigenvalues, and eigenvectors. Prerequisites: MATH 165 or concurrent with Calculus I. (S)

MATH 265 Calculus III (4)

Multivariate and vector calculus including partial derivatives, multiple integration, applications, line and surface integrals, Green's Theorem, Stoke's Theorem. Prerequisite: MATH 166. (F) *ND:MATH*

MATH 266 Introduction to Differential Equations (3)

Solution of elementary differential equations by elementary techniques. Laplace transforms, systems of equations, matrix methods, numerical techniques, applications. Prerequisite: MATH 265 or departmental approval. (S) *ND:MATH*

MATH X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

MATH 299 Special Topics (1-5)

A special purpose class or activity to be used for a mathematics course in process of development, for classes occasionally scheduled to meet student needs or interests, or offered to utilize particular faculty resources. (F, S, Su)

(MATL) MACHINE TOOLING**MATL 101 Machine Tool Theory I (4 credits)**

An introduction to the hand tools used in the trade such as layout tools, measuring tools, drills and files. A detailed study of the engine lathe and vertical milling machine including their many cutting tools and the procedures to use them are emphasized. Safety of the student and machine are stressed. (F)

MATL 102 Machine Tool Theory II (4)

Continued study of MATL 101 using the vertical band saw, horizontal mill, surface and cylindrical grinders including procedures, tool selection, cutting fluids and shop terminology. Basic introduction to the CNC vertical mill and lathe is included. (S)

MATL 111 Machine Tool Lab I (7)

Basic skills such as layout using scribe, combination square and center punch are learned. Drill sharpening is followed by using this tool to produce a variety of holes, many of which are then tapped to several designated sizes. Careful use of the file to deburr and round corners to help produce safe product is covered. Students are introduced to the lathe and the use of carbide and high speed cutting tools to turn, thread and bore. This is followed by learning to use the vertical mill to produce flat surfaces, accurately locate holes and mill key seats. (F)

MATL 112 Machine Tool Lab II (7)

Students continue to learn to operate surface and cylindrical grinders, horizontal milling machine and band saw. The basic use of the CNC vertical mill and lathe is introduced. (S)

MATL 201 Toolmaking Theory I (3)

The design and application of cutting tools and toolholders will be studied. The theory and procedures for setup and operation of Wire and Sink Electrical Discharge Machining (EDM) along with the tooling involved in these processes will also be covered. Toolmaking procedures for the design and construction of jigs, fixtures, and inspection gauges will be included in the coursework. Students will study the design, construction, and terminology involved with metal stamping dies. Blank and pierce, compound, and progressive, as well as bending and forming dies will be covered. The theory of punch press setup and operation will be addressed in the course as well. (F)

MATL 202 Toolmaking Theory II (2)

An introduction to plastic injection molding and the procedures and practices used to design and build plastic injection molds. Types and uses of plastics will be studied along with other types of molding processes such as die-casting, extrusion, compression molding, thermoforming, blow molding, and rotational molding. Emphasis will be placed on the theory and design of plastic injection molds. Students will study the components and design of standard molds as well as cam, stripper plate, and 3-plate molds. Cold runner and hot runner systems will be included in the coursework. (S)

MATL 205 CNC Theory and Operation (4)

The principles of Computer Numerical Control of machine tools are studied. The lathe and vertical mill are two of the most commonly CNC-controlled machines in production and tool room work, so their set-up, tool selection and codes are included in detail. Students actually will program, set up and run several CNC lathe and mill projects during this course. (F)

MATL 206 CNC Programming (3)

The theory and practices learned in MATL 205 along with the fourth axis work are put into use in programming the vertical mill and lathe. Several advanced projects will be programmed, set up and run by students. In addition to required projects, advanced machinists will be involved in a full-scale production job involving simple to complex programming. All students will get experience on both CNC lathes and mills. Advanced use of the computer on such operations as program development, verification and DNC (uploading and downloading) to and from machine tool will be stressed. Each student will advance from simple to complex programming as their ability and interest permits. (S)

MATL 212 Toolmaking Lab II (7)

Toolmaking students will specialize in either mold-making or die-making. They will design and build either a complex mold or die depending upon the area in which they choose to specialize. They will be required to complete a portion of their molds or dies using EDM and a portion on CNC. They also will be involved in the design and building of jigs and fixtures used in the production job by the machinist students. Students also will learn how to make single flute carbide and HSS form cutters. (S)

MATL 213 Machinist Lab I (7)

Basic projects using the CNC lathe and CNC mill are introduced. More complicated setups and procedures on lathe, vertical and horizontal CNC mills and surface grinders to produce parts in quantity or repair situation are learned. ID/OD and form grinding are introduced. (F)

MATL 214 Machinist Lab II (7)

Each student will program, setup and operate CNC lathes and mills, sinker and wire E.D.M.'s on a variety of required lab jobs. Additional experience producing parts to accurate dimensions is highly stressed. Speed of completion becomes very important in this class. All students will be involved in a full-scale production capstone project that involves building and assembling a production tool or machine consisting of at least 30 precision machined components. This project requires them to use all of the knowledge gained in both MATL 205 and MATL 206 to efficiently use time and resources available to complete the job while meeting stringent timelines and high quality standards. This capstone project gives students real-world manufacturing experience as well as the chance to work with other students and even other departments as a team to identify and solve real manufacturing problems. Jigs and fixtures required to align and hold parts during machining also will be designed and built by students. (S)

MATL X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

MATL 297 Cooperative Education (1-5)

Cooperative Education offers students the opportunity to integrate career, social and personal development into the educational process. The cooperative education program allows students to integrate classroom study with a paid work experience related to their fields of study. It is recommended that a student has successfully completed one year of academic study.

MATL 299 Special Topics (1-15)

A course designed to meet special departmental needs.

(MFGT) MANUFACTURING TECHNOLOGIES

MFGT 101 Robotics I (2 credits)

This is a lab/lecture introductory robotics course that includes FANUC robot terminology and operational skills with a welding emphasis. This course provides basic instructions using the FANUC Roboguide-WeldPRO software on how to setup a workcell for the simulation programming software using the FANUC robot. FANUC teach pendant and Windows-based computers. (S)

MFGT 107 Introduction to CNC (2)

A lecture/lab introductory course that introduces the student to the basic fundamentals of CNC programming. Applied lab exercises in programming bench-top mills and lathes are included. (F)

MFGT 110 Industrial Shop Practices (2)

An introduction to the procedures and practices used to develop fundamental industrial shop skills. Students enrolled in this class will learn and apply a variety of practical skills used to aid in any entry level industrial mechanical service occupation. The topics covered in this course are: general shop safety; Oxy-fuel torch and MIG welding set-up and operation; basic metallurgy and material identification; identification of SAE and ISO metric measuring systems; fastener types/grades identification/applications; identification of twist drills and 4 systems of sizes; identification/application of hand taps; hack saw blade identification/installation; metal working file identification/operation; drill press/hand drill safety/identification/operation; drill grinding gage application; practical use of micrometers/dial caliper/dial indicator/depth micrometer; Heli-coil insert identification/installation; broken bolt removal practices; soldering application; and mechanical/hydraulic arbor press safety and operation.

MFGT 115 Manufacturing Processes I (4)

The study of basic machine tool operations and forming processes topics include: lathe work, milling, drilling operations, tooling and fixture work. (F)

MFGT 120 Basic Welding I (1)

Basic training in the use of Oxygen-Acetylene/Propylene Cutting (OFC), Shielded Metal Arc Welding (SMAW) and Gas Metal Arc Welding (GMAW). Welding safety, welding equipment, welding joint configurations and welding techniques will be covered. Welding supplies such as electrodes, shielding gases and electricity will be studied. Welding shop safety is the main focus. (F, S)

MFGT 121 Basic Welding II (1)

Continuation of MFGT 120. This course covers basic horizontal and vertical welding using Shielded Metal Arc Welding (SMAW) and Gas Metal Arc Welding (GMAW). Advanced use of Oxygen-Acetylene/Propylene Cutting (OFC) is also covered. Prerequisite: MFGT 120. (F, S)

MFGT 123 Fabrication Methods I (2)

A course for students to learn fabrication techniques as they relate to product manufacturing, maintenance and repair. How to use basic shop tools and shop equipment efficiently and safely. (F)

MFGT 124 Mechanical Drives I (2)

This course is a combined lecture and lab class. Course material will cover many mechanical components that can be found in industry. Areas of focus for this course will include installation, maintenance practices, troubleshooting, and theory of operation for an array of mechanical components. These components include belt drive and chain drive systems, bearings, and mechanical coupling systems. Lubrication theory and best practices will also be covered. Students will be involved in lectures, discussions, and hands-on mechanical labs. (F)

MFGT 125 Total Quality Improvement (2)

A study of the introductory concepts of total quality improvement. Fundamentals of quality, commitment, teamwork, cause/effect, data collection and decision-making. (F, S)

MFGT 126 Manufacturing Process II (2)

A lecture/lab introductory course that introduces students to robotics and automated systems and their operating characteristics. Students will learn basic coordinate systems and how hydraulic, pneumatic and electromechanical systems function together as a production cell. Applied work cell projects will be utilized. (S)

MFGT 127 Precision Measuring Techniques (2)

A lecture/lab introductory course that introduces the student to common measuring tools and measurements. Topics include: common measuring tools, gauge blocks, surface measurement, dial indicators, micrometers, optical measuring techniques, surface measurements, tolerance zones and basic calibration methods. (S)

MFGT 135 Basic Metallurgy (2)

A basic study of the fundamentals of metallurgy. Topics include classification and properties of materials, alloys, heat treatment, destructive and non-destructive tests, non-ferrous materials, cast iron, plastics and powder metallurgy basics. Includes applied metallurgy lab testing exercises. (F)

MFGT 137 Print Reading I (2)

Basic blueprint interpretation course for students with little or no previous experience. The principles of reading, engineering drawings, and the symbols used to understand these prints are covered in sufficient detail to give students the working knowledge of the subject. (F, O)

MFGT 140 Fabrication Methods II (2)

This course covers more advanced topics including: bending, forming, shearing, punching operations, template development straightening techniques, fixturing and heat treatment. (F)

MFGT 141 Print Reading II (2)

For those students that have a basic understanding of print reading. Selected prints cover methods of presentation and application of engineering drawing principles including orthographic and sectional views, dimensioning methods, bill of materials, notes and title block information including tolerances and allowances. (S)

MFGT 150 Hydraulics I (2)

A study of the basic hydraulic system and system components. The student will explain how each component works, will relate each component's relationship to a functioning system, will read and interpret basic hydraulic schematics, and will review general component troubleshooting and maintenance procedures. Topics include: basic hydraulic systems, force, energy, pumps, motors, control valves, actuators, reservoirs, filters, lines, fittings and basic system troubleshooting methods. (F, S)

MFGT 160 Pneumatics (2)

A study of the basic pneumatic system and system components. This study will explain how each component works, will relate each component's relationship to a functioning system, will include reading and interpreting basic pneumatic schematics, and will review general component troubleshooting and maintenance procedures. Topics include: compressed air, force transmission, energy, air distribution, actuators, valves, regulators, air preparation and basic troubleshooting methods. (F, S)

MFGT 202 Advanced Robotics (4)

This course is a combined lecture and lab class that will cover advanced robotics programming and interfacing the robots to other electronics found in the industry. Areas of focus for this course will include programming, integrating, troubleshooting, and repairing of robotic systems. Students will be involved in lectures, discussions, and hands-on equipment labs. (F)

MFGT 208 Electro/Mechanical Systems (2)

This course is a combined lecture and lab class. This class will introduce the learner to the process of effective troubleshooting and the integrated systems approach to diagnosing equipment failures. The class will give the learner an opportunity to showcase knowledge obtained through previous electrical and mechatronics classes. Areas of focus for this course will include effective troubleshooting, best repair and maintenance practices, maintenance work flow and documentation, and integrated system operations. Students will be involved in lectures, discussions, and scenario-based exercises. (S)

MFGT 225 Intro to SPC (2)

A study of the introductory concepts of statistical process control. Fundamentals of statistics, control charts, process capability, sampling plans, quality costs, ISO 9000 and quality teams. (F, S)

MFGT 228 Geometric Tolerancing (2)

A course dealing with the basic principles used in geometric tolerancing and its use in the world of manufacturing. Topics include: general tolerancing methods, geometric symbols, datums, material conditions, form tolerances, orientation tolerances, and location tolerances, measuring methods and basic bonus tolerancing methods. (S)

MFGT 230 CIM Lab (5)

This course is a capstone project that is designed to showcase the students' abilities that have been developed over the four semesters. The class will include mechanical adjustments, electrical wiring, and PLC programming. The class combines all the skills that a mechatronics technician needs to have a systems approach to automation. (S)

MFGT X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

MFGT 297 Cooperative Education (1-5)

Cooperative Education offers students the opportunity to integrate career, social and personal development into the educational process. The cooperative education program allows students to integrate classroom study with a paid work experience related to their fields of study. It is recommended that a student has successfully completed one year of academic study.

MFGT 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(MICR) MICROBIOLOGY**MICR 202 Introductory Microbiology (3 credits)**

A study of the characteristics and importance of microorganisms with emphasis on their identification, control and relationships to health and disease. Corequisite: MICR 202L. (F, S, Su, O) *ND:LABSC*

MICR 202L Introductory Microbiology Lab (1)

A overview of the structure and use of microscopes, staining procedures, aseptic technique and common microbiological laboratory procedures useful in the identification of bacteria. Corequisite: MICR 202. (F, S, Su) *ND:LABSC*

MICR 204 Basic Immunology (3)

Basic Immunology is the second semester of a highly recommended, two-semester sequence consisting of MICR 202 Introduction to Microbiology followed by MICR 204 Basic Immunology. The intent of this course is to cover the origin, formation, function and regulation of the immune response in humans and other mammals in more depth than was covered in MICRO 202 or BIOL 221. Additionally, selected bacterial, viral and fungal diseases are reviewed in the context of how our body defenses try to prevent infection and maintain homeostasis. The course materials include a textbook (Immunology by Goldsby, Kindt, Osborne and Kubly, 5th edition), videos, computer-based CD tutorials and assigned readings from scientific journals. Prerequisite: BIOL 220/221 or MICR 202/202L or consent of instructor. (As needed)

See also Biology (BIOL)

(MSYS) MECHANICAL SYSTEMS**MSYS 101 Safety for Mechanical Systems Technicians (1 credit)**

This course covers the safety issues that pertain to the plumbing industry. Upon successful completion the student will receive the OSHA 10 hour certification. Students are required to attend all sessions to complete the certification. (S – 1st 8-weeks)

MSYS 103 Math for Mechanical Systems Technicians (3)

A basic math course with emphasis on development of useful skills in layout, measurement and computation of pipe lengths and fitting allowances, as well as a study of elevation, grade and volumes as it pertains to the trades. (F)

MSYS 132 Advanced Hydronics Systems Lab (2)

This course covers hydronic heating from boiler operation to hydronic heating systems, forced-air, convection and radiant. The course includes classroom and laboratory assignments. (S)

MSYS 141 Introduction to Electricity (2)

A study of basic electricity for plumbers including applications such as water heaters, pumps, hot-water heating systems and their associated controls is offered with this course. (S)

MSYS 142 Electrical Controls For HVAC and Refrigeration (2)

This course covers many aspects of control circuits connected to HVAC/R service, and it includes classroom and laboratory assignments. Prerequisite: MSYS 141 or equivalent. (F)

MSYS 151 Drafting and Sketching (2)

A practical course in drafting, sketching, scale reading, geometric construction and interpretation of drawings. The principles involved are sufficient in depth to give the student the working knowledge and skills required for the major program areas. (S)

MSYS X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

MSYS 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(MUSC) MUSIC**MUSC 100 Music Appreciation (3 credits)**

Introduction to the elements, genre, media and historical and stylistic periods of music. This course is a broad overview of music and musical styles including folk, religious, jazz, popular, classical and ethnic music. It will introduce musical concepts and focus on perceptive listening to music as it exists in the world. (F, S) *ND:HUM*

MUSC 101 Fundamentals of Music (3)

The introduction to fundamental elements of music through the study of scales, chords, basic harmonic progressions, rhythms and terminology. This course is designed for students who have previous music ensemble experience such as high school band, chorus or orchestra. It develops or improves skills in reading and noting music. Also included are pitch and rhythmic notation, basic keyboard, key signatures, beginning melody and harmonization. (F, S) *ND:HUM*

MUSC 115 Concert Band (1)

Concert Band is dedicated to the rehearsal of a wide variety of music for one or two performances a semester. The band may play for athletic events and parades. Rehearsals are twice a week. (F, S)

MUSC 117 Concert Choir (1)

Concert Choir is dedicated to performing a wide variety of music in one or two concerts per semester. Group rehearsals are two times a week. Additional sectional rehearsals are scheduled as needed. (F, S)

MUSC 122 Music Theory I (3)

Understanding of musical elements and the theory of written music. Music notation, key relationships, rhythm and harmony are stressed. Required for music majors. Corequisite: MUSC 123. (F)

MUSC 123 Aural Skills I (2)

Aural training in sight singing, intervals, melodic, harmonic and rhythmic dictation. Required for music majors. Corequisite: MUSC 122. (F)

MUSC 124 Music Theory II (3)

A continuation of Music Theory I. A more in-depth understanding of musical elements and the theory of written music. Music notation, key relationships, rhythm and harmony are stressed. Required for music majors. Corequisite: MUSC 125. Prerequisite: MUSC 122. (S)

MUSC 125 Aural Skills II (2)

Aural training in sight singing, intervals, melodic, harmonic and rhythmic dictation. Required for music majors. Prerequisite: MUSC 123. Corequisite: MUSC 124. (S)

MUSC 138 Pop-Swing Band (1)

Pop-Swing Band is an audition group that performs frequently for student and public functions throughout the tri-state area. It is a select group that plays primarily popular music including jazz, rock, country and funk. Instrumentation consists of a rhythm section, trumpets, trombones, saxes and sound technician. Rehearsals are twice a week. (F, S)

MUSC 144 Voice (Private Lessons) (1/term)

Individualized instruction with emphasis on musicianship and repertoire. One-half hour private lesson per week. Limited enrollment, see instructor. (F, S)

MUSC 145 Applied Music (Private Instrumental Lessons) (1/term)

Individualized instruction on concert band instruments with emphasis on musicianship and repertoire. One-half hour lesson per week. Limited enrollment, see instructor. (F, S)

MUSC 157 Pop-Swing Choir (1)

Pop-Swing Choir is an auditioned group that performs for student and public functions throughout the tri-state area. It is a select group that sings primarily popular music. Rehearsals are twice a week. (F, S)

MUSC 162 Class Voice I (1)

This course is designed to enable the student to understand the basic principles of vocal production. This will be accomplished through observation, journaling, performing and written comprehension. (F, S)

MUSC 207 History of Rock and Roll Music (3)

This course presents a survey of rock music from 1900 to the present. The class provides a segmented review of variations in the form and the sociological impact of music. (F-Fargo)

MUSC 245 Applied Music (Private Piano Lessons) (1/term)

Private lessons are elementary piano with emphasis on musicianship and repertoire. One-half hour private lesson per week. Limited enrollment, see instructor. (F, S)

MUSC X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

MUSC 299 Special Topics (1-4)

A course designed to meet special departmental needs. (F, S)

(NANO) NANOSCIENCE**NANO 101 Fundamentals of Nanoscience I (3 credits)**

This is the first semester of a two-semester course sequence (NANO 101 and 102) designed to expose students to the new and rapidly emerging fields of nanoscience and nanotechnology. It is designed to establish a basic understanding of the: 1) underlying scientific basis for the behavior of nanomaterials, 2) scope of nanomaterials potential use in products manufactured by various industries, and 3) methods of fabrication and characterization of nanomaterials. (F, O) *ND:SCI*

NANO 102 Fundamentals of Nanoscience II (3)

This is the second semester of a two-semester course sequence designed to expose students to the new and rapidly emerging fields of nanoscience and nanotechnology. It is designed to establish a basic understanding of the: 1) characterization and analysis techniques utilized to study nanomaterials, and 2) specific applications and examples of nanomaterials in the various industry areas. Prerequisite: Grade of "C" or better in NANO 101. (S, O) *ND:SCI*

NANO 197 Internship Experience I (1)

The Internship Experience I is a one-credit virtual industry experience designed to acquaint students with the industry and research laboratory/production environment. Students will explore regional nano-related industries and identify nano-related products currently being manufactured. (S, O)

NANO 205 Laboratory Instrumentation (6)

This is an intensive combined lab/lecture course designed to expose students to some of the more basic laboratory instrumentation, practices and applications utilized in research and industrial laboratory settings. Most, if not all, of the techniques covered have direct application in the new and rapidly emerging fields of nanoscience and nanotechnology. The course is broken up into six distinct modules, each focusing on specific skill sets critical to a laboratory technician in general. The course is designed to establish: 1) a basic understanding of theory behind, applications of and procedures utilized in the proper use of the technologies, and 2) minimum levels of competency in the proper use and care of the equipment as well as the proper methods utilized in the recording, analysis and reporting of data. Prerequisite: Grade of "C" or better in NANO 102 or consent of the instructor. (Su)

NANO 206 Microelectronics Laboratory Instrumentation (5)

This is an intensive combined lab/lecture course designed to expose students to some of the more basic laboratory instrumentation, practices and applications utilized in research and industrial laboratory settings. Most, if not all, of the techniques covered have direct application in the new and rapidly emerging fields of microelectronics technology. The course is broken up into six distinct modules, each focusing on specific skill sets critical to a laboratory technician in general. The course is designed to establish: 1) a basic understanding of theory behind, applications of and procedures utilized in the proper use of the technologies, and 2) minimum levels of competency in the proper use and care of the equipment as well as the proper methods utilized in the recording, analysis and reporting of data. Prerequisites: PHYS 120/120L, ELEC 100/101, ELEC 181/182, the equivalent or higher level coursework and consent of the instructor and program director. (Su)

NANO 207 Nanobiotechnology (3)

Nanobiotechnology is a second year nanotechnology course that is intended to expose students to the specific applications of nanotechnology in the biotechnology and biomedical areas of industry, research and development. The course will cover the technologies utilized in the fabrication and production of specific nanomaterials, their use or applications in the biotechnology and biomedical areas, future trends and societal, ethical and environment implications of these technologies. It is intended to build on the introductory material covered in NANO 101 and 102. Prerequisite: Grade of "C" or better in NANO 101 or consent of the instructor. (F)

NANO 208 Nanomaterials and Coatings (3)

This is a second year nanotechnology lecture course intended to expose students to the fundamentals of nanomaterials and coatings. The student will gain a basic understanding of both organic and inorganic films, ranging from thin film properties to actual processing. Students will gain the insight into the advantages of nanomaterials over bulk materials and how various industries are leveraging these properties. As nanotechnology is such a diverse field, examples will range from everyday applications (DVD's) to futuristic concepts (nanoparticles to cure diseases). Prerequisite: Grade of "C" or better in NANO 101 or consent of the instructor. (S)

NANO 209 Thin Film Technology: MEMS Case Study (3)

This is a second year nanotechnology lecture course designed to expose students to some of the more common thin-film processing and analysis techniques, specifically vacuum-based processing and analysis. Insight into thin film technology will be gained by a practical, thorough introduction to microelectromechanical (MEMS) applications, technologies, design, fabrication, characterization and reliability. Prerequisite: Grade of "C" or better in NANO 101 or consent of the instructor. Corequisite: NANO 210. (F)

NANO 210 Micro/Nano Fabrication (3)

Semiconductor Fabrication focuses on the terminology, concepts, processes, products and equipment commonly used in the manufacturing of ultra-large-scale integrated (ULSI) semiconductors. Prerequisite: Grade of "C" or better in NANO 205 or consent of the instructor. Corequisite: NANO 209. (F)

NANO 211 Manufacturing Quality Assurance (3)

This is a second-year lecture/lab course with hands-on processing designed to expose students to the many facets of the manufacturing environment, including both lean principles and quality control. Students will be responsible for conducting experiments (equipment operation, troubleshooting, documentation, 5S's, value stream mapping) and results product quality (sampling plan, test data, measurement systems analysis, process/product control limits, control charts and flowcharts). (S)

NANO 212 Surface and Thin Film Analysis Techniques (3)

This is an intensive lecture course with hands-on analysis designed to expose students to some of the more common analysis techniques and the data-impact to nano-processing. The course is designed to establish: 1) a basic understanding of theory behind, applications of and procedures utilized in the characterization of surfaces and thin films, and 2) minimum levels of competency in the proper use and care of the equipment as well as the proper methods utilized in the recording, analysis and reporting of data. Prerequisite: Grade of "C" or better in NANO 101 or consent of the instructor. (S)

NANO 297 Internship Experience II (3)

The Internship Experience II is a two-credit virtual industry experience designed to acquaint students with the industry and research laboratory/production environment. Supervised tours and/or virtual tours of a variety of different laboratory/production facilities will be conducted as a single group or as small groups depending on space availability. (S)

NANO 297B Industry Internship Experience III (5)

A supervised industry experience designed to allow students to work with the industry and research laboratory/production partners. Students will work at different laboratory/production facilities to gain hands-on practical experience unique to each industry type. Placement into internship experiences must be approved by both the program director and the industry partner. Students may be required to sign non-disclosure agreements in order to participate. Prerequisites for Internship II: A grade of "C" or better in NANO 205 or consent of the instructor. Prerequisites for Internship III: A grade of "C" or better in NANO 207, NANO 209 and NANO 297 or consent of the instructor. (S)

NANO X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

NANO 299 Special Topics (1-4)

A course designed to meet specific departmental needs. (F, S)

(NURS) NURSING**NURS 101 Introduction to Nursing (5 credits)**

This course, the first in the nursing curriculum, includes an introduction to nursing's historical background and trends in nursing today. An emphasis is placed on the role and responsibility of the individual practical nurse as a person in today's society and as a professional in the delivery of health care. An introduction to the mission and conceptual framework of the North Dakota State College of Science Practical Nursing Program is included. Also included is an introduction to the client as a developing biopsychosocial, spiritual and cultural being. Basic nursing principles are taught in the lecture setting. Communication techniques, introduction to basic physical assessment and basic nursing procedures are demonstrated in the lab and applied in the clinical setting. The nursing process is utilized to provide safe and effective nursing care by helping each client adapt to his/her environment. Emphasis is placed on the care of the client in the long-term setting. The class has didactic, laboratory and clinical sessions scheduled to provide the students with practical experiences. Prerequisite: Admission into the first semester in the Associate in Applied Science degree in Practical Nursing. (First semester of curriculum) (F, S)

NURS 102 Introduction to Adult Nursing (6)

This course covers the medical systems model to introduce abnormal states and conditions resulting from disease in the developing biopsychosocial, spiritual and culturally diverse adult client. Communication techniques, physical assessment, and complex nursing procedures are taught in lecture, demonstrated and applied in the laboratory and clinical setting. Emphasis is placed on the disease process, assessments, nursing diagnosis and interventions utilizing the nursing process, thereby assisting the student to provide safe and effective nursing care by helping the client adapt to his or her environment. Nursing care of the client in the long-term care setting is emphasized. The class includes didactic, laboratory and clinical sessions to provide the students with practical experiences. Prerequisite of this course are satisfactory completion of the first semester of the associate in applied science practical nursing curriculum with a minimum of a "C" in each course that applies to the nursing curriculum. Prerequisites/Corequisites: BIOL 221/221L, MICR 202/202L, and NURS 101. Corequisite: PHRM 205. (Second semester of the curriculum) (F, S)

NURS 231 Psychiatric Mental Health Nursing (2)

This course focuses on the integration of theory and clinical practice in relation to psychiatric-mental health. Concepts of mental health, mental illness, psychiatric nursing, cultural influences and therapeutic interaction are explored while studying common psychiatric disorders. The student will explore the role of the licensed practical nurse and participate in nursing interventions related to the clients experiencing psychiatric disorders. Prerequisites for this course include satisfactory completion of the first two semesters of the associate in applied science practical nursing curriculum. (Su)

NURS 232 Adult Nursing (5)

This course builds on prior learning to gain knowledge of disease processes of the biopsychosocial, spiritual and culturally diverse adult client within the health illness continuum. It prepares the student to recognize the symptomatology of major disease processes and changes in the health status of the client within their environment. It will provide knowledge in the methodology of diagnostic testing, medical-surgical interventions and aspects of nutritional and pharmacological roles in the delivery of nursing care to the client. The emphasis will be placed on nursing care, and utilizing the nursing process. Assessment will follow the system utilizing Maslow's Hierarchy of Needs and Erickson's Developmental Stages to determine nursing diagnosis, plan, intervention, and evaluation of nursing care. Application of the teaching-learning process will be emphasized. Problem-solving skills will be utilized in the identification of environmental risks in planning care of the adult client. Using the nursing process as a framework, students explore the collaborative role of the nurse with the adult client, families and other members of the health care delivery system. Prerequisites of this course are satisfactory completion of the first two semesters of the nursing curriculum, with a minimum of a 2.0, a "C" average, in all courses required in the Nursing Program. Corequisite: NURS 233. (F, S)

NURS 233 Adult Nursing Clinical (5)

This course provides supervised clinical experience in which the student applies theories in the care of the biopsychosocial, spiritual and culturally diverse adult client at various developmental levels. The student will apply the nursing process in providing holistic care to the acutely and chronically ill patient/client. Students assess developmental and biopsychosocial, spiritual and culturally diverse needs of the clients and family on the health/illness continuum to assist the client in setting goals to adapt to their environment and plan, implement, and evaluate nursing care to meet those goals. The student will apply the teaching/learning process in the education of the client and family. Emphasis is placed on the role and responsibility of the practical nurse in the acute care setting. Prerequisites of this course are satisfactory completion of the first two semesters of the associate in applied science practical nursing curriculum with a minimum of a "C" in each course that applies to the nursing curriculum. Corequisite: NURS 232. (F, S)

NURS 245 Maternal Child Nursing (4)

This course builds on prior learning to gain knowledge of the childbearing family, developing child and women's health. The focus is placed on the normal process of childbearing, the biopsychosocial, spiritual, culturally diverse family, the child through the developmental stages, common disorders associated with childbearing process, children's and women's health. Emphasis is on health maintenance and selected study of diseases and disorders affecting women, children, and families. The student will apply the nursing process in providing holistic care to the client, assess developmental and biopsychosocial, spiritual and culturally diverse needs of the client. The student will apply the teaching-learning process in the education of families, women, infants and children. Emphasis is placed on the role and responsibility of the practical nurse in the maternal child settings. Prerequisites of this course are satisfactory completion of the first three semesters of the associate in applied science practical nursing curriculum with a minimum of a "C" in each course that applies to the nursing curriculum. Corequisites: NURS 246, NURS 250 and NURS 251. (F, S)

NURS 246 Maternal Child Nursing Clinical (2)

This course provides supervised clinical experience in which the student applies theories in the care of the biopsychosocial, spiritual, culturally diverse childbearing families, women, infants, and children at various developmental levels. The student will apply the nursing process in providing holistic care to the client, assess developmental and biopsychosocial, spiritual, and culturally diverse needs of the client. The student will apply the teaching-learning process in the education of families, women, infants, and children. Emphasis is placed on the role and responsibility of the practical nurse in the maternal child settings. Prerequisites of this course are satisfactory completion of the first three semesters of the associate in applied science practical nursing curriculum with a minimum of a "C" in each course that applies to the nursing curriculum. Corequisites: NURS 245, NURS 250 and NURS 251. (F, S)

NURS 247 Expanded Maternal-Child (2)

This course is designed for the Licensed Practical Nurse to build on prior learning and to gain knowledge of the childbearing family and common childhood diseases. Emphasis is placed on health maintenance and selected study of diseases and disorders affecting childbearing women, children and families. The nursing process will be utilized to facilitate the student's knowledge and client's adaptation to all phases of the childbearing process and various childhood diseases. The teaching-learning process will be utilized to provide the client with the knowledge to prevent, maintain and restore health status to assist them to attain a safe and therapeutic environment. Using the nursing process as a framework, the students explore the collaborative role of nursing with the client and other members of the health care delivery system. Prerequisites: Currently Licensed Practical Nurse and satisfactory completion of NURS 248 and NURS 248L. Corequisite: NURS 249. (O)

NURS 248 PN Transitions (2)

This course is designed for the Licensed Practical Nurse to expand his/her knowledge base in selected nursing concepts and assessment skills of the adult client. An introduction to the philosophy and conceptual framework of the NDSCS Practical Nursing program is included along with an introduction to the client as a developing biopsychosocial, spiritual and cultural being. This course is a requirement to attain an Associate in Applied Science degree in Practical Nursing. Prerequisite: Currently licensed practical nurse. Satisfactory completion of BIOL 220/220L, BIOL 221/221L, or the equivalent of both. Satisfactory completion or presently enrolled in MICR 202/202L or the equivalent. (O)

NURS 248L PN Transitions Lab (3)

This course is designed for the Licensed Practical Nurse to improve his/her nursing knowledge in technical and assessment skills of the adult client. Complex nursing procedures are presented online, with the opportunity to be demonstrated and applied in the simulated clinical laboratory setting. This course is designed for students returning to college to receive an Associate in Applied Science degree in Practical Nursing. Prerequisites: Currently licensed practical nurse. Satisfactory completion of BIOL 220/220L, BIOL 221/221L or the equivalent of both. Satisfactory completion or presently enrolled in BIOL 202/202L or the equivalent. Corequisite: NURS 248.

NURS 249 PN Leadership (1)

This course is an introduction to the leadership responsibilities of the practical nurse. The concepts necessary for effective management are presented online in lecture. Student learning is facilitated through assignments related to leadership concepts. Prerequisite: Currently licensed practical nurse. Satisfactory completion of BIOL 220/220L, BIOL 221/221L or the equivalent of both. Satisfactory completion or presently enrolled in MICR 202/202L or the equivalent. (O)

NURS 250 Leadership in the Long-Term Care Setting (2)

This course is an introduction to the leadership responsibilities of the practical nurse in the long-term care setting. The concepts necessary for effective management are presented in lecture and applied in the long-term care clinic setting. Student learning is facilitated through assignments related to leadership concepts. Prerequisites of this course are satisfactory completion of the first three semesters of the associate degree nursing curriculum with a minimum of a "C" in each course that applies to the nursing curriculum. Corequisites: NURS 245 and NURS 246. (Fourth semester of curriculum) (F, S)

NURS 251 NCLEX-PN Review (1)

This course is designed to provide a comprehensive review of the current test plan for the NCLEX-PN licensure exam for graduate practical nurses. This course includes content review of fundamental skills and PN program curriculum inclusive of medical-surgical, maternal, pediatric, and psychiatric areas of nursing practice. Focus will also be placed on the client need areas of safe and effective care environment, health promotion and maintenance, psychosocial integrity, and physiological integrity. The review utilizes the nursing process to problem solve using analytic thought. Tips for test taking and success as well as study skills are also included in the review. Written material and computer assisted testing (CAT) will be utilized to reinforce lecture content. Course requirements and means of evaluation include proficiency in test taking skills and successful completion of a practice, comprehensive NCLEX-PN exam. Students must have successfully completed the pre-requisites for this course including NURS 101, NURS 102, NURS 232/233, NURS 231, and PHRM 205. Corequisite courses for this course include NURS 245, NURS 246, and NURS 250. (F, S)

NURS 255 Role Transition (1)

This course is designed to promote role development and transition of the LPN to the RN. The student is introduced to the definition, roles and responsibilities of the registered nurse in providing nursing care to clients, families, and communities in their environment. Role concepts essential for the RN to provide and manage care as a member of the profession are emphasized. The student will utilize critical reasoning as it relates to the assessment, diagnosis, management and evaluation in the provision of professional nursing practice. Principles of evidence-based nursing research will be identified to guide the teaching/learning process. Focus is directed to guide practice within the regulatory framework of professional, ethical and legal responsibilities of the registered nurse and encourages a desire for lifelong learning. Corequisites: NURS 256 and NURS 257.

NURS 256 Life Span Nursing (4)

This course involves the role and scope of practice of the registered nurse in the care of clients across the life span with complex, multi-system alterations in health. Content and learning objectives are designed to utilize critical reasoning and the nursing process to meet nurse's responsibilities in the provisions of holistic, safe, competent nursing care to clients throughout the life span. Focus is placed on the students attainment of the necessary knowledge and skill sets to provide teaching/learning opportunities to clients/families and communities within their environments to maintain optimal health. Corequisites: NURS 255 and NURS 257.

NURS 257 Life Span Nursing Clinical (3)

This clinical course is composed of supervised nursing practice that focuses on the role of the registered nurse in caring for individuals/families of any age that have complex healthcare needs. Utilizing the nursing process and critical reasoning, the student plans, implements and evaluates nursing care to manage care for groups of clients within their environment. Client/family assessment, communication and utilization of teaching/learning concepts are incorporated into the experience. Corequisites: NURS 255 and NURS 256.

NURS 261 Maternal/Newborn Nursing (2)

This course focuses on the role and scope of practice of the registered nurse in the care of childbearing families, especially those at high risk for complications. Content and learning objectives are designed to utilize critical reasoning and the nursing process to meet nurse's responsibilities in the provisions of holistic, safe, competent nursing care for the child bearing family during the preconception, antepartum, intrapartum, postpartum and newborn periods. Focus is placed on the students attainment of the necessary knowledge and skill sets to provide teaching/learning opportunities to clients/families and communities within their environments to maintain optimal health. Prerequisites are the successful completion of the first semester of the ASN curriculum. Corequisites: NURS 262 and NURS 263.

NURS 262 Community/Mental Health Nursing (3)

This course is composed of an overview of community-based nursing practice and the role of the nurse in health promotion for clients and families in their environment. The course will present basic epidemiology concepts; special concerns related to communities including environmental threats and cultural influences. The student will utilize teaching/learning principles to promote health promotion and disease prevention for clients/families and communities. Mental health nursing principles and concepts of mental health psychopathology, and treatment modalities related to the nursing care of clients and their families are included in the course. Utilizing critical reasoning and the nursing process, the student will research, design and present a community-based project that promotes health within a community setting. Prerequisites are the successful completion of the first semester of the ASN (RN) curriculum. Corequisites: NURS 261 and NURS 263. (O)

NURS 263 Leadership (2)

Composed of lecture and clinical practice, this course is designed to assist students to develop the knowledge and skills necessary to lead and manage nursing care in the modern health care system. Areas presented and explored will include leading and managing concepts; including interdisciplinary teamwork and delegation of nursing care, evidence-based practice, quality improvement, initiation and management of change, budget and resource allocation and professional preparedness and responsibility. The clinical experience will provide opportunity to practice management concepts essential to assuming leadership and management roles as a registered nurse. The student will collaborate in making informed nursing clinical judgments, effectively define problems, gather and evaluate information to provide optimal health for clients in their environment. A preceptorship clinical experience will be assigned by the student's advisor in collaboration with the student in designated acute care facilities. This course meets for 30 hours of lecture a semester in addition to the clinical experience. Prerequisites are the successful completion of the first semester of the ASN (RN) curriculum. Corequisites: NURS 261 and NURS 262.

NURS X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

NURS 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(NUTR) NUTRITION**NUTR 240 Principles of Nutrition (and Diet Therapy) (3 credits)**

A study of the basic principles of nutrition including: nutrition in the community, the role of nutrients in the maintenance of normal health and nutrition in the life cycle. Also included is the application of these principles to all age groups and for diet modification during illness. (F, S, Su, O)

NUTR 255 Eating Disorders (1)

A study of the incidence, cause, diagnosis, and treatment of the major eating disorders: anorexia nervosa, bulimia and compulsive overeating. (F, S, Su)

NUTR X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

NUTR 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(OTA) OCCUPATIONAL THERAPY ASSISTANT**OTA 101 Introduction to Occupational Therapy (3 credits)**

This course is designed to introduce the student to the profession of Occupational Therapy in the context of current and emerging areas of practice. An overview of the history, philosophy, ethics, tenets, and core values of the profession is presented. Students are introduced to the Practice Framework, activity analysis, the concepts of theory, models, frames of references and client-centered practice. (F-first year)

OTA 102 Disability Awareness (1)

This lab class provides students with practice in organizing and presenting information about various disabilities to the general public. In class activities include guest speakers and discussions. Students may also have the opportunity to plan and carry out structured activities with members of the community in the classroom. Activities outside the classroom may include puppet shows to community groups and presentations to health classes. Corequisites: All fall semester first year courses. (F-first year)

OTA 105 Medical Terminology (2)

This online course is a study and practical application of medical vocabulary. Includes recognition, analysis, definition, spelling, pronunciation, and combination of medical terms from prefixes, suffixes, roots, and combining forms. In this course, medical terms related to all major body systems will be covered with emphasis on medical vocabulary used in rehabilitation and Occupational Therapy. Corequisites: All fall semester first year courses. (F-first year)

OTA 110 Introduction to Muscle Function (2)

This course is designed to assist the student to explore and explain how movement occurs from a musculoskeletal orientation. The structure of the human body in relation to joints, trunk, and extremities (with emphasis on the upper extremity) is examined and analyzed in terms of functional movement required for all areas of occupation. Classroom and lab experiences will help the student gain an understanding of what normal movement is and what affects it. Principles of exercise are introduced and manual muscle testing and goniometric measurement are discussed and practiced. Corequisites: BIOL 220/220L and all fall semester first year courses. (F-first year)

OTA 111 Therapeutic Media (1)

This course covers the role of the OTA in the therapeutic use of self in context of roles and performance patterns throughout the lifespan. Students are introduced to the theories related to occupation, Occupational Therapy Practice Framework, activity analysis and grading and adapting tasks. Students will learn about group dynamics, group process, learning styles, teaching process, expected roles and student self-analysis. Students will practice basic techniques and procedures used in ceramics, leather, woodworking and other craft medias. Prerequisites: All fall semester first year courses. Corequisites: All spring semester first year courses. (S-first year)

OTA 112 Documentation (1)

This lecture/lab course is an introduction to medical note writing. Documentation requirements for both the clinical and school-based areas of occupational therapy practice are emphasized. AOTA guidelines, legal and reimbursement guidelines and an analysis of documentation formats are included. Written and oral communication skills including mechanics in note writing such as spelling and grammar as well as proper word usage are practiced. Uniform Terminology, Practice Framework, and the impact of OT models and frames of references are also addressed. Prerequisites: All fall semester first year courses. Corequisites: All spring semester first year courses. (S-first year)

OTA 113 Physical Disabilities I: Theory and Practice (3)

This course is designed to provide students with an understanding of the occupational therapy process in physical disabilities resulting from illness, disabling conditions or injury. This lecture/lab course will focus on how occupation forms the core of the profession. It will prepare students to apply theoretical treatment approaches to enhance occupational performance of persons with these types of physical conditions. Evaluation tools and treatment techniques applied to specific diagnosis will be studied and practiced. Theories and practice models/frames of references are examined and applied to guide the evaluation and intervention process. Orthotic and adaptive devices utilized with specific diagnosis will be explored. Laboratory activities reflect current and emerging intervention processes and techniques. Prerequisites: All fall semester first year courses. Corequisites: All spring semester first year courses. (S-first year)

OTA 114 Pediatrics I: Theory and Practice (2)

This course is designed to enable the students to investigate and understand the prevalent disabilities occurring during the early years (birth to 21 years of age) and to begin to implement occupational therapy treatment for a variety of disabilities. Students will also study the theories and clinical techniques used to effectively implement occupational therapy treatment techniques in pediatric settings. Prerequisites: All fall semester first year courses. Corequisites: All spring semester first year courses. (S-first year)

OTA 115 Behavioral Health: Theory/Practice-Children and Adolescents (2)

In this one-semester online course, students learn about mental health issues that impact the child/adolescent client's occupational performance. Throughout the semester, students will develop treatment plans and activity plans to help children/adolescents achieve functional outcomes within areas of occupation. One Friday/Saturday face-to-face-classroom session creates the environment for students to observe and practice occupational therapy assessments and intervention strategies. Prerequisites: All fall semester first year courses. Corequisites: All spring semester first year courses. (S-first year)

OTA 151 Fieldwork Level I – Experience I (1)

Designed to provide the student with exposure to a variety of practice settings, personnel, and clients across the life span. Using psychosocial/behavior health approach observation and documentation skills are practiced, as well as participation in client services per discretion of the clinical supervisor/faculty. Students engage in a variety of activities in psychosocial settings over spring semester (40 hrs.) Prerequisites: All fall semester first year courses. Corequisites: All spring semester first year courses. (S-first year)

OTA 213 Physical Disabilities II: Theory and Practice (2)

This course is a continuation of Physical Disabilities I and is designed to provide students with an understanding of the occupational therapy process in physical disabilities resulting from illness, disabling conditions or injury. This lecture/lab course will focus on how occupation forms the core of the profession. It will prepare students to apply theoretical treatment approaches to enhance occupational performance of person with these types of physical conditions. Evaluation tools and treatment techniques applied to specific diagnoses will be studied and practiced. Theories and practice models/frames of references are examined and applied to guide the evaluation and intervention process. Orthotic and adaptive devices utilized with specific diagnoses will be explored. Laboratory activities reflect current and emerging intervention processes and techniques. Prerequisites: All first year courses. Corequisites: All fall semester second year courses. (F-second year)

OTA 214 Pediatrics II – Theory and Practice (3)

This course is designed to enable the students to investigate and understand the prevalent disabilities occurring during the early years (birth to 21 years of age) and to begin to implement occupational therapy treatment for a variety of disabilities. Students will also study the theories and clinical techniques used to effectively implement occupational therapy treatment techniques in pediatric settings. Evaluation tools, treatment techniques, documentation and approaches applied to specific diagnoses will be examined and practiced. A basic overview of sensory-integrative development, handwriting and adaptive equipment will be discussed. Students will discuss how occupation is the core of the profession and guides treatment. Prerequisites: All first year courses. Corequisites: All fall semester second year courses. (F-second year)

OTA 215 Behavioral Health: Theory/Practice-Adults (3)

In this one-semester online course, students learn about mental health issues that impact the adult client's occupational performance. Throughout the semester, students will develop treatment plans and activity plans to help adult clients achieve functional outcomes within areas of occupation. One Friday/Saturday face-to-face session creates the environment for students to observe and practice occupational therapy assessments and intervention strategies. Prerequisites: All first year courses. Corequisites: All fall semester second year courses. (F-second year)

OTA 216 Professional Issues (2)

This course is designed to enhance the OTA's participation in basic support services in occupational therapy, as well as the legal, ethical and political influences that affect the delivery of occupational therapy services. Topics addressed include leadership and management, health care team role delineation, reimbursement and documentation, credentialing and licensure, ethical standards of practice, quality assurance, research and the use of evidence-based practice in OT. Prerequisites: All first year courses. Corequisites: All fall semester second year courses. (F-second year)

OTA 218 Aging (2)

This course provides a concentrated focus on occupational therapy for adults with physical and cognitive deficits, contexts, and client factors. This course examines the basic concepts of aging including theories, trends and policies. Students will study the normal aging process, physical, psychosocial and cognitive dysfunctions common to the elderly. Students will participate in the OT process including screening, evaluation, intervention planning, therapeutic interventions and discharge/follow-up with the geriatric population in the context of occupational performance in order to promote health and prevent disease. This course examines community mobility, aging in place and explores alternative living situations for the geriatric client. The importance of patient, family significant other/caregiver education and documentation to ensure reimbursement in today's health care environment is emphasized. Prerequisites: All first year courses. Corequisites: All fall semester second year courses. (F-second year)

OTA 219 Community Models of Occupational Therapy Practice (2)

This course introduces the student to emerging areas of occupational therapy practice in the community. These emerging areas of practice are, but not limited to, ergonomics, low vision, driving rehab, design and home modifications, and health and wellness. Assessment and intervention strategies will be addressed. Prerequisites: All first year courses. Corequisites: All fall semester second year courses. (F-second year)

OTA 220 Teaching Assistant: Medical Terminology (2)

Optional course which requires student to assist in OTA 120 Medical Terminology. Duties to include test proctoring, organizing review session and other duties as assigned. Prerequisite: College level medical terminology course equivalent to OTA 120. (F)

OTA 241 Teaching Assistant: Media (2)

Optional course which requires student to assist in media lab supervision, demonstrate techniques, participate in classroom maintenance and carry out other duties as assigned. (S)

OTA 252 Fieldwork Level I – Experience II (1)

This course is designed to enhance the OTA's participation in basic support services in occupational therapy, as well as the legal, ethical and supervisory issues in professional practice. Impacts of the health care delivery system on OT practice will be addressed. Prerequisites: All first year courses. Corequisites: All fall semester second year courses. (F-second year)

OTA 253 Orientation to Fieldwork II (1)

This course is designed to assist in the transition from the academic setting to clinical practice. Content included, but is not limited to, supervision styles, stress management and professional behavior. Policies governing fieldwork will be emphasized. This course reviews the OTA's role in the delivery of OT services for disabled individuals in a variety of settings. This course is designed to enhance student's personal and work behaviors in a small group atmosphere. Students will share experiences from Level I fieldwork. Emphasis is on group leadership and facilitation, development of communication and observation skills and use of self as a therapeutic self. Prerequisites: All first year courses. Corequisites: All fall semester second year courses. (F-second year)

OTA 254 Fieldwork Level II – Experience I (6)

Supervised experience of eight weeks or equivalent under the direction of qualified occupational therapy personnel in approved fieldwork sites. The students will work with clients with a variety of physical disabilities, psychosocial dysfunction or developmental delays or disabilities across the life span. The students will be expected to use knowledge and skills acquired in the academic setting to evaluate and treat clients and document according to prescribed regulations. The students will further be expected to conduct themselves in a professional manner in accordance with AOTA Code of Ethics. Prerequisites: Completion of all academic requirements and Level I Fieldwork. (S-second year)

OTA 255 Fieldwork Level II – Experience II (6)

Supervised experience of eight weeks or equivalent under the direction of qualified occupational therapy personnel in approved fieldwork sites. This experience follows Experience I and in a setting that provides therapy to a different population of clients than in the first experience. Client evaluation, treatment implementation and documentation will be expected of the students. The students will further be expected to conduct themselves in a professional manner in accordance with AOTA Code of Ethics. Prerequisites: Completion of all academic requirements and Level I Fieldwork. (S-second year)

*Students must complete two Level II Fieldwork Experiences to be eligible for graduation.

OTA 256 Seminar (1)

A culminating seminar designed to aid the transition from student to practitioner. This course provides opportunities for application and integration of academic course work used during fieldwork experiences. Students share experiences of being a part of the OT service team and reflect on how the role of occupational therapy and the occupational therapy assistant are demonstrated and delineated in the various fieldwork experiences. The importance of continued lifelong learning and professional development is stressed. Students complete a practice national certification exam and review the application process for the examination. After completion of at least one Level II Fieldwork Experience to be eligible for graduation. (S-second year)

OTA 295 Independent Study (1-4)

A study or in-depth analysis of a selected topic related to Occupational Therapy. This course may be repeated with a new topic. Must have a faculty advisor for project. (F, S)

OTA X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

OTA 299 Special Topics (1-4)

College class in process of development designed to meet student needs or interests or to utilize particular faculty resources. (F, S)

(PHIL) PHILOSOPHY**PHIL 200 Ethics in the Workplace (2 credits)**

Exploring ethical issues; understand and explore ethical principles appropriate to the business culture and environment. (As needed)

PHIL 210 Ethics (3)

This course is a philosophical examination of the kind of reasoning which helps to determine the rightness or wrongness of human actions. Reasoned principles are applied to such contemporary problems as capital punishment, pornography, euthanasia, abortion, war and terrorism, cloning, and social welfare. (F, S, O) *ND:HUM*

PHIL 213 Societal and Ethical Implications of Technology (3)

What is technology? What is society? What are ethics? What effect does technology have upon a particular society at a particular time in history? These are the questions which will help us formulate, understand and answer the main question in this course: How does a society, or a group within a society, make rationally sound, moral choices about the best use of existing and new technologies. We will review the history of technology and society, beginning with humans mastering the use of fire and ending with humans manipulating atoms and molecules at the nano-scale. The major focus of our work will be the social and moral implications of technology from the 16th century (CE) to the present time and beyond. (O)

PHIL X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

PHIL 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(PHRM) PHARMACOLOGY**PHRM 125 Pharmacology for Pharmacy Technicians (3 credits)**

This course focuses on the basic concepts of pharmacology, including drug uses, sources, major therapeutic classifications of medications, and actions of drugs, including the common adverse reactions of the major therapeutic classifications. Prerequisites and/or Corequisites: BIOL 115, BOTE 171, PRMT 101 and PRMT 102. Pre and Corequisite: PRMT 111. (F, O)

PHRM 201 Dental Pharmacology (2)

This course provides a study of drugs with an emphasis on those drugs utilized in the practice of dentistry. The course describes the chemical and physical properties of various drugs as well as their therapeutic use and effects. Prerequisite: Acceptance into the Dental Hygiene program. (S)

PHRM 205 Pharmacology for Nursing (3)

An introduction to drug legislation, sources, forms, major classifications, actions, side effects and nursing assessments and nursing interventions of medications. It prepares the student to begin a systematic and continuing study of drug therapy associated with common health problems and provides necessary information for safe administration of medications to the biopsychosocial, spiritual and culturally diverse client. Prerequisites of this course are satisfactory completion of the first semester of the NDSCS nursing curriculum. (Second semester of the curriculum) (F, S)

PHRM 207 Pharmacology for the Elderly (2)

The course will examine the effects of aging on the geriatric individual. These changes will be investigated in relation to their impact on pharmacodynamics and pharmacokinetics. Students will examine and analyze medication induced problems and the use of chemical restraints. This course is designed for the student who has successfully completed a basic pharmacology course.

PHRM X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

PHRM 299 Special Topics (1-5)

A course designed to meet special departmental needs.

(PHYS) PHYSICS**PHYS 100 Concepts of Physics (3 credits)**

An introduction to the concepts of physics as they apply to everyday life. Ideas are presented with a conceptual rather than mathematical approach. (As needed) *ND:SCI*

PHYS 110 Introductory Astronomy (3)

This is an introductory astronomy class intended to give the student an appreciation of the universe in which we live. Topics covered will include: ancient astronomy and the Copernican Revolution, astronomical measurements and instruments, the solar system, stars and stellar evolution, galaxies, black holes and cosmology. (As needed) *ND:SCI*

PHYS 120 Fundamentals of Physics (3)**PHYS 120L Fundamentals of Physics Lab (1)**

An introduction to the principles and concepts of physics with problem solving applications using mathematics. Includes topics from Newtonian mechanics work and energy, momentum, harmonic motion, fluids, temperature and heat, electric forces and fields, and electric circuits. (S) *ND:LABSC*

PHYS 211 College Physics I (3)**PHYS 211L College Physics I Lab (1)**

The non-calculus general physics course sequence recommended for pre-medical or pre-professional students. Topics: Newtonian mechanics and gravitation, work and energy, solids and fluids, heat and thermodynamics. The laboratory is a corequisite of this course. Prerequisites: MATH 103 or departmental approval. (F-in classroom) *ND:LABSC*

PHYS 212 College Physics II (3)**PHYS 212L College Physics II Lab (1)**

The non-calculus, general physics course sequence recommended for pre-medical or pre-professional students. Topics: Vibrations and waves, electricity and magnetism, light and optics, and an introduction to modern physics. The laboratory is a corequisite of this course. Prerequisite: PHYS 211. (S-in classroom) *ND:LABSC*

PHYS 251 University Physics I (4)**PHYS 251L University Physics I Lab (1)**

The calculus based general physics sequence for students majoring in chemistry, physics or engineering. Topics: Newtonian mechanics and gravitation, work and energy, solids and fluids, heat and thermodynamics. The laboratory is a corequisite of this course. Prerequisites: MATH 146 or MATH 165. (F-in classroom) *ND:LABSC*

PHYS 252 University Physics II (4)**PHYS 252L University Physics II Lab (1)**

The calculus based general physics sequence for students majoring in chemistry, physics or engineering. Topics: Vibrations and waves, electricity and magnetism, light and optics, and an introduction to modern physics. The laboratory is a corequisite of this course. Prerequisites: PHYS 251 and either MATH 147 or MATH 166. (S-in classroom) *ND:LABSC*

PHYS X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

PHYS 299 Special Topics (1-9)

A course designed to meet special department needs.

(PLA) PRIOR LEARNING ASSESSMENT**PLA 202 Prior Learning Assessment (1-12 credits)**

This course recognizes prior education and training provided through a USDOL or federally approved apprenticeship training program. Individuals who have completed at least 6000 hours (including 400 hours of related study) and who have applied for and been admitted to the NDSCS Technical Studies-Journeyworker Track will qualify.

(PLMB) PLUMBING**PLMB 101 Plumbing Theory and Code (4 credits)**

North Dakota recognizes the Uniform Plumbing Code for plumbing installation practices. Therefore, a study of the Uniform Plumbing Code is imperative to students studying the plumbing profession. PLMB 101 covers supplying adequate water and drain sizes for the comfort and protection of people. A detailed study of the state code as it regulates our trade and protects public health. No prerequisites. (F)

PLMB 102 Plumbing Theory and Code (4)

This course is based on the Contren Series Plumbing series, levels 1 and 2. The level one course covers: introduction to plumbing profession; plumbing safety; plumbing tools; introduction to plumbing math; introduction to plumbing drawings; plastic pipe and fittings; copper pipe and fittings; cast-iron pipe and fittings; carbon steel pipe and fittings; corrugated stainless steel tubing; fixtures and faucets; introduction to drain, waste and vent systems; and introduction to water distribution systems. The level two course covers: plumbing math two; reading commercial drawings; hangers, supports, structural penetrations and fire stopping; installing and testing DWV piping; installing roof, floor and area drains; types of valves; installing and testing water supply piping; installing fixtures, valves and faucets; introduction to electricity; installing water heaters; fuel gas systems; and servicing of fixtures, valves and faucets. (S)

PLMB 105 Core Curriculum for Plumbers (2)

The Core Curriculum consists of nine individual modules which are: Basic Safety Introduction to Construction Math, Introduction to Hand Tools, Introduction to Power Tools, Introduction to Blueprints, Basic Rigging, Basic Communication Skills, Basic Employability Skills and Materials Handling. (F – 1st 8-weeks)

PLMB 111 Plumbing Lab (6)

This lab orientated courses provides hands-on learning of the art of plumbing. Course includes installation of various plumbing fixtures, drains and water lines. Students put into practice knowledge learned in Plumbing 101 Corequisite: REFG 101. (F)

PLMB 112 Plumbing Lab (6)

A continuation of lab 111, where the student will develop a hands-on method of learning how to install plumbing fixtures, water lines and wastes and vents according to the Uniform Plumbing Code. Corequisite: PLMB 102. (S)

PLMB 132 Plumbing Drawing, Sketching and Design (3)

A study and practice in measuring, drawing, sketching and blueprint reading, with a detailed study of the plan view, isometric views and other areas that pertain to plumbing and mechanical installations. (F)

PLMB X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

PLMB 297 Cooperative Education (1-5)

Cooperative Education offers students the opportunity to integrate career, social and personal development into the educational process. The cooperative education program allows students to integrate classroom study with a paid work experience related to their fields of study. It is recommended that a student has successfully completed one year of academic study.

PLMB 299 Special Topics (1-9)

Designed to meet special departmental needs.

(PLSC) PLANT SCIENCE**PLSC 110 World Food Crops (3 credits)**

Scientific principles of crop growth, worldwide production, management alternatives and processing for domestic and international consumption. (S) *ND:SCI*

PLSC 115 Crop Technologies (2)

This course is designed to introduce students to the importance of seed selection in crop production. Seed traits and the economic impact of the seed business will be discussed. Planting systems, world market implications and stewardship of traits will be explored. This course provides the background information needed by today's seed representatives and farm producers. (S)

PLSC 138 Agronomic Technologies (3)

This course will cover materials needed by students seeking careers that utilize modern agricultural application equipment. Topics included in the class include red and near infrared optical sensor crop technology, crop protectant application practices and personal protective equipment, commercial driver's license pre-trip inspections and written test preparations, seed planter meter calibration, granular applicator, drill and planter calibration, harvest equipment calibration and adjustment, anhydrous ammonia safe handling practices, pesticide compatibility testing, tank mixing procedures, sprayer calibration methods, sprayer nozzles, storage, rinsing, and disposal of pesticide containers, and related topics. (F)

PLSC 223 Introduction to Weed Science (3)

Introduction of a basic knowledge of weeds, herbicide groups, the use of pesticides, economic and environmental considerations, personal safety, modes of action and terminology. (F)

PLSC 224 Introduction to Crop Protection (3)

Introduction to chemical crop protection such as herbicides, fungicides, insecticides and seed treatment. A study of chemical crop protection products or pesticides which aid in management and control of insects, diseases, weeds, fungi and other undesirable pests for improved crop health, growth and yield production. (F)

PLSC 225 Principles of Crop Production (3)

Principles of field crop production with emphasis on relationships of crops to their climate and production considerations as a means of managing resources and environment. (F)

PLSC 235 Field Scouting Techniques (3)

The purpose of this course is to provide students the skills necessary for proper pest identification and crop scouting techniques. Information such as crop growth and development, pest life cycles, damage symptoms and economic thresholds will be covered. Communication skills and presentation techniques will also be emphasized. (S)

PLSC 235L Field Scouting Techniques Lab (1)

Field scouting activities will be done in the field at various locations throughout the summer to give the student practical field experience. Prerequisite: PLSC 235. (Su)

PLSC X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

See also Ag Economics (AGEC), Agriculture (AGRI), Animal Science (ANSC) and Soil Science (SOIL)

(POL) POLITICAL SCIENCE**POLS 103 Global Politics in a Multicultural World (3 credits)**

Study of the nature of contemporary political communities around the world, with emphasis on the United States. A special focus of the course is the examination of global and multicultural issues related to the problems of specific world communities. Cross reference: HIST 207. (F) *ND:SS*

POLS 115 American Government (3)

Principles of American government, political behavior and institutions. A general survey of American federal government and politics with an emphasis on the history and development of the federal Constitution and the federal system. The legislative, judicial and executive branches of government and their interrelationship with each other and the bureaucracy are examined. The administration of territories, the two-party system, the media and current political issues and problems also are explored. (F, S) *ND:SS*

POLS 116 State and Local Government (3)

Structures, politics and behavior in states and local governments. A general survey of American state and local government and politics. Topics include operations, finances, types of political subdivisions, city government, county government and relations between local and state governments. (F, S) *ND:SS*

POLS 236 The American Constitution – Civil Liberties (3)

This course analyzes U.S. Supreme Court decisions and interpretations which focus on civil liberties, equal protection, due process and First Amendment rights. (As needed) *ND:SS*

POLS X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

POLS 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(PRMT) PHARMACY TECHNICIAN

PRMT 101 Orientation to Pharmacy Practice (1 credit)

Students will explore the unique role of the pharmacy technician in various health care settings such as community and hospital practices as well as some non-traditional roles. In addition to practice sites, students will be introduced to the laws that govern pharmacy practice as well as the common abbreviations used in various practice settings. The various dosage forms and routes of common medication administration will be additional topics in this course. (F, O)

PRMT 102 Pharmaceutical Calculations (3)

Students will demonstrate the ability to perform pharmaceutical calculations. Emphasis will be placed on basic computations, use of measuring tools, dosage computations, compounding calculations and solution preparations. Topics covered include dosage calculations including pediatric doses, conversions between systems, ratio and proportion, dilution and concentration, milliequivalents, units and intravenous flow rates, and compounding sterile and extemporaneous products. Prerequisite: ACT math score of 21 or completion of ASC 093. (F, O)

PRMT 111 Pharmacy Law and Ethics (1)

This course will focus on Pharmacy Law, state and federal as well as the ethical concepts important in healthcare. Topics will include FDA from 1938 to the present, CSA and the DEA, and ethical theories and applications including autonomy and confidentiality. Prerequisites: Successful completion of PRMT 101. (F, O)

PRMT 112 Pharmacy Records and Inventory Management (2)

This course is designed to introduce the student to ordering, inventory control and record keeping in a retail pharmacy. The student will be exposed to merchandising and pricing both prescriptions and OTC merchandise. The student will also be exposed to third party billing, rotation of stock and medication returns, Medicaid and Medicare. Prerequisite: PRMT 101, PRMT 102. (S)

PRMT 216 IV and Sterile Product Preparation Lab (2)

This course will focus on preparing the student technician for the preparation of all IV aseptic products. Including but not limited to IV piggyback medications, large volume IV's, total parental nutrition and chemotherapy agents. In addition, upon successful completion of PHRM 116, the student will have appropriate knowledge, skill and demonstration of aseptic technique, measuring medications, calculating drug amounts, laminar flow hood cleaning and appropriate professional garb requirements. Students will complete the ASHP curriculum designed to be compliant with USP 797 regulations. Prerequisite: Successful completion of PRMT 101, PRMT 102, PHRM 125. (S)

PRMT 217 Pharmacy Practice (3)

During this course students will master the concepts needed to interpret, dispense, label and maintain patient profiles in various pharmacy settings. Topics included in this course are communication skills, abbreviations, dosage calculations, policies and procedures of The Joint Commission, inventory control, medication safety and medication reconciliation. Students will master the top 200 drugs as well as the commonly used over-the-counter medications. This is a lecture course. Prerequisites: PRMT 101, PRMT 102, PRMT 111 and PHRM 125. (S, O)

PRMT 217L Pharmacy Practice Lab (1)

Students will master the skills needed to prepare medication orders and prescription orders for patient use and dispensing. This is a laboratory class; students will utilize computer software for retail and institutional settings as well as manual preparation of pharmaceutical products. Prerequisites: Successful completion of PRMT 101, PRMT 102, PHRM 125. (S, O)

PRMT 221 Chemical/Physical Pharmacy (2)

In this course students will be introduced to the concepts of extemporaneous product preparation, weighing, measuring of solid and liquid products, labeling and dispensing of these products and the chemical concepts required for their preparation. Students will be introduced to the concepts involving stability and compatibility of various preparations. Prerequisites: Successful completion of PRMT 101, PRMT 102, PHRM 125. Corequisite: PRMT 221L. (S, O)

PRMT 221L Chemical/Physical Pharmacy Lab (1)

This class is the laboratory class for PHRM 121. In this course the student technician will master skills needed to interpret, weigh and measure ingredients specially ordered by the physician for extemporaneously compounded products and dispense these compounds in accordance to approved pharmacy practice standards. Prerequisites: Successful completion of PRMT 101, PRMT 102, PHRM 125. Corequisite: PRMT 221. (S)

PRMT 231 Pharmacy Internship-Community Based (3)

Students who have completed all of the course work in the Pharmacy Technician certificate program qualify for this course. Students will participate for a minimum of 160 hours in a licensed community pharmacy setting, supervised by a registered pharmacist. The duties and tasks to be performed will be pre-determined based on classroom instruction to reinforce competencies. The duties and tasks to be performed will be agreed upon by the faculty, student and supervising pharmacist to guarantee learning. Performance activities are to include: customer relations; following workplace rules, procedures, ethics and legal parameters; processing of prescriptions including compounding, counting and pouring, packaging and labeling; inventory and stock operations including control, ordering and pricing, data entry and record-keeping. Prerequisites: Successful completion of all core curriculum courses with a grade of "C" or better. (S, Su)

PRMT 241 Pharmacy Internship-Hospital Based (3)

Students who have completed all of the course work in the Pharmacy Technician certificate program qualify for this course. Students will participate for a minimum of 160 hours in a licensed institutional (hospital) pharmacy setting, supervised by a registered pharmacist. Students will be assigned activities and will be evaluated in the following areas: compliance with the institution's policies and procedures, perform billing operations, use of drug dispensing systems, compound, package and label medications, process data on electronic systems, prepare sterile products, use of proper procedures in working with controlled substances, inventory maintenance, use of technology including automated dispensing machines and record-keeping. Prerequisites: Successful completion of all courses with a grade of "C" or better. (S, Su)

PRMT X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

PRMT 299 Special Topics (1-5)

A course designed to meet special departmental needs.

(PST) POWERSPORTS TECHNOLOGY

PST 101 Outdoor Power Equipment Theory (3 credits)

A theory course covering basic tools and service equipment, operating principles and construction of outdoor power equipment engines. Instruction includes tune-up and service procedures for lawn and garden equipment. This is a half-semester course. (F, first half of semester)

PST 102 Snowmobile Theory I (3)

A theory course covering two stroke operating principles, as well as complete service and troubleshooting of the snowmobile engine and its accessory systems. Discussion will cover engine diagnostic and overhaul procedures, as well as carburetion, lubrication systems, cooling systems, and other related items. This is a half-semester course. Prerequisite: PST 101. (F, second half of semester)

PST 103 Snowmobile Theory II (3)

A theory course covering operating principles of the snowmobile chassis. Discussion will include clutches, drive systems, front and rear suspensions, gas shocks, track systems, brakes, fuel injection, and electrical systems. Theory will cover service procedures for proper set up and service of the snowmobile chassis and related systems. This is a half-semester course. Prerequisite: PST 102. (S, first half of semester)

PST 104 Motorcycle/ATV/Marine Theory (4)

A theory course covering fundamental motorcycle and outboard marine engine theory and service practices. Motorcycle instruction will include engines, transmissions and clutches. Outboard instruction will include the powerhead, mid-section and gearcases. This is a half semester course. Prerequisite: PST 103. (S, second half of semester)

PST 111 Outdoor Power Equipment Lab (2)

Lab application of engine rebuilding, troubleshooting, and diagnostic procedures for outdoor power equipment engines and accessory support systems. Students will use manufacturers' recommended overhaul procedures and special tools to service outdoor power equipment. This is a half-semester course. (F, first half of semester)

PST 112 Snowmobile Lab I (2)

Lab application of rebuilding, troubleshooting and testing procedures of the snowmobile engine and its accessory systems. Students will use manufacturers' recommended procedures and specifications to properly service various makes and models of snowmobiles. This is a half-semester course. Prerequisite: PST 111. (F, second half of semester)

PST 113 Snowmobile Lab II (2)

Lab application covering complete chassis, drive and suspension systems used on various makes and models of snowmobiles. Students will repair and adjust snowmobiles to maintain proper operation. This is a half-semester course. Prerequisite: PST 112. (S, first half of semester)

PST 114 Motorcycle/ATV/Marine Lab (2)

Lab application of fundamental motorcycle engine and outboard marine engine service procedures. Projects will include engine and drivetrain overhaul and troubleshooting procedures. This is a half-semester course. Prerequisite: PST 113. (S, second half of semester)

PST 122 Fundamentals of Electricity (3)

This is a lecture, demonstration, and performance course which covers the principles of electricity and applies it to electrical circuits, batteries, and other electrical components. It will include Ohm's Law, and schematic reading and test instruments, as well as the testing of commonly used electrical components. The student will have a hands-on approach to learning electrical fundamentals, as well as repairing and troubleshooting electrical problems. This is a half semester course. (F-second 8 weeks)

PST 150 Outdoor Power Equipment I (3)

A combination theory and lab course covering basic tools and service equipment, operating principles and construction of outdoor power equipment engines. Instruction includes tune-up and service procedures for lawn and garden equipment. This course is offered as a dual credit option for Early Entry students only. This is a semester course. (F)

PST 151 Outdoor Power Equipment II (2)

A combination theory and lab application of engine rebuilding, troubleshooting and diagnostic procedures for outdoor power equipment engines and accessory support systems. Students will use manufacturers' recommended overhaul procedures and special tools to service outdoor power equipment. This course is offered as a dual credit option for Early Entry students only. This is a semester course. (S)

PST 152 Snowmobile Technology I (3)

A combination theory and lab course covering two stroke operating principles, as well as complete service and troubleshooting of the snowmobile engine and its accessory systems. Discussion will cover engine diagnostic and overhaul procedures, cooling systems, and other related items. Students will use manufacturers' recommended procedures and specifications to properly service various makes and models of snowmobiles. This course is offered as a dual credit option for Early Entry students only. This is a semester course. (F)

PST 153 Snowmobile Technology II (2)

A combination theory and lab course covering two stroke operating principles, as well as complete service and troubleshooting of the snowmobile engine and its accessory systems. Discussion will cover engine diagnostic and overhaul procedures, as well as carburetion, lubrication systems, and other related items. Students will use manufacturers' recommended procedures and specifications to properly service various makes and models of snowmobiles. This course is offered as a dual credit option for Early Entry students only. This is a semester course. (S)

PST 201 Motorcycle/ATV Theory II (3)

This course will study basic theory, service and troubleshooting of motorcycles and ATV's. Systems included will be engine, drive train, suspension, wheel, tire and fuel systems. Service department management procedures will be introduced. This is a half-semester course. Prerequisite: PST 104. (F, first half of semester)

PST 202 Outboard Theory II (3)

This course will study basic theory, service and troubleshooting of outboard marine engines. Systems included will be powerheads, gearcases, electrical, fuel, lubrication and basic tune-up. This is a half-semester course. Prerequisite: PST 104. (S, first half of semester)

PST 203 Stern Drive Theory (3)

This course will study basic operating theory, maintenance, and rebuilding procedures of various inboard marine engines and drives. Systems included will be engines, transom assemblies, vertical drives, hydraulic accessory systems, propellers and winterization. This is a half-semester course. Prerequisite: PST 202. (S, second half of semester)

PST 211 Motorcycle/ATV Lab II (4)

A hands-on lab application of service procedures for motorcycles and ATVs. Projects will include service of engines, transmissions and fuel systems. Chassis work will include inspection and service procedures for brakes, suspension, wheels, tires and drive train. Manufacturers' service literature and recommended service procedures will be emphasized. Prerequisite: PST 114. (F)

PST 212 Outboard Lab II (2)

A hands-on lab course which includes diagnosis, maintenance and repair of outboard marine engines. Systems included will be powerheads, gearcases, electrical, fuel and lubrication. Manufacturers' service literature and recommended procedures will be emphasized. This is a half-semester course. Prerequisite: PST 114. (S, first half of semester)

PST 213 Stern Drive Lab (2)

A hands-on lab course which includes diagnosis, maintenance and repair of inboard marine engines and drives. Systems included will be upper and lower gear housings, transom assemblies and engine accessory systems. Manufacturers' service literature and recommended service procedures will be emphasized. This is a half-semester course. Prerequisite: PST 212. (S, second half of semester)

PST 222 Motorcycle/ATV Electrical Systems (3)

This course will study basic theory, service and troubleshooting of motorcycle and ATV electrical systems. Systems included will be batteries, ignition, charging, lighting, starting and wiring diagrams. Prerequisite: PST 122. This is a half-semester course. (F, second half of semester)

PST X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

PST 297 Cooperative Education (1-5)

Cooperative education offers students the opportunity to integrate career, social and personal development into the educational process. The cooperative education program allows students to integrate classroom study with a paid work experience related to their fields of study. It is recommended that a student has successfully completed one year of academic study.

PST 299 Special Topics (1–8)

A class or activity designed or customized to meet the special needs of the student or to utilize faculty resources.

(PSYC) PSYCHOLOGY**PSYC 100 Human Relations in Organizations (2 credits)**

An examination of human relations in business and industry with emphasis on how people can work effectively in groups to satisfy both organizational and personal goals. Motivation, emotional and mental health, communication techniques and coping with stress are explored. Activities are used to encourage the application of concepts to enhance personal growth and insight and to increase social skills. (F, S, Su-upon demand, O) *ND:SS*

PSYC 103 Addictions and Alternatives (2)

This course offers an introduction to addiction, addictive behaviors and the physical, mental, and emotional effects on the individual and the family. Topics include theoretical perspectives on abuse, pharmacological characteristics of commonly abused substances, and stages of dependence and addiction. Alternative healthy behaviors and lifestyles choices will also be emphasized. (S)

PSYC 111 Introduction to Psychology (3)

An introductory survey of the scientific study of human behavior and mental processes. The course will consist of an examination of psychology as a science and a profession. It will explore the biological foundations of behavior, sensing and perceiving the physical world, and normal and altered states of consciousness. The course will examine forms of learning, language and higher cognitive processes such as memory, thinking and problem-solving. This lecture course will focus on motivation, emotion, life-span development, theoretical views of personality, personality assessment, stress and coping, health and behavior, abnormal behavior and its treatment, and social psychology. (F, S, O) *ND:SS*

PSYC 210 Child Development (3)

An introduction to the emotional, intellectual, physical, perceptual, and social development of the child from conception to adolescence. The relationship between development and parenting also will be explored. (F, S) *ND:SS*

PSYC 230 Educational Psychology (3)

A study of the application of the methods and principles of psychology to the process of teaching, learning and education. Using human development as a framework, the student will investigate learning theory and practice, motivation, classroom management, planning and effective teaching and the evaluation of students. This course will emphasize cooperative learning and an open-class approach. Prerequisite: PSYC 111. (F, S, O) *ND:SS*

PSYC 240 Industrial/Organizational Psychology (3)

An introduction to the application of the principles and methods of psychology to the workplace. Specific topics include employee selection, training, organizational behavior, leadership, conflict and cooperation, motivation, job satisfaction and morale, performance appraisal and stress in the workplace. Prerequisite: PSYC 111. Upon Demand. *ND:SS*

PSYC 250 Developmental Psychology (3)

A survey of the psychology of human life-span development. The emotional, intellectual, physical, perceptual and social development of the individual from conception to death is examined. (F, S, Su, O) *ND:SS*

PSYC 261 Psychology of Adjustment (3)

In this course the student will learn what psychological research says about improving adjustment and overall quality of life. (Factors affecting adjustment include gender, personality, self-esteem, ability to communicate effectively, health, experience of stress, changes with aging, coping processes, social influence and pressure, relationships with others, career preparation, work, and stages of life.) The desired outcome is for students to use this knowledge to actively take charge of their own lives, effectively adjusting to an ever-changing world. (Upon demand)

PSYC 265 Motivational Interviewing (3)

This course will include basic emphasis on case management, important issues in working with clients and learning practical skills regarding communication. The course is based on the premise of empowering clients through collaboration with appropriate providers. (S)

PSYC 270 Abnormal Psychology (3)

A survey of the classification, symptoms and etiology of psychology disorders. The student will examine the major psychopathologies such as anxiety disorders, mood disorders, substance-use disorders, and the schizophrenic disorders with a focus on etiology, diagnostic criteria, classification nomenclature and treatment approaches. The student will also explore the Diagnostic and Statistical Manual DSM-5 and its classification scheme. Prerequisite: 3 credits in psychology. (F, S, O) *ND:SS*

PSYC 290 Volunteer Internship (1-3)

Supervised placement in local agencies, organizations, and educational institutions to give the student experience in and to cultivate civic duty, volunteerism and the assistance of those in need. Students may also intern at a career-related site to evaluate and validate their vocational choice. (F, S, Su)

PSYC 291 Volunteer Internship (1-3)

Supervised placement in local agencies, organizations, and educational institutions to give the student experience in and to cultivate civic duty, volunteerism, career exploration and the assistance of those in need. Students may also intern at a career-related site to evaluate and validate their vocational choice. (F, S, Su)

PSYC X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

PSYC 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(REFG) REFRIGERATION AND AIR CONDITIONING TECHNOLOGY**REFG 101 Refrigeration Technology (3 credits)**

This lecture based course will touch on the following aspects of the refrigeration, heating and air-conditioning trade: safety as it pertains to the HVAC/R industry, tools and their uses, sheet metal layout and fabrication, iron pipe threading and fabrication, copper tubing joining methods and PVC piping. The class will thoroughly study the principals of heat transfer, refrigerants and basic refrigeration cycle. Refrigerant manifold gauge attachment and removal, refrigerant phases, and recovery system evacuation will also be covered in detail. This lecture is accompanied by the fabrication lab (REFG 111) and refrigeration systems lab (REFG 113) to allow application of content covered in this lecture. Corequisites: REFG 111 and REFG 113. (F)

REFG 102 Refrigeration Technology (3)

An in-depth study of the four essential components of the refrigeration system such as: evaporators, condensers, compressors and metering devices will be included in this course. Normal system operating conditions will be discussed for a variety of refrigeration and air conditioning applications. Understanding normal operating conditions will be essential in learning troubleshooting techniques. This course will begin with a review of the theories of refrigerants, refrigerant recovery methods, and system evacuation. Prerequisite: REFG 101. (S)

REFG 104 Refrigerants: Chemistry and Ecology (1)

With an emphasis on decreasing the impact on the environment by improved service techniques, study in this course will prepare the student to practice more environmental acceptable procedures. Study in this course will include: The chemical composition of the refrigerants commonly used in the refrigeration and air conditioning industry, effects of the refrigerants on the environment, service procedures recommended by the Environmental Protection Agency for preventing the release of refrigerants to the atmosphere. During the course the students will examine oils and the appropriate application, changing, and disposal methods. This course is designed to be a concentrated study to help the student pass the EPA Refrigerant Certification Exam. (S)

REFG 110 Blueprint Reading and Estimating (2)

In the HVAC/R industry it is imperative that professionals have a good working knowledge of blueprints. Blueprint reading and estimating learning outcomes are measuring and scaling skills, identification of symbols, and definitions of pertinent terms. The student will work with plan views, elevations, sections, details and specifications, and show how it is possible to determine the scope of the job and formulate a list of materials needed. Time will also be spent learning to determine how the building designer intended the HVAC/R equipment to be installed. No prerequisites are required. (F)

REFG 111 Fabrication Lab (2)

In the first eight weeks of this first semester course will be a practical hands-on counterpart to the REFG 101 theory class. It will introduce the student to the fabrication of sheet metal air distribution components, iron gas piping, copper tubing and PVC piping components. The activities will introduce the student to the construction and mechanical skills necessary for the installation of heating, ventilating, air conditioning and refrigeration equipment. REFG 111 will provide actual fabrication tools and equipment where the student will be able to practice fabricating projects until they are acceptable trade quality projects. Sheet metal layout, piping leak testing, threading, priming, gluing, silver soldering and silver brazing are examples of activities in this lab. Corequisite: REFG 101. (F)

REFG 112 Domestic and Residential Systems Lab (2)

This course will allow the student to apply refrigeration fundamentals to actual domestic and residential systems. Diagnostics, repairs and component replacements will be applied to refrigerators, freezers, window air conditioners, de-humidifiers and central air conditioning systems. There will also be application opportunities for the knowledge learned in REFG 102. A key component of the course will be providing repair reports on two separate pieces of equipment that the student has provided. Prerequisites: REFG 101, REFG 111 or equivalent. (S)

REFG 113 Refrigeration Systems Lab (2)

This second eight week course in the first semester will be a practical hands-on counterpart to the REFG 101 theory class. It will introduce the student to the refrigeration system and allow the student to take necessary readings and measurements to solidify their understanding of a simple refrigeration system. Also, there will be introductions and opportunities to use evacuation, refrigerant recovery and refrigerant charging equipment. Corequisite: REFG 101. (F)

REFG 121 Electrical Theory I (3)

An introduction to electrical theory, REFG 121 will allow study of the theories of electricity with an emphasis on how these theories apply to the HVAC/R industries. It will begin by examining atomic theory and how to use this knowledge to explain electrical pressure, current flow, resistance and electrical power. There will be an emphasis on Ohm's Law, series circuits, parallel circuits and series-parallel circuits. The student will be instructed on electric meters and their usage. Transformers, Alternating Current and Power Distribution Systems will also be studied. The course will also provide instruction in the components, symbols and circuits used in the HVAC/R industry. Corequisite: REFG 123. (F)

REFG 122 Electrical Theory II (3)

From motor theory to HVAC/R components to the wide varieties of electrical diagrams, the course focus is to give the student a strong background in electrical understanding necessary to install and service heating, ventilating, air conditioning and refrigeration systems. Special emphasis will be applied to troubleshooting techniques and skills. This course will provide an in-depth look at electric motor theory while examining electrical inductance and capacitance. Five motor types will be studied with an emphasis on operation, selection and application, as well as troubleshooting techniques. Motor starting dynamics and starting components will be studied as well. The course will cover the wide variety of components and circuits that are likely to be encountered in the HVAC/R industry. Electrical circuits and diagrams will be studied in-depth. Prerequisites: REFG 121 and REFG 123 or equivalents. (S)

REFG 123 Electrical Lab I (2)

A counter-part to the electrical theory class this course will allow the student to examine the electrical laws of voltage, current, resistance, and power by connecting circuits, measuring electrical data, and then comparing this data to the calculated values. Electrical meter operation and application, as well as safety practices will be focal points of the course. Control circuits will also be designed and examined. Emphasis will be placed on learning a solid understanding of the electrical fundamentals and troubleshooting skills necessary to work in the HVAC/R industry. Corequisite: REFG 121. (F)

REFG 124 Electrical Lab II (2)

This course will focus on preparing students for success in the HVAC/R industry. Because of the many electrical drive motors, electrical controls and in general, the large amount of electrical type problems likely to be encountered, the technician needs to be skilled in diagnostics, circuit diagrams and electrical meter application. This course will prepare students to that end. Students will be exposed to real circuits. Placing the volt, ohm and amp meter test leads on the circuit to discover what troubleshooting clues the readings will indicate. Time will be spent creating circuits by reading schematic wiring diagrams. Participants will be creating wiring diagrams from looking at existing diagrams. Taking volt, ohm and amperage readings for preventive maintenance will also be an activity in this class. Electrical simulators will be utilized by the students during the duration of the course. Prerequisites: REFG 121 and REFG 123. Corequisite: REFG 122. (S)

REFG 201 Refrigeration Technology (3)

Green is the emphasis in this course with an in-depth analysis of the refrigeration cycle. Students will use Pressure/Enthalpy diagrams to learn how dynamically the system operates and how changes in any area will affect the entire system. Proper piping and pipe sizing techniques will be studied and applied. The efficiency of the refrigeration system will be the focus. Prerequisites: REFG 101, REFG 102. (F)

REFG 202 Refrigeration Technology (3)

This course will provide a study of commercial refrigeration systems from a service and installation perspective. This will include studies of heat pumps, supermarket systems, ice making equipment and restaurant/food service equipment. The course emphasis will include system charging techniques, for peak efficiency, maintenance and troubleshooting. Prerequisite: REFG 201. (S)

REFG 211 Commercial Components Lab (2)

This course will explore the special components that are used with commercial refrigeration equipment and examine their application in operating systems. Attention will be given to system balance, in-depth compressor analysis, defrost methods, capacity controls, head pressure controls and refrigerant oils and temperature control methods. Prerequisites: REFG 101, REFG 102, REFG 112, REFG 113, or equivalents. (F)

REFG 212 Advanced Systems Lab (2)

This course will introduce students to more advanced systems such as parallel rack systems, ice machines, compound systems and cascade systems. An emphasis will be placed on developing HVAC/R troubleshooting techniques. Prerequisites: REFG 201, REFG 202, REFG 211 or equivalents. (S)

REFG 226 Building System Controls (3)

This course will begin with a review of electrical theory, relay logic, schematic diagram interpretation and troubleshooting. It will then introduce students to different automatic control systems used in the HVAC/R industry. As time permits, the course will begin with electro-mechanical controls and then proceed to pneumatics, direct digital controls, programmable logic controls and variable frequency drives. Prerequisites: REFG 121, REFG 122, REFG 123, REFG 124. (S)

REFG 231 Air Conditioning Design (3)

A discussion and completion format this course covers psychometrics, air quality, building envelope, air exchange and humidification. Emphasis is placed on energy efficiency as it pertains to duct design, lay out and balancing. When available, balancing will take place on site utilizing real buildings. The course includes classroom, traditional lab, homework and computer lab and building location work. Prerequisites: REFG 101, REFG 102, REFG 111, REFG 113. (F)

REFG 232 Air Conditioning Design (3)

Students will examine age-old questions. How big is big enough? How does one properly determine heating and cooling system size? With the energy efficient equipment that is available to us today in the HVAC industry, there comes the responsibility to size the equipment to the building energy loss or gain. Why size it correctly? Customer comfort, equipment life span and trouble free energy efficient performance are a few of the many good reasons. Green technology applications are a focus of study in this course. A working knowledge of the basics necessary to see HVAC system installation from sizing, planning and layout, selecting equipment, material list, to the completed balanced forced air system. Prerequisite: REFG 231. (S)

REFG 253 Heating Equipment Theory (2)

This subject matter will provide a broad exposure to a wide variety of heating equipment and their service needs. There will be in-depth discussion on gas, oil and electric heating equipment, as well as the mechanical, fuel combustion and electrical service. This course ties together how the installation of equipment affects the efficiency, all around performance and length of service equipment will have for the end user. This course was green before green was a popular word. The course covers most aspects of heating service and is accompanied by the heating equipment lab to allow application of content covered in this lecture. Prerequisites: REFG 101, REFG 102, REFG 121, REFG 123, or equivalents. (S)

REFG 254 Heat Pump Lab (2)

The Heat pump is back to stay and this course will explore air source and geothermal heat pumps. This study will include why heat pumps are a good alternative energy source. Students will analyze control systems, refrigeration components and the air requirements of heat pump systems. Time will be spent investigating how the refrigerant circuit differs from an air conditioner. Students will explore and wire different systems that employ back-up heat systems, dual-fuel systems and off-peak options. The heat pump will be examined from both the installation and service technician's perspective. Due to the importance of energy efficiency, systems will also be analyzed and adjusted to ensure design performance efficiencies. Prerequisites: REFG 101, REFG 102, REFG 121, REFG 123, or equivalents. (F)

REFG 255 Heating Equipment Lab (3)

The subject matter will provide a broad exposure to a wide variety of heating equipment and their service needs. Gas, oil and electric heating equipment will be explored, taken apart, reassembled and problems troubleshot. REFG 255 ties together how installation, good or bad, will affect the efficiency and length of service to the end user. This course accompanies a heating equipment lecture and covers the hands-on aspects of heating service application. Prerequisites: REFG 121 and REFG 123, or equivalents. (S)

REFG 256 Hydronic Heating Systems (3)

The study of hydronic heating from boiler operation to the types of application: forced air, convection and radiant. The course includes classroom and laboratory assignments, and will provide a working knowledge of the three types of hydronic heating, the design features and the proper installation of hydronic heating systems. Prerequisites: REFG 231, or equivalent. (S)

REFG X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

REFG 297 Cooperative Education (1-5)

Cooperative Education offers students the opportunity to integrate career, social and personal development into the educational process. The cooperative education program allows students to integrate classroom study with a paid work experience related to their fields of study. It is recommended that a student has successfully completed one year of academic study.

REFG 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(RELS) RELIGION**RELS 203 World Religions (3 credits)**

This course is an introduction and overview of major world religions. It will focus on the primary tenets of popular religions in our world. Religions to be included in this survey will be Hinduism, Buddhism, Confucianism, Taoism, Islam, Judaism and Christianity. There is an emphasis upon the need for dialogue amongst the various religious groups in the world. (Upon demand) *ND:HUM*

RELS X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

RELS 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(SOC) SOCIOLOGY**SOC 110 Introduction to Sociology (3 credits)**

An introductory analysis of the nature of society, the interrelationship of its component groups and the process whereby society persists and changes. The concept of culture, the process of socialization, social inequalities (such as class, gender, age and race), minority groups, the family and social change are the main topics discussed. (F, S, O) *ND:SS*

SOC 115 Social Problems (3)

A sociological analysis of major social problems. Emphasis is placed on crime and justice, race relations, drug and alcohol abuse, wealth and poverty, and the environmental themes of population and pollution. (F, S, O) *ND:SS*

SOC 220 Family (3)

A sociological examination of the institution of the family with focus on courtship, marriage and the family. Practical problems in communication and child rearing are explored. (F) *ND:SS*

SOC 221 Minority Relations (3)

A minority group is any group of people with less than its fair share of access to wealth and power in a particular society. The course focuses on the social institutions of the United States. Students will read and analyze a number of articles about how people's lives develop in relationship to their race, class and gender. (S) *ND:SS*

SOC X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

SOC 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(SOIL) SOIL SCIENCE**SOIL 210 Introduction to Soil Science (3 credits)**

Physical, chemical and biological properties of soils as related to use, conservation and plant growth. (F) *ND:SC1*

SOIL 222 Soil Fertility and Fertilizers (3)

Principles of plant nutrition and soil nutrient availability; soil testing and fertilizer recommendations and management. Macronutrient emphasis. (S)

SOIL X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

See also Ag Economics (AGEC), Agriculture (AGRI), Animal Science (ANSC), and Plant Science (PLSC)

(SPAN) SPANISH**SPAN 101 First Year Spanish I (4 credits)**

The ability to speak a second language is a very marketable skill in today's globalizing environment. Many businesses find it a desirable skill for potential job candidates. It also enables you to more successfully interact with those for whom English is a second language and with those who speak no English at all. Finally, the process of learning another language can help you appreciate the history and complexity of other cultures. In a world where 5,000 to 6,000 languages are in current use, Spanish is the fourth most widely spoken; it is the first language of over 425 million people. Consequently, if you wish to acquire a foreign language, it is a valuable one to learn. *ND:HUM*

SPAN 102 First Year Spanish II (4)

The ability to speak a second language is a very marketable skill in today's globalizing environment. Many businesses find it a desirable skill for potential job candidates. It also enables you to more successfully interact with those for whom English is a second language and with those who speak no English at all. Finally, the process of learning another language can help you appreciate the history and complexity of other cultures. In a world where 5,000 to 6,000 languages are in current use, Spanish is the fourth most widely spoken; it is the first language of over 425 million people. Consequently, if you wish to acquire a foreign language, it is a valuable one to learn. *ND:HUM*

(SWK) SOCIAL WORK**SWK 255 Social Work in a Modern Society (3 credits)**

This course is designed to provide an introduction to the profession of social work. Course content includes the history and development of the profession; the assumptions which underlie social work goals, functions and methods; the professional values guiding practice; and description of practice methods. The course also offers the student opportunities to learn about social roles and practice settings. (F) *ND:SS*

SWK 266 Development of Social Welfare (3)

This course covers the history, value, political and economic conditions that influence the development and provision of social welfare services. Information about inequality and the major social welfare programs that benefit the disadvantaged is included. A basic analytic model will be presented to evaluate social welfare policies. (S) *ND:SS*

SWK 297 Student Internship (4)

As an extension of the competencies developed in subsequent course work, this course consists of a 160-hour practicum in an approved human service setting. The course is designed to provide students with the opportunity to develop and apply program-related competences and skills. Prerequisites: All other core curriculum courses must be completed with a grade of "C" or better prior to students enrolling in MEHC 265.

SWK X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

(TECH) TECHNOLOGY**TECH 109 Air Conditioning (2 credits)**

This lecture/lab type course covers various air conditioning and heating units used on modern vehicles and other equipment. The student will learn principles of mobile heating, cooling, and ventilation, and proper recovery, repair, evacuation, leak detecting, and trouble-shooting procedures. Students will test for 609 Certification for mandatory refrigerant recovery and handling procedures. (F, S)

TECH 121 Engine Fundamentals (3)

A theory and lab course covering basic engine operating principles, cylinder and piston service, valve service, crankshaft and bearing service, lubrication systems, rebuilding procedures, measurement fundamentals and basic engine troubleshooting. This is a half-semester course. (F, S)

TECH 130 Industrial Safety (2)

A basic study covering occupational safety standards and codes with emphasis on applications to typical industrial, construction and shop situations. Topics include: the role of OSHA and other regulatory agencies, fire protection, hazardous materials, personal protection, operational and construction safety, as well as the study of accident causation and prevention. (As needed)

TECH X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

TECH 299 Special Topics (1-9)

A course designed to meet special departmental needs.

(THEA) THEATER**THEA 201 Theatre Practicum (1 credit)**

Participation in various activities of theatrical production. May be repeated. (F, S, Su) *ND:FA*

THEA 270 Stagecraft (1)

An introduction to the crafts and technologies of theater production. May be repeated. (F, S, Su) *ND:FA*

(WELD) WELDING**WELD 151 Welding Theory I (3 credits)**

This theory course introduces the processes of Gas Tungsten Arc Welding (GTAW), Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), and Oxy-Fuel Cutting (OFC). Safety for the student such as Personal Protection Equipment (PPE) and safe welding practices in the welding shop are emphasized. Welding and cutting equipment, selection of welding supplies and materials that are used in industry are introduced. Corequisite: WELD 153. (F)

WELD 152 Welding Theory II (3)

This theory course focuses on advanced lessons in Gas Metal Arc Welding (GMAW), Gas Tungsten Arc Welding (GTAW), Shielded Metal Arc Welding (SMAW), and Oxy-Fuel Cutting (OFC). Flux Core Arc Welding (FCAW) and Plasma Arc Cutting (PAC) are also introduced. The course will also study welding symbols, drawings, nonferrous welding applications, welding codes, specifications and tests with special emphasis on the American Welding Society (AWS) welder qualifications. Prerequisite: WELD 151. Corequisite: WELD 154. (S)

WELD 153 Welding Lab I (5)

This course gives beginning instructions in laboratory safety, use of Personal Protection Equipment (PPE), with a strong emphasis on the safe handling of welding and cutting equipment. Basic hands-on instruction in Gas Tungsten Arc Welding (GTAW), Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), Oxy-Fuel Cutting (OFC) on various thicknesses of metal, and the techniques used. Also covered are welding supplies and equipment maintenance. Corequisite: WELD 151. (F)

WELD 154 Welding Lab II (5)

Instruction will consist of perfecting skilled welding on plate steel in all positions using Shield Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), Gas Tungsten Arc Welding (GTAW), Flux-Core Arc Welding (FCAW) and Carbon Arc Cutting-Air (CAC-A). Students will practice and weld plates in accordance to the American Welding Society (AWS) certification guidelines. Prerequisite: WELD 153. Corequisite: WELD 152. (S)

WELD 201 Welding Theory III (4)

This course will provide the student with technical understanding in advanced welding theory which includes the study of electricity for the different welding and cutting processes. It will provide the student with a theoretical understanding of welding and cutting processes when using mechanical and computer controlled (CNC) equipment. It will provide the student with theory for writing Numerical Control (NC) programming. The course will also provide the student with theory on metallurgy pertaining to welding and cutting. A student portfolio will be designed. Prerequisite: WELD 152. Corequisite: WELD 211. (F)

WELD 202 Welding Theory IV (4)

This course provides theory to develop welding skills necessary to make certified welds according to the American Welding Society (AWS), American Society of Mechanical Engineers (ASME), or American Petroleum Institute (API) Codes. Weld-ability of ferrous and non-ferrous metals, metal identification, nondestructive and destructive testing, industrial safety, and OSHA regulations will be covered. This course will also provide the student with a technical understanding of weld procedures and the advanced operation of welding equipment including robotic applications. The student will learn various advanced welding certification and inspection applications which include what it takes to become a Certified Welding Inspector and a CWI's inspection duties. Prerequisite: WELD 201. Corequisite: WELD 212/213. (S)

WELD 211 Welding Lab III (7)

This course provides the student an opportunity to learn various advanced welding applications which include Gas Metal Arc Welding (GMAW), Shielded Metal Arc Welding (SMAW), and Gas Tungsten Arc Welding (GTAW). The student will also learn a technical understanding of machine control cutting and robotic welding operations which include Numerical Control (NC) programming and teach pendant control. This course will also provide the student with a technical understanding of tacking and welding techniques for completing projects to reflect industry standards. Prerequisites: WELD 152, WELD 154, MFGT 101, MFGT 123, MFGT 135, MFGT 137. Corequisite: WELD 201. (F)

WELD 212 Pipe/Plate Welding (7)

This course provides the student an opportunity to learn various advanced welding applications for pipe welding which include Shielded Metal Arc Welding (SMAW), Gas Tungsten Arc Welding (GTAW) and Gas Metal Arc Welding (GMAW). The student will also learn codes and certifications from various national welding standards including an unlimited thickness certification. This course will also provide the student with a technical understanding of calculating material and use of proper procedures for the completion of pipe weldments. Prerequisite: WELD 211. Corequisite: WELD 202. (S)

WELD 213 Fabrication Welding (7)

This course provides the student an opportunity to learn various advanced welding applications which include Gas Metal Arc Welding-Pulse (GMAW-P), Flux Cored Arc Welding (FCAW), Gas Tungsten Arc Welding (GTAW) and Shielded Metal Arc Welding (SMAW). The student will also learn a technical understanding of advanced cutting operations including Numerical Control (NC) programming. The student will also learn advanced CNC and robotic controls to correctly operate fabrication equipment. This course will also provide the student with a technical understanding of calculating material and use of proper procedures for the completion of projects manufactured in the lab. Prerequisite: WELD 211. Corequisite: WELD 202. (S)

WELD X92 Experimental Course (1-9)

A course designed to meet special departmental needs during new course development. It is used for one year after which time the course is assigned a different number.

WELD 297 Cooperative Education (1-5)

Cooperative Education offers students the opportunity to integrate career, social and personal development into the educational process. The cooperative education program allows students to integrate classroom study with a paid work experience related to their fields of study. It is recommended that a student has successfully completed one year of academic study.

WELD 299 Special Topics (1-15)

A course designed to meet special departmental needs.

State Board of Higher Education

Dr. Mark Hagerott
Interim Chancellor

Kathleen Neset, Chair
Tioga
Term Expires June 30, 2017

Nick Hacker
Bismarck
Term Expires June 30, 2019

Brett Johnson, Student Member
University of North Dakota
Term Expires June 20, 2016

Kevin Melicher
Fargo
Term Expires June 30, 2018

Don Morton
Fargo
Term Expires June 30, 2016

Eric Murphy, Faculty Adviser
University of North Dakota
Term Expires June 30, 2016

Mike Ness
Hazen
Term Expires June 30, 2018

Kari Reichert
Bismarck
Term Expires June 30, 2017

Greg Stemen
LaMoure
Term Expires June 30, 2019

Emma Tuft, Staff Advisor
Valley City
Term Expires June 30, 2016

North Dakota State College of Science

President's Office

John Richman, Ph.D., 1986
President

Vivian Bernotas, Certificate, 1991
Executive Assistant

Vice Presidents

Harvey G. Link, M.S., 1978
Vice President for Academic and Student Affairs

Kim Dassenko, B.U.S., 2003
Office Manager

Dennis Gladen, M.B.A., 2013
Vice President for Administrative Affairs

Associate Vice Presidents

Philip Parnell, Ph.D. 2012
Associate Vice President for Academic and Student Affairs

Jane Vangness Frisch, M.S., 2013
Associate Vice President for Institutional Research and Student Success

Deans

Barbara Bang, M.Ed., 1974
Dean of Technologies and Services Division

Patty Kline, B.S.W., 2010
Dean of College Outreach Division

Ken Kompelien, M.A., 1996
Dean of Arts, Science and
Business Division

Patricia Schrom, M.B.A., 2013
Dean of Extended Learning Division

Other Administrative Offices

Christine Ahlsten, M.Ed., 2005
Director, Distance Education

Kim Nelson, B.S., 2002
Interim Director, Alumni Foundation

Shelley Blome, B.S., 1981
Director, Financial Aid

David Dougherty, M.Ed., 2010
Coordinator, Fargo Programs

Dallas Fossum, A.A.S., 2007
Executive Director, Facilities Management

Tina Grenier, M.Ed., 1995
Lead Librarian

Steve Helgeson, Certificate, 1996
Sergeant/Supervisor, Campus Police

Tom Hickman, A.A.S., 1999
Coordinator, Instructional Technology

Keith Johnson, B.A., 1999
Chief Financial Officer

Melissa Johnson, B.A., 2007
Executive Director, Student and Residential Life

Kerri Kava, B.S. 2013
Assistant Director, Student Life

Barb Mund, B.U.S., 1979
Director, Admissions and Records

Barbara Spaeth-Baum, B.A., 2008
Director, College Relations and Marketing

Katie Tarter, B.S., 2015
Director, Auxiliary Services

Cloy Tobola, Ph.D., 2011
Chief Information Officer

Ericka Wentz, Ph.D., 2015
Director, Assessment and Institutional Research

Emeriti

Jerry C. Olson, Ph.D., 1987-2000
President Emeritus

Vernon E. Hektner, M.A., 1946-1984
Dean Emeritus

Don Kruckenberg, B.S., 1975-2005
Professor Emeritus

Robert J. Gette, M.S., 1965-2002
Vice President Emeritus

Donald J. Tobin, M.S., 1967-1995
Vice President Emeritus

Mercedes Morris, M.S., 1942-1985
Dean Emerita

Rene Moen, M.S., 1972-1999
Director Emerita

Don Engen, M.S., 1966-1998
Director Emeritus

Harlan Arneson, A.A.S., 1964-2007
Faculty Emeritus

Rodney Casad, D.D.S., 1966-1994
Department Chair Emeritus

Gloria Dohman, Ph.D. 1976 – 2013
Associate Vice President Emerita

Margaret Wall, M.S., 1975 – 2013
Dean Emerita

Instructional Departments

Academic Services Center

Maria Kaduc, M.S., 1994
Director

Mindi Bessler, M.S.W., 2010
Accessibility Support Coordinator

Karen Dahlgren, A.A.S., 1977
Test Center Supervisor

Cindy Lee Deuser, M.A., 2014
ASC/ELL Instructor

Traci Eklund, B.A., B.S., 2011
Assistant Professor

Linda Fink, B.S., 1995
FlexTime/Testing Coordinator

Larissa Gilbertson, M.S., 2011
Assistant Professor

Kara Gruenberg, B.S., 1992
Assistant Professor

Suzanne Hagelstrom, M.A., 2004
Assistant Professor

Erin Johnson, M.S., 2014
Academic Support Coordinator

Tami Metzen, M.S., 2004
Academic Support Specialist

Agriculture

Brad Tews, M.Ed., 1994
Associate Professor/Department Chair

Sheldon Schmiess, M.B.A., 2008
Associate Professor

Keith L. Torgerson, M.S., 1978
Assistant Professor
Director, Adult Farm Management Program

Anissa Wilhelm, Ph.D., 2006
Associate Professor

Craig Zimprich, B.S., 2008
Associate Professor

Allied Dental Education Department

Kathryn Dockter, M.S. R.D.H., 2013
Assistant Professor/Department Chair

Videll Ahrens, B.S., R.D.H., 2000
Associate Professor

Rhonda Edwardson, B.A., R.D.H., 2005
Associate Professor

Chanel Malone, B.A., R.D.A., 2014
Instructor
Dental Assisting Program Coordinator

Stacy Owens, B.S., R.D.H., 2011
Assistant Professor

Applied Science and Technologies Department

Rick Hendrickson, M.S., 1979
Associate Professor/Department Chair

Kristen Brevik, M.S., 2014
STEM Outreach Specialist

Kristi Jean, Ph.D., 2006
Associate Professor
STEM Program Coordinator

Auto Body Repair and Refinishing Technology

James Erdahl, B.S., 1997
Associate Professor/Department Chair

Tim Such, B.S., 1996
Associate Professor

Automotive Technology (including Powersports Technology)

Luke Kasowski, B.S., 2005
Associate Professor/Department Chair
Powersports Technology

Eugene Floersch, B.S., 2013
Assistant Professor

Mitchell K. Jobe, B.S., 1988
Associate Professor
Powersports Technology

Peter Mandt, A.A.S., 2007
Associate Professor
Automotive Technology Program Coordinator

Brian Rempfer, A.A.S., 1996
Associate Professor

R. David Rydell, B.S., 1986
Associate Professor

Derrick Sundeen, A.A.S., 2013
Assistant Professor

Business Administration and Management (including Culinary Arts)

Gregory Anderson, M.S., 2000
Associate Professor/Department Chair

Kyle Armitage, B.S., 2003
Associate Professor
Culinary Arts

Kathy Marquette, M.A., 1995
Associate Professor

Curt Schreiber, M.B.A., 2007
Associate Professor

Ann Smith, M.M., 2003
Assistant Professor

Mary Uhren, B.A., 1986
Associate Professor
Culinary Arts Program Coordinator

Construction and Design Technology
(including Architectural Drafting and Estimating Technology,
Building Construction Technology, Land Surveying and Civil
Engineering Technology, and Construction Management Technology)

Randy Stach, B.S., 1996
Associate Professor/Department Chair

Jeff Berg, B.S., 1995
Associate Professor
Building Construction Technology Program Coordinator

Lisa Hauck, B.S., 2006
Associate Professor, Architectural Drafting and Estimating Technology
Program Coordinator

Jeff Jelinek, A.A.S., R.L.S., 1998
Associate Professor
Land Surveying and Civil Engineering Technology

Paul Lekang, M.Ed., 1987
Associate Professor

Seth Simonson, A.A.S., 2014
Instructor

Peter Valkov, M.A., 2013
Instructor

Bryan Wolfgram, B.S., 2001
Associate Professor
Building Construction Technology

Diesel Technology
(including John Deere Tech, CAT Dealer Service,
Case IH and Komatsu)

Terry Marohl, B.S., 1992
Associate Professor/Department Chair

James Aakre, B.S., 1980
Associate Professor

Larry Ascherman, B.S., 1993
Associate Professor
John Deere Tech Program Coordinator

Charles Campbell, A.A.S., 1990
Associate Professor

Barry Frank, A.A.S., 2012
Assistant Professor

Rick Hand, B.S., 2003
Associate Professor
CAT Dealer Service Program Coordinator

Brian Hanson, Diploma, 2013
Instructor

Wayne Kaehler, A.A.S., 2001
Associate Professor

Michael Redding, Diploma, 2011
Instructor
Case IH Program Coordinator

Tyler Slettedahl, A.A.S., 2009
Associate Professor

Christopher Vlaminck, A.A.S., 2010
Assistant Professor

Electrical Technology
(including Mechatronics Technology)

Ivan Maas, B.S. Ed., 1985
Associate Professor/Department Chair

Mark Eback, A.A.S., 2004
Associate Professor

Slade Fitzgerald, A.A.S., 2002
Associate Professor

LeAnne Jaenisch, A.A.S., 2014
Instructor

Shane Suko, B.S., 2005
Associate Professor
Mechatronics Technology Program Coordinator

John Travis, B.S., 2006
Associate Professor

Lonnie Wurst, B.A., 2014
Instructor
Mechatronics Technology

English and Humanities

Wade King, M.A., 1996
Associate Professor/Department Chair

Dana Anderson, M.A., 2013
Assistant Professor

Ronda Marman, M.S., 2011
Assistant Professor

Sybil Priebe, M.A., 2005
Associate Professor

Anne Taylor, M.A., 2008
Associate Professor

Health Information

Geralyn Matejcek, M.B.A., RHIA, RHIT, 1995
Associate Professor/Department Chair

Ashley Brusseau, A.A.S., 2014
Instructor

Health, Physical Education and Recreation

Jane Passa, M.Ed., 1999
Department Chair/Assistant Professor
Head Coach, Volleyball

Thomas Dryburgh, M.Ed, 2014
Women's Basketball Coach

Stu Engen, M.Ed., 2012
Athletic Director/Head Coach, Men's Basketball/Home Event
Coordinator

Merle Johnson, M.S., 2014
Head Football Coach/Aquatics Coordinator

Ryan Steffens, B.S., 2006
Grounds/Athletic Equipment Tech.

Information and Communications Technology

Bonnie Schillinger, M.M., 1991
Associate Professor/Department Chair

John Kroshus, B.S., 1996
Associate Professor

Connie Schwantz, M.A., 1999
Associate Professor

Jeffory L. Watne, M.M., 1981
Associate Professor

Manufacturing Technologies
(including Precision Machining Technology and Welding Technology)

Steve Johnson, A.A.S., 1992
Associate Professor/Department Chair
Precision Machining Technology

Clinton Gilbertson, M.S., 2007
Associate Professor
Welding Technology

Vance Harthun, B.S., 2007
Associate Professor
Welding Technology

Joel Johnson, M.S., 1994
Associate Professor
Welding Technology Program Coordinator

Lee Larson, A.A.S., 2005
Associate Professor
Welding Technology, NDSCS-Fargo Programs Coordinator

Chance Pausch, A.A.S., 2013
Instructor

Jay Schimelfenig, A.A.S., 2002
Associate Professor

Lincoln Thompson, A.A.S., 2007
Associate Professor
Precision Machining Technology

Mitchell Van Vleet, A.A.S., 2014
Instructor

Mathematics and Science

Shannon King, M.S., 1999
Associate Professor/ Department Chair

Susan Bornsen, Ph.D., 2011
Assistant Professor

Margaret Brady, B.S., 2012
Assistant Professor

Cheryl Brown, M.S., 2003
Science Lab Manager

Brian Hagelstrom, M.S., 2000
Associate Professor

Jane Krump, M.S., L.R.D., 1980
Professor

Lawrence P. Merbach, M.Ed., 1966-76, 1980
Professor

Max Reinke, B.S., 1976
Associate Professor

Dr. William Shay, Ph.D., 2006
Associate Professor

Mechanical Systems Technologies
(including Heating, Ventilating, Air Conditioning and Refrigeration
(HVAC/R) and Plumbing)

Jeff Kukert, A.A.S., 2009
Assistant Professor/Department Chair
HVAC/R

Lon Lessard, A.A.S., 2004
Associate Professor
Plumbing

Mark Wood, A.A.S., 2001
Associate Professor
HVAC/R

Nursing

Barbara Diederick, M.S.N., R.N., 1980
Associate Professor/Department Chair

Jeri Christiansen, M.S.N., R.N., 2015
Instructor

April Desing, B.S.N., R.N., 2013
Assistant Professor

Ruth Gladen, M.S.N., R.N., 1996
Associate Professor

Sheila Goettle, M.S.N., R.N., 2008
Associate Professor

Rachel Moszer, M.S.N., R.N., 2011
Assistant Professor

Jan Rudisel, M.S.N., R.N., 2005
Assistant Professor

Debra Smith, B.S.N., R.N., 2012
Assistant Professor

Michelle Tompkins, B.S.N., R.N., 2015
Instructor

Whitney West, B.S.N., R.N., 2015
Instructor

Occupational Therapy Assistant

Elizabeth Schlepp, M.Ed., COTA/L, 1994
Associate Professor/Department Chair

Missi Twidwell, B.S., OTR/L, 2003
Assistant Professor
Outreach Therapist Supervisor

Connie Vosberg, B.S., COTA/L, 2010
Outreach Therapist

Paramedic (EMT) Technology

Tom Dobrzynski, B.S., NRP, 2014
Program Coordinator

Performing Arts

Laurie Lekang, M.Ed., 1980
Associate Professor/Department Chair

Dean Foley, M.A., 1994
Associate Professor

Bryan Poyzer, M.Ed., 2015
Instructor

Pharmacy Technician

Ken Strandberg, R.Ph., MBA, 1995
Program Director

Barb Lacher, B.S., R.Ph.Tech., CPhT, 1995
Associate Professor/Assistant Program Director

Social and Behavioral Sciences

Jane Krump, M.S., L.R.D., 1980
Professor/Department Chair

Marilyn Evenson, Ph.D., 2011
Associate Professor

Jeff Hart, M.A., 2007
Associate Professor

Harvey Henderson, BSc, MDiv., 2001
Associate Professor

Laurie Lekang, M.Ed., 1980
Associate Professor

Char Schuler, M.S.W., 2005
Assistant Professor

Kelly Wolf, Ph.D., 2005
Instructor

NORTH DAKOTA STATE COLLEGE OF SCIENCE

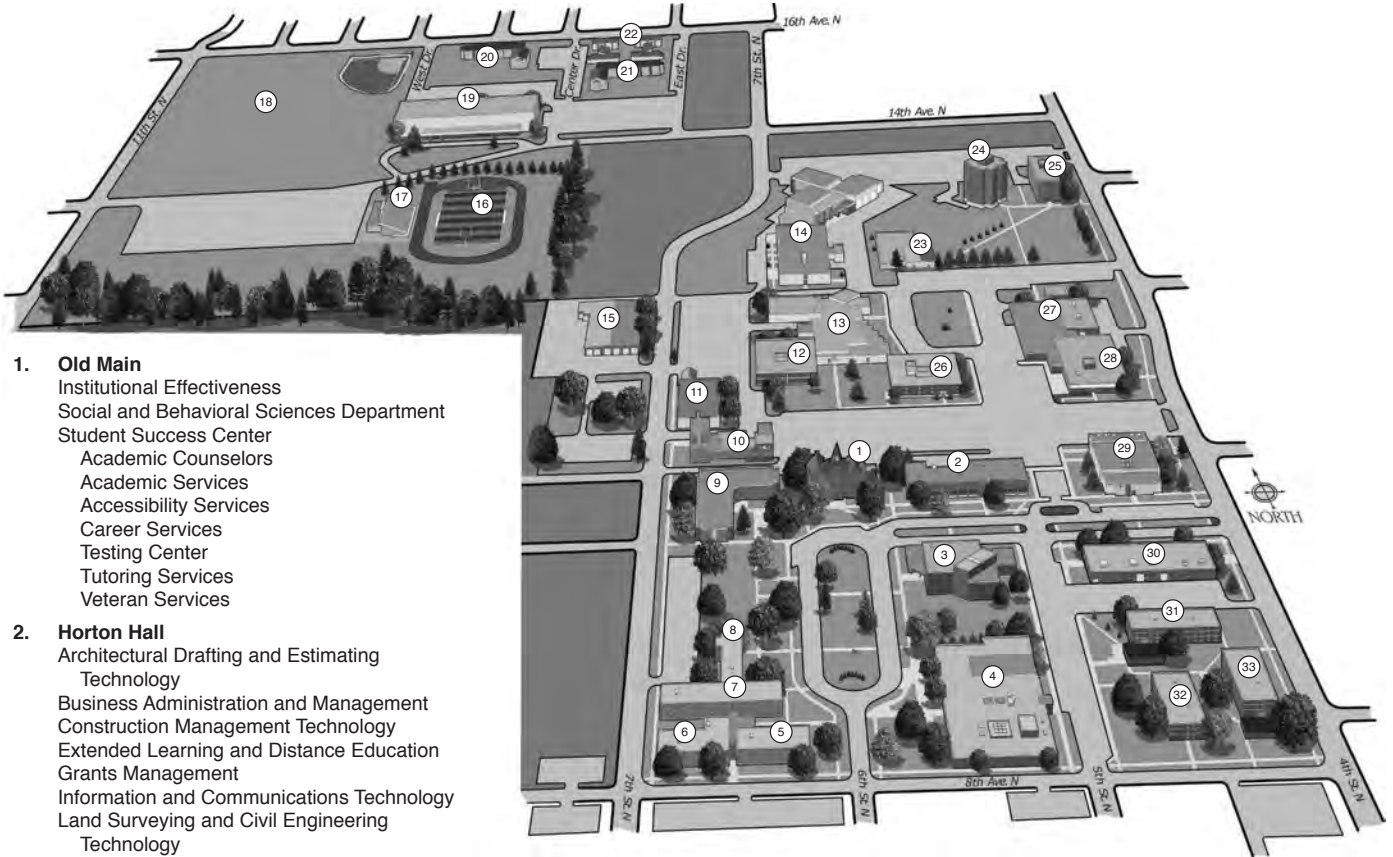
SELECTED CAMPUS PHONE NUMBERS

Department	Phone
Accounts Payable.....	671-2288
Alumni/Foundation.....	671-2247
Arts, Science and Business Division.....	671-2295
Athletics.....	671-2281
Bookstore.....	671-2125
Business Affairs.....	671-2216
Campus Police.....	671-2233
College Outreach Division.....	671-2206
College Relations and Marketing.....	671-2245
Customer Service Desk.....	671-2401
Dining Services.....	671-2321
Distance Education.....	671-2566
Enrollment Services	
Admissions.....	671-2521
Records.....	671-2202
Extended Learning Division.....	671-2566
Facilities Management.....	671-2313
Financial Aid.....	671-2207
Grants Management.....	671-2696
Human Resources.....	671-2903
Information Technology Services (ITS) Service Desk.....	671- 3333
Library Services.....	671-2298
Mail Center.....	671-2227
President's Office.....	671-2221
Residential Life.....	671-2224
Student Life Assistant Director.....	671-2109
Student Health and Counseling Services.....	671-2286
Student Services Division.....	671-2669
Student Success Center.....	671-3000
Academic Counseling.....	671-2257 / 671-2263
Academic Services.....	671-2622
Career Services.....	671-2258
Veteran's Services.....	671-2257
Technologies and Services Division.....	671-2244
Vice President for Academic and Student Affairs.....	671-2416
Vice President for Administrative Affairs.....	671-2217

To reach these offices toll-free, call 1-800-342-4325 and use the extensions listed above.

NORTH DAKOTA STATE COLLEGE OF SCIENCE

WAHPETON CAMPUS MAP - 800 SIXTH STREET NORTH



1. Old Main

Institutional Effectiveness
 Social and Behavioral Sciences Department
 Student Success Center
 Academic Counselors
 Academic Services
 Accessibility Services
 Career Services
 Testing Center
 Tutoring Services
 Veteran Services

2. Horton Hall

Architectural Drafting and Estimating
 Technology
 Business Administration and Management
 Construction Management Technology
 Extended Learning and Distance Education
 Grants Management
 Information and Communications Technology
 Land Surveying and Civil Engineering
 Technology
 Print Services

3. Harry Stern and Ella Stern Cultural Center

Alumni/Foundation
 Bremer Bank Theatre
 Performing Arts Department

4. Student Center

Bookstore
 Campus Police
 Culinary Arts Department
 Customer Service
 Dining Services
 Information Technology Services
 Student Life
 The Alley/Game Room

5. Walton Residence Hall

6. Schulz Residence Hall

7. Forkner Residence Hall

8. Riley Residence Hall

Residential Life
 Student Health and Counseling Services

9. Haverty Hall

Admissions and Enrollment Services
 Academic and Student Affairs
 Business Affairs
 College Relations and Marketing
 English and Humanities Department
 Human Resources
 Mathematics and Science Department
 President's Office
 Safety

10. Central Heating Plant

11. Mechanical Systems

HVAC/R Technology
 Plumbing

12. Barnard Hall

Electrical Technology
 HVAC/R Technology
 Robotics, Automation and Mechatronics
 Technology

13. Tech Center

Agriculture Department
 Arts, Science and Business Dean's Office
 College Outreach
 TrainND Southeast
 Related Study
 John Deere Tech
 Manufacturing Department
 HAAS Technical Education Center
 Technologies and Services Dean's Office

14. Bisek Hall

Case IH
 Caterpillar Dealer Service Technician
 Diesel Technology
 Komatsu

15. Patterson Maintenance Center

Central Receiving
 Facilities Management
 Motor Pool
 Purchasing

16. Frank Vertin Athletic Field

17. Earl "Skip" Bute Alumni Stadium

18. Intramural Sports Field

Gayle Miller Softball Complex

19. Clair T. Blikre Activities Center

Athletics
 Ed Werre Arena
 Fitness Center
 Health, Physical Education and Recreation
 Pool

20. Northwest Apartments

21. Southeast Apartments

22. College Townhomes

23. Building Construction Technology

24. Nordgaard Residence Hall

25. Robertson Residence Hall

26. Mildred Johnson Library

Instructional Technology
 Library

27. Schuett Hall

Automotive Technology
 Snap-on Innovation Center
 Powersports Technology

28. Trade Tech II

Welding Technology

29. Mayme Green Allied Health Center

Allied Dental Education
 Health Information
 Nursing
 Occupational Therapy Assistant
 Pharmacy Technician

30. Ballweber Hall

Auto Body Repair and Refinishing

31. Babcock Hall

Information and Communications
 Technology

32. McMahon Hall

33. Satterlee Hall

NORTH DAKOTA STATE COLLEGE OF SCIENCE

NDCS-FARGO ROOM DIRECTORY - 1305 19TH AVENUE NORTH



KEY		
● Office Space	● Meeting Room	▲ Exit
● Classroom	○ Other	



2014 NDSCS PLACEMENT REPORT

	Responding Graduates	Jobs Posted w/ NDSCS Career Services+	Beginning Avg. Monthly Salary	Reported Monthly High Salary	Placement Rate
Agriculture*	25	101	\$3,138	\$3,750	100%
Architectural Drafting and Estimating Technology	10	203	\$3,669	\$4,160	86%
Associate in Science in Nursing (RN)	20	56	\$3,525	\$4,333	100%
Auto Body Repair and Refinishing Technology	16	56	\$2,377	\$2,600	100%
Automotive Technology^	24	227	\$2,569	\$4,000	100%
Building Construction Technology	5	107	-	-	100%
Business Management**	17	619	\$2,415	\$4,250	100%
Caterpillar Dealer Service Technician	20	209	\$4,185	\$5,720	100%
Construction Management Technology	9	160	\$2,467	\$2,947	89%
Culinary Arts~	14	76	\$1,769	\$3,120	100%
Dental Assisting	8	54	\$2,580	\$2,773	100%
Dental Hygiene	24	32	\$4,565	\$6,607	91%
Diesel Technology***	53	209	\$3,234	\$6,569	98%
Electrical Technology^^^	31	429	\$3,188	\$5,937	100%
Health Information++	11	36	\$2,801	\$5,000	90%
HVAC/R Technology	4	93	\$2,730	\$2,860	100%
Information & Communications Technology^^	12	163	\$3,060	\$4,000	100%
John Deere Tech	28	209	\$3,021	\$4,750	100%
Land Surveying & Civil Engineering Technology	6	122	\$4,475	\$10,417	100%
Mechanical Systems	1	44	-	-	100%
Mechatronics Technology	5	25	\$3,988	\$4,843	100%
Microelectronics Technology	3	12	-	-	100%
Nanoscience Technology	1	0	-	-	100%
Occupational Therapy Assistant	22	51	\$3,037	\$3,987	100%
Paramedic (EMT) Technology'	14	28	\$2,944	\$4,000	100%
Pharmacy Technician	11	25	\$2,195	\$2,253	100%
Plumbing	6	21	\$2,373	\$2,600	83%
Powersports Technology	23	31	\$2,379	\$3,120	96%
Practical Nursing	33	103	\$2,806	\$3,245	100%
Precision Machining Technology	19	179	\$3,106	\$3,467	100%
Welding Technology	50	114	\$3,099	\$6,667	100%
Totals and Averages	525	3,794	\$3,026	\$4,369	98%

NOTES:

* Agriculture (Includes Animal Science, Crop Production Sales and Technology, Farm Management and Ranch Management)

^ Automotive Technology (Includes Automotive Alignment and Brake Technician, Automotive Engine Technician, Automotive Transmission and Driveline Technician)

** Business Management (Includes Business Technology Management, eBusiness, General Business Management, Marketing Management and Restaurant Management)

~ Culinary Arts (Includes Chef Training and Management Technology and Restaurant Management)

*** Diesel Technology (Includes General Diesel, Case IH and Auto and Diesel Master Technician)

^^^ Electrical Technology (Includes Construction, Industrial and Master Technician)

++ Health Information (Includes Health Information Technician and Medical Coding)

^^ Information and Communications Technology (Includes Information Systems Administrator, Information Technology Support, IT Forensics, Mobile Application Developer, Web Design and Web Developer)

' Paramedic (EMT) Technology (Includes Emergency Medical Technician)

+ Jobs posted with NDSCS Career Services may be related to more than one academic program.

Admission Information
Tuition & Fees
Financial Aid
Academic Information
Policies & Procedures
Distance Education
College Outreach
Student Services
Academic Programs
Course Descriptions



NORTH DAKOTA STATE COLLEGE OF SCIENCE

WAHPETON | FARGO | ONLINE

VISIT NDSCS.edu

**NORTH DAKOTA STATE COLLEGE OF SCIENCE
ENROLLMENT SERVICES**

800 6th Street North | Wahpeton, ND 58076
800-342-4325, ext. 2521
ndscs.admissions@ndscs.edu