2023-2024
Curriculum Catalog

Minnesota North College

A Member of Minnesota State

Our Mission

Minnesota North College prepares lifelong learners and engaged citizens through inclusive, transformative experience reflecting the character and natural environment of the region.

Our Vision

Minnesota North College will be the premier provider of life-changing education and the catalyst for regional prosperity.

Minnesota North College is a member of Minnesota State, and an affirmative action, equal opportunity employer and educator.

Minnesota North College is committed to ensuring equal access to our facilities, services, and academic programs for students with disabilities. The Accessibility/Disability Services office (formerly Disability Services) works in partnership with faculty, staff, and students to remove disability-related barriers to education through reasonable accommodations in compliance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act Amendments Act (ADAAA) of 2008.

No academically qualified student with a disability will be denied access to or participation in the services, programs, and activities of Minnesota North College.

We provide information and resources to support an environment that is accessible and inclusive for all individuals. This document is available in alternate formats upon request by going to https://minnesotanorth.edu/student-services/accessibility-disability-services/ to obtain the contact information of your home campus Accessibility Services Coordinator.

Minnesota North College is accredited by The Higher Learning Commission.

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We Value

Access and Opportunity
We provide access to transformative education, equipping all learners to achieve their goals.

Community Engagement
We collaborate and build relationships within our communities to support and enrich our region.

Equity and Inclusion
We advance equity and social justice, striving to build more diverse, equitable, and inclusive communities.

Environment and Culture
We explore the history, culture, and natural surroundings of our region, recognizing their contributions to our unique learning environment.

Growth and Learning
We create a safe learning community that cultivates personal growth, critical thinking, and self-refection.

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ACADEMIC PROGRAMS

Art and Design

Art Transfer Pathway - Associate of Fine Arts Degree (60 credits)

The Art Transfer Pathway AFA offers students a powerful option: the opportunity to complete an Associate of Fine Arts degree with course credits that directly transfer to designated Art bachelor's degree programs at Minnesota State universities. The curriculum has been specifically designed so that students completing this pathway degree and transferring to one of the seven Minnesota State universities enter the university with junior-year status. All courses in the Transfer Pathway associate degree will directly transfer and apply to the designated bachelor's degree programs in a related field. Universities within the Minnesota State system include Bemidji State University; Metropolitan State University; Minnesota State University, Mankato; Minnesota State University Moorhead; Southwest Minnesota State University; St. Cloud State University; and Winona State University.

Graphic Design Media - Diploma (64 credits)

Behind the evening newscast, your favorite YouTube channel, and every great print ad, poster, illustration, and photograph is some wicked technical knowledge mixed in with a fair amount of creativity. The Graphic Design Media program prepares students for a multitude of career options in visual storytelling. Here, you will start the creative career you have always dreamed of, or never knew you could pursue, while staying close to home and saving yourself a ton of money. Cohorts are available at the Hibbing, Itasca, and Rainy River campuses, as well as a remote learning option.

Graphic Design Media - Associate of Applied Science Degree (73 credits)

Behind the evening newscast, your favorite YouTube channel, and every great print ad, poster, illustration, and photograph is some wicked technical knowledge mixed in with a fair amount of creativity. The Graphic Design Media program prepares students for a multitude of career options in visual storytelling. Here, you will start the creative career you have always dreamed of, or never knew you could pursue, while staying close to home and saving yourself a ton of money. Cohorts are available at the Hibbing, Itasca, and Rainy River campuses, as well as a remote learning option.

Business, Accounting, and Economics

Accounting Transfer Pathway - Associate of Science Degree (60 credits)

The Accounting Transfer Pathway offers students a powerful option: the opportunity to complete an Associate of Science/Arts degree with course credits that directly transfer to designated Accounting bachelor's degree programs at Minnesota State universities.* The curriculum has been specifically designed so that students completing this pathway degree and transferring to one of the seven Minnesota State universities enter the university with junior-year status. All courses in the Transfer Pathway associate degree will directly transfer and apply to the designated bachelor's degree programs in a related field. (*Universities within the Minnesota State system include Bemidji State University; Metropolitan State University; Minnesota State University, Mankato; Minnesota State University Moorhead; Southwest Minnesota State University; St. Cloud State University; and Winona State University.)

Business Transfer Pathway - Associate of Science Degree (60 credits)

The Business Transfer Pathway Associate of Science (AS) degree program offers students a powerful option: the opportunity to complete an Associate of Science degree with course credits that directly transfer to designated Business bachelor's degree programs at Minnesota State universities. The curriculum has been specifically designed so that students completing this pathway degree and transferring to one of the seven Minnesota State universities enter the

university with junior-year status. All courses in the Transfer Pathway associate degree will directly transfer and apply to the designated bachelor's degree programs in a related field. (*Universities within the Minnesota State system include Bemidji State University; Metropolitan State University; Minnesota State University, Mankato; Minnesota State University Moorhead; Southwest Minnesota State University; St. Cloud State University; and Winona State University.)

Business Operations and Management - Diploma (31 credit)

The Business Operations and Management program will give students the skills and knowledge to be proficient in the latest business software applications, business concepts and operations. Students will learn presentation, problem-solving, customer service, and team-building skills that are vital in today's workplace. During the program students receive hands-on training in keyboarding skills, and the most current version of the Microsoft applications: Word, Excel, PowerPoint, and Access, as well as QuickBooks accounting software. This program is fully online.

Business Operations and Management - Associate of Applied Science Degree (60 credits)

The Business Operations and Management program will give students the skills and knowledge to be proficient in the latest business software applications, business concepts and operations. Students will learn presentation, problem-solving, customer service, and team-building skills that are vital in today's workplace. During the program students receive hands-on training in keyboarding skills, and the most current version of the Microsoft applications: Word, Excel, PowerPoint, and Access, as well as QuickBooks accounting software. This program is fully online.

Construction Management and Supervision - Associate of Science Degree (60 credits)

The Associate in Science degree in Construction Management is designed for students who are interested in pursuing a baccalaureate or a professional degree in construction management as well as students preparing for career entry positions. This program will prepare students for supervisory and management positions in the construction industry. The curriculum combines basic fundamentals with key courses in applied management, engineering, design, and business that are required to manage complex construction projects.

Construction Management courses for this degree are offered on-line through our program partner Dakota County Technical College. All general education courses are offered online, on-campus or hybrid through Minnesota North College.

Construction Management and Supervision - Associate of Applied Science Degree (60 credits)

The Construction Management & Supervision Degree program is designed to prepare the students for entry-level supervisory and management positions in the construction industry. The coursework combines basic fundamentals with key courses in the behavior and physical sciences, construction technology, and management and business that are required to manage complex construction projects.

Construction Management courses for this degree are offered on-line through our program partner Dakota County Technical College. All general education courses are offered online, on–campus or hybrid through Minnesota North College.

Economics Transfer Pathway - Associate of Arts Degree (60 credits)

The Economics Transfer Pathway offers students a powerful option: the opportunity to complete an Associate of Science/Arts degree with course credits that directly transfer to designated Economics bachelor's degree programs at Minnesota State universities.* The curriculum has been specifically designed so that students completing this pathway degree and transferring to one of the seven Minnesota State universities enter the university with junior-year status. All courses in the Transfer Pathway associate degree will directly transfer and apply to the designated bachelor's

degree programs in a related field. (*Universities within the Minnesota State system include Bemidji State University; Metropolitan State University; Minnesota State University, Mankato; Minnesota State University Moorhead; Southwest Minnesota State University; St. Cloud State University; and Winona State University.)

Entrepreneurship - Certificate (16 credits)

Entrepreneurial studies prepare individuals to perform development, marketing, and management functions associated with owning and operating a business. Minnesota North has special focus on business plan development and applied entrepreneurial activities that can be tailored to students' entrepreneurial goals. We recommend that students counsel with program faculty to determine the combination of elective courses that will best meet their goals.

Culinary Arts and Pastry

Culinary Arts - Diploma (31 credit)

Students in the Culinary Arts program learn to implement the basic food production and management techniques necessary in the Food Service Industry. Included are basic food handling and safety techniques, planning and production, personnel management, cost control methods, and nutritional menu planning.

Culinary Arts/Food Service Management - Diploma (60 credits)

Students in the Culinary Arts program learn to implement the basic food production and management techniques necessary in the food service industry. Included are basic food handling and safety techniques, planning and production, personnel management, cost control methods, and nutritional menu planning.

Culinary Arts/Food Service Management - Associate of Applied Science Degree (65 credits)

Students in the Culinary Arts program learn to implement the basic food production and management techniques necessary in the food service industry. Included are basic food handling and safety techniques, planning and production, personnel management, cost control methods, and nutritional menu planning.

Pastry Artist - Certificate (16 credits)

The Pastry Artist certificate provides students with a variety of advanced baking and decorating skills. Students will learn to design and create edible vegetable, sugar, chocolate, and bread sculptures, including showpieces for display. Students will also learn advanced techniques for cake design and decoration, creating a variety of different types of cakes while working with gum paste, fondant, buttercream, sugar, and chocolate. The courses can be taken in any sequence, and the certificate can be an add-on option for one- and two-year culinary program students.

Education

Child Development - Certificate (18 credits)

The purpose of the program is to enhance the quality of childcare by defining, evaluating, and recognizing the competence of childcare providers. The program has been developed to address the six national competency goals and standards required for the National CDC. Candidates can receive their CDC in any of the following three areas: Center-Based Preschool Setting, Center-Based Infant/Toddler Setting, and Family Child Care Setting. Students will have the opportunity to gain work experience through an onsite practicum in area early childhood programs. This experience, along with coursework, will prepare students with a strong foundation for working with young children in the community. The CDC certificate is geared to both nontraditional students actively engaged in professional work with early childhood as well as to students in any related

discipline who wish to increase their employability by successfully acquiring the skills in early childhood education and child development.

Class Act Pre-Education - Associate of Science Degree (60 credits)

Class Act is a specialized teacher preparation program that is one of a kind in northern Minnesota. The coursework, the learning environment, the adventures, and the curriculum are specifically designed for educators. Students experience hands-on, real-life experiential learning at its best in classroom labs and via a specially designed curriculum for education majors. You'll become an educator in a totally new way that prepares you to teach in the 21st Century.

Early Childhood Education Transfer Pathway - Associate of Science Degree (60 credits)

The Early Childhood Education Transfer Pathway offers students a powerful option: the opportunity to complete an Associate of Science/Arts degree with course credits that directly transfer to designated Early Childhood bachelor's degree programs at Minnesota State universities.* The curriculum has been specifically designed so that students completing this pathway degree and transferring to one of the seven Minnesota State universities enter the university with junior-year status. All courses in the Transfer Pathway associate degree will directly transfer and apply to the designated bachelor's degree programs in a related field. (*Universities within the Minnesota State system include Bemidji State University; Metropolitan State University; Minnesota State University, Mankato; Minnesota State University Moorhead; Southwest Minnesota State University; St. Cloud State University; and Winona State University.)

Early Childhood/Early Childhood Special Education - Associate of Applied Science Degree (60 credits)

The Early Childhood/Early Childhood Special Education AAS Degree prepares students for employment in an Early Childhood setting. Students will obtain the educational background and practical experience necessary to provide young children (birth to age eight) of varying abilities with developmentally appropriate learning experiences. Students will also explore universal promotion, secondary prevention, and tertiary intervention approaches to educate and care for children with challenging behaviors. Physical space, appropriate routines, and myriad transition and teaching strategies will be practiced. In addition, students will develop several communication strategies that will foster an inclusive, relationship-based approach to interacting effectively with diverse families.

Engineering

Engineering - Associate of Science Degree (60 credits)

Minnesota North College features the most comprehensive two-year engineering program in the state. This nationally recognized program provides the first full two years of engineering coursework in an engaging, project-based learning environment. Students completing the program graduate with an AS Degree in Engineering and are prepared for a seamless transfer to their chosen university.

Health Sciences

Dental Assistant - Diploma (40 credits)

The Dental Assistant program is a nationally accredited course which prepares students for a rewarding career in the field of dental assisting. Within nine months, students learn a variety of skills required of a chairside assistant, laboratory technician, and dental receptionist. Students master the skills of polishing teeth, applying fluoride, taking impressions, placing and removing rubber dams, and taking x-rays during school clinic sessions. Extramural training in area dental offices allows students to practice the skills they have acquired in school. After successfully completing the Diploma program, students are eligible to take the National Chairside Assisting Certification Exam and the Minnesota Registration Exam.

Dental Assistant - Associate of Applied Science Degree (60 credits)

The Dental Assistant program is a nationally accredited course which prepares students for a rewarding career in the field of dental assisting. Within nine months, students learn a variety of skills required of a chairside assistant, laboratory technician, and dental receptionist. Students master the skills of polishing teeth, applying fluoride, taking impressions, placing and removing rubber dams, and taking x-rays during school clinic sessions. Extramural training in area dental offices allows students to practice the skills they have acquired in school. After successfully completing the Diploma program, students are eligible to take the National Chairside Assisting Certification Exam and the Minnesota Registration Exam.

Emergency Medical Services - Certificate (11 credit)

The Emergency Medical Services program trains participants to be part of the nation's Emergency Medical System. Areas of study include scene control, patient assessment, triage, use of standard equipment, transport concerns, legalities, and physiological theory related to medical trauma situations. Emergency Medical Technician (EMT) certification requires hospital and ambulance time, skill test competencies, 70% passing scores on all sections of the National Registry Exam, and fee payments. A tuberculin test or X-ray clearance from a physician is required for the clinical portion of the training. Other certification requirements include a minimum age of 18 and an application process with a criminal background check. (Consult the National Registry for EMTs and the State of Minnesota EMS Regulatory Board for specific requirements of EMT certification.)

Emergency Medical Technician - Certificate (16 credits)

EMT/Paramedics are trained to provide medical care to people who have suffered from an illness or an injury outside of the hospital setting. EMTs and Paramedics work under protocols approved by a physician medical director to recognize, assess, and manage medical emergencies and transport patients to definitive medical care. EMTs provide basic life support, and EMT/Paramedics provide advanced life support.

Fireline EMT - Certificate (19 credits)

The Fireline Emergency Medical Technician Certificate trains participants to be part of the nation's Incident Management Team focused in the Emergency Medical Services System. Successful students in this certificate will have the skills necessary to seek employment as Emergency Medical Responders (EMRs) and Emergency Medical Technicians (EMTs) in State and National Fire and Incident Management Systems. The program consists of Emergency Medical Responder and Emergency Medical Technician courses, as well as wildland fire training/mechanical skills and forest field skills courses. Courses in search and rescue management and wilderness survival round out the certificate, providing graduates with the skills necessary for playing a successful and safe role on a fire or natural disaster incident.

Health Care Careers - Certificate (28 Credits)

The Health Care Careers Certificate program prepares students to enter the health care field as a nursing assistant, home health aide, or trained medication aide and provides foundational coursework for transfer into many different health programs.

Health Sciences Broad Field - Associate of Science Degree (60 credits)

This program provides students a broad base of general education coursework relevant to the field of health sciences, in preparation to transfer to a broad array of health sciences majors at a college or university. This degree program is designed to fulfill health science baccalaureate requirements at all Minnesota State system universities offering related degrees. This degree is designed to transfer to all system universities offering related baccalaureate programs through a statewide articulation agreement. The Health Sciences Broad Field Statewide articulation agreement has been approved by all system universities. Even with this agreement, students must consult with counselors/advisors early and often, for guidance and planning regarding the requirements of the

various health sciences baccalaureate programs. This will help to facilitate the most efficient transition and transfer.

Medical Coding and Scribing - Diploma (41 credit)

The Medical Coding and Scribing Program is a diploma program designed to provide entry-level personnel with the necessary skills to perform abstracting and coding of medical records as well as real-time recording of patient-doctor interaction.

Medical Laboratory Technician - Associate of Applied Science Degree (62 credits)

Medical Laboratory Technology is a profession which combines the challenges and rewards of both medicine and science. A medical laboratory technician performs a wide range of laboratory tests including microscopic examination of blood, identification of bacteria and viruses and other laboratory testing that can lead to the diagnosis of diseases such as AIDS, diabetes, and cancer. Students learn the theory and principles behind the tests they perform and learn to correlate the results with patient's conditions. In addition, students earn general education credits, including anatomy and physiology and communications which leads to an Associate in Applied Science (AAS) Degree.

Nursing Assistant/Home Health Aide - Certificate (4 credits)

The program prepares students for jobs in a variety of health care settings such as nursing homes, semi-independent living facilities, hospitals, group homes, and home care agencies. Responsibilities include skills in personal care, positioning, transferring, vital signs, and documentation. The 4-credit course consists of lecture, lab, text work, group activities, and hands-on clinical in a long-term care setting and/or supervised lab practical. Upon completion of the course, students are eligible to take the Minnesota State Competency Examination. Successful completion of this test allows students to be certified and placed on the Nursing Assistant Registry for the State of Minnesota.

Practical Nursing - Diploma (45 credits)

The Practical Nursing Program provides carefully selected course instruction (lectures, demonstrations, discussions, computers, etc.) in a face-to-face or web-enhanced delivery and clinical practice (at community health care facilities) which enables the student to meet the basic needs of patients and function as a practical nurse.

Nursing - Associate of Science Degree (64 credits)

Minnesota North College offers an Associate in Science Degree in nursing. Traditional students and advance standing LPNs are accepted. Clinical experiences are provided in area community hospitals, clinics, nursing homes, and other community-based health care agencies.

Paramedic - Diploma (52 credits)

EMT/Paramedics are trained to provide medical care to people who have suffered from an illness or an injury outside of the hospital setting. EMTs and Paramedics work under protocols approved by a physician medical director to recognize, assess, and manage medical emergencies and transport patients to definitive medical care. EMTs provide basic life support, and EMT/Paramedics provide advanced life support. Minnesota North College Paramedic students participate in regional disaster drills, joint training sessions with area public safety agencies and get a great learning experience. Paramedic training is composed of in-classroom, didactic instruction; in-hospital clinical practice; and a supervised field internship on an ambulance. Courses typically are competency-based and supported by performance assessments. Instruction provides students with knowledge of acute and critical changes in physiology, psychological and clinical symptoms that they might encounter in an emergency medical situation.

Paramedic - Associate of Applied Science Degree (67 credits)

EMT/Paramedics are trained to provide medical care to people who have suffered from an illness or an injury outside of the hospital setting. EMTs and Paramedics work under protocols approved by a physician medical director to recognize, assess, and manage medical emergencies and transport patients to definitive medical care. EMTs provide basic life support, and EMT/Paramedics provide advanced life support. Minnesota North College Paramedic students participate in regional disaster drills, joint training sessions with area public safety agencies and get a great learning experience. Paramedic training is composed of in-classroom, didactic instruction; in-hospital clinical practice; and a supervised field internship on an ambulance. Courses typically are competency-based and supported by performance assessments. Instruction provides students with knowledge of acute and critical changes in physiology, psychological and clinical symptoms that they might encounter in an emergency medical situation.

Wilderness Emergency Medical Services - Certificate (13 credits)

The Wilderness Emergency Medical Services program trains participants to be part of the nation's Emergency Medical System. A wilderness emphasis is placed on the following areas of study: scene control, patient assessment, triage, use of standard equipment, transport concerns, legalities, and physiological theory related to medical and trauma situations. Emergency Medical Responder (EMR) certification requires skills test competencies, 70% passing scores on all sections of the National Registry Exam, and fee payments.

Human Services

Addiction Studies - Certificate (30 credits)

This certificate is intended for those students who have completed a bachelor's degree and are seeking licensure for Licensed Alcohol and Drug counselor (LADC) through the Minnesota Board of Behavioral Health and Therapy. This program is designed to provide students an understanding of addictions and chemical use and substance use disorders on individuals, families, and society. Goals of the program is to provide students with the knowledge and skills needed to be able to recognize and treat individuals with substance use and chemical and co-occurring disorders. A graduate will have acquired an understanding of the concepts, principles, skills, methods, and techniques needed to work with those whose lives have been seriously affected by addiction or abuse. A variety of treatment approaches and interventions are studied. Through their coursework and practicum experiences, students are expected to develop competency in the following twelve core functions of an alcohol and drug counselor: screening, intake, orientation, assessment, treatment planning, counseling, case management, crisis intervention, client education, referral, reports, and record keeping, and consultation with other professionals regarding treatment and services. TAP 21 counseling competencies will also be a thrust of the program. The program is designed to meet the 270 classroom clock hours of educational requirements and 880 practicum/internships hours to obtain full licensure (Licensed Alcohol and Drug Counselor-LADC).

Addiction Studies - Associate of Applied Science Degree (60 credits)

This entry level program is designed to provide students an understanding of addictions and chemical use and substance use disorders on individuals, families, and society. Goals of the program is to provide students with the knowledge and skills needed to be able to recognize and treat individuals with substance use and chemical and co-occurring disorders. A graduate will have acquired an understanding of the concepts, principles, skills, methods, and techniques needed to work with those whose lives have been seriously affected by addiction or abuse. A variety of treatment approaches and interventions are studied. Through their coursework and practicum experiences, students are expected to develop competency in the following twelve core functions of an alcohol and drug counselor: screening, intake, orientation, assessment, treatment planning, counseling, case management, crisis intervention, client education, referral, reports, and record keeping, and consultation with other professionals regarding treatment and services. TAP 21 counseling competencies will also be a trust of the program. The program is designed to meet the

270 classroom clock hours of educational requirements and 880 practicum/internships hours for Minnesota temporary permit (Alcohol and Drug Counselor Trainee-ADC-T) after obtaining the AAS degree and full licensure (Licensed Alcohol and Drug Counselor-LADC) after obtaining a 4-year degree in a social or behavioral science, which is recommended.

Applied Psychology/Human Services - Associate of Science Degree (60 credits)

The Applied Psychology/Human Services program is one of a kind in MN! It was designed to provide a strong foundation of knowledge and skills for students who are interested in going into a variety of human service-related fields (e.g., psychology, social work, case management, corrections, chemical dependency counseling). In addition to completing general education requirements, the A.S. offers students a transformative experience that emphasizes application of learning and direct field experience.

Human Services Generalist - Associate of Applied Science Degree (60 credits)

The Human Services Generalist AAS program is designed to provide the training appropriate for beginning employment in a human services occupation. At the Mesabi Range campus, this program provides students with the knowledge, values, and skills necessary for culturally sensitive human services practice. The curriculum is designed to prepare students in the initial stages of beginning practice to provide services that advance the well-being of people; promote social and economic justice; and enhance the social functioning of individuals, families, groups, organizations, and communities. The program provides both academic and field-based experiences that allow the student to integrate beginning theoretical and applied knowledge to engage in the planned change process at the micro, mezzo, and macro levels of practice. The program provides a basis of human service practice to advance to generalist social work practice that is largely guided by the Council on Social Work Education or a different social/behavioral science profession.

Information Technology

Cisco Network Technician - Certificate (17 credits)

The CISCO Network Technician program provides comprehensive, project-based training in computer network design, set-up, maintenance, troubleshooting, and administration. Students participate in hands-on projects which provide experimental learning, while preparing for the CISCO certification exam. This exam, given at the completion of two semesters, determines if the student is fully qualified to work as a CISCO Certified Network Associate. Throughout the two semesters, students are learning about network operations and management.

IT Networking and Security - Diploma (67 credits)

This program prepares students to understand, recommend, operate, install, test, modify and repair software and equipment. Concentration is on board level work with hardware, software, applications, security, and networking. Such graduates are often placed in entry level IT positions within numerous industries.

IT Networking and Security - Associate of Applied Science Degree (72 credits)

This program prepares students to understand, recommend, operate, install, test, modify and repair software and equipment. Concentration is on board level work with hardware, software, applications, security, and networking. Such graduates are often placed in entry level IT positions within numerous industries.

Law Enforcement

Criminal Justice/Police Science - Associate of Science Degree (60 credits)

The Criminal Justice-Police Science AS degree program prepares students for a career in criminal justice and law enforcement, and it meets the academic requirements of the Professional Peace Officer Education Program (PPOE) established by the Minnesota Board of Peace Officers Standards and Training (POST). Students who wish to become peace officers must complete a state-certified law enforcement program that includes both the academic curriculum and law enforcement skills/clinical training (fulfilled by the additional Park Ranger Law Enforcement Academy certificate). Students considering careers in law enforcement need to be aware that in order to enter the police profession, specific standards and requirements must be met. Admission into the required PPOE skills training not only requires completion of an associate's degree, but it also requires meeting physical fitness standards, passing a psychological evaluation, and passing drug, medical, and background/criminal history screening. Additionally, a graduate must pass the POST examination for licensing in Minnesota in order to be eligible for employment as a peace office in the state.

Law Enforcement - Diploma (41 credit)

This program prepares individuals to perform the duties of police and public security officers, including patrol and investigative activities, traffic control, crowd control and public relations, witness interviewing, evidence collection and management, basic crime prevention methods, weapon and equipment operation and maintenance, report preparation, and other routine law enforcement responsibilities.

Law Enforcement - Associate of Applied Science Degree (72 credits)

This program prepares individuals to perform the duties of police and public security officers, including patrol and investigative activities, traffic control, crowd control and public relations, witness interviewing, evidence collection and management, basic crime prevention methods, weapon and equipment operation and maintenance, report preparation, and other routine law enforcement responsibilities.

Law Enforcement Transfer Pathway - Associate of Science Degree (68 credits)

The Law Enforcement Transfer Pathway offers students a powerful option: the opportunity to complete an Associate of Science/Arts degree with course credits that directly transfer to designated Law Enforcement bachelor's degree programs at Minnesota State universities.* The curriculum has been specifically designed so that students completing this pathway degree and transferring to one of the seven Minnesota State universities enter the university with junior-year status. All courses in the Transfer Pathway associate degree will directly transfer and apply to the designated bachelor's degree programs in a related field. (*Universities within the Minnesota State system include Bemidji State University; Metropolitan State University; Minnesota State University, Mankato; Minnesota State University Moorhead; Southwest Minnesota State University; St. Cloud State University; and Winona State University.)

Law Enforcement Skills - Certificate (12 credits)

This program prepares individuals to perform the duties of police and public security officers, including patrol and investigative activities, traffic control, crowd control and public relations, witness interviewing, evidence collection and management, basic crime prevention methods, weapon and equipment operation and maintenance, report preparation and other routine law enforcement responsibilities.

Wildland/Wildlife Law Enforcement - Associate of Applied Science Degree (72 credits)

The Wildland/Wildlife Law Enforcement AAS degree program prepares students for several career tracks in natural resources law enforcement, and it meets the academic requirements of the Professional Peace Officer Education Program (PPOE) established by the Minnesota Board of Peace Officers Standards and Training (POST). Students who wish to become peace officers must

complete a state-certified law enforcement program that includes both the academic curriculum and law enforcement skills/clinical training (fulfilled by the additional Park Ranger Law Enforcement Academy certificate). This two-year degree program also provides the natural resource education necessary for careers with the four federal land management agencies, the Bureau of Land Management (BLM), the National Park Service (NPS), the US Forest Service (USFS), and the US Fish and Wildlife Service (USFWS). Students considering careers in law enforcement need to be aware that in order to enter the police profession, specific standards and requirements must be met. Admission into the required PPOE skills training not only requires completion of an associate's degree, but it also requires meeting physical fitness standards, passing a psychological evaluation, and passing drug, medical, and background/criminal history screening. Additionally, a graduate must pass the POST examination for licensing in Minnesota in order to be eligible for employment as a peace office in the state.

Park Ranger Law Enforcement Academy - Certificate (19 credits)

The Park Ranger Law Enforcement Academy (PRLEA) is a certificate program designed for students who have already earned an associate's or bachelor's degree. Graduates of Vermilion's Wildland/Wildlife Law Enforcement AAS and Criminal Justice-Police Science AS degree programs may apply to enroll in this program the fall semester following graduation. Students transferring to Vermilion who have earned a two-year or four-year degree at an accredited college or university are also eligible to apply. This hands-on, skills-based program prepares the prospective law enforcement officer to perform the duties required by law enforcement/peace officer positions at both state and federal levels. Structured in an academy style, this 19-credit certificate is scheduled once each year, fall semester. Vermilion's academy is one of six specifically designed for the National Park Service (NPS) to provide the basic training required to prepare students for careers as NPS law enforcement rangers. Graduates successfully passing all PRLEA exams are eligible for a law enforcement commission and can apply for a seasonal position with the NPS. Additionally, Vermilion is certified by the MN POST Board to provide the professional peace officer education required for licensure as a police officer in the state of Minnesota. Graduates of the program meeting state minimum qualifications will be eligible to take the MN POST Board peace officers licensing exam.

Liberal Arts and Sciences (see also Transfer Pathways)

Associate of Arts Degree (60 credits)

The Associate of Arts (AA) is a 60 college-level credit degree designed for students who plan to transfer to four-year institutions. Students who complete the AA degree will also have met the Minnesota Transfer Curriculum (MnTC) requirements. The MnTC is complete when the specific requirements for each Goal Area are met and a minimum of 40 credits from within the MnTC course list is earned. A 2.00 GPA is required for both the MnTC and AA degree. A student may complete the Minnesota Transfer Curriculum without completing the Associate of Arts degree.

Indigenous Studies - Certificate (27 credits)

The Indigenous Studies program at Minnesota North College promotes the understanding of tribal culture and builds students' knowledge of American Indian literature, art, history, and philosophy. The curriculum includes the study of traditional cultural values, tribal language, tribal social structures, social and intellectual relations between Indians and Whites, and a history of the interactions between tribal nations and the federal government. Special attention is placed on American Indian sovereignty and tribal efforts to preserve the freedom of cultural beliefs, such as language and religion.

Minnesota North's Indigenous Studies program maintains close relationships with other American Indian academic programs at the K-12 districts and four-year institutions. The program maintains ongoing field activities with Ojibwe tribal communities in the region including the opportunity for

students to participate in projects with local schools and agencies. The program has an Indian Elders Advisory Board. In addition, the program sponsors the Anishinaabe Student Organization.

Natural and Environmental Sciences

Environmental Science - Associate of Science Degree (60 credits)

The Environmental Science AS at Vermilion includes the broad range of science and mathematics courses necessary to ensure that students are well-prepared for transfer into bachelor's degree programs in Environmental Science or Environmental Studies.

Environmental Studies - Associate of Science Degree (60 credits)

The Environmental Studies program is designed to provide individuals with a foundation in both natural and social sciences in preparation for advanced coursework in a variety of environmental majors at the university level. Students have opportunities to analyze a range of issues within earth, environmental, biological, chemical, and physical sciences, and the inherent interrelationships placed on analyzing the complexity of contemporary environmental issues and the development of sustainable policy solutions to address the competing interests between human institutions and environmental capacity at local, regional, and global scales.

Fireline Emergency Medical Technician - Certificate (19 credits)

The Fireline Emergency Medical Technician Certificate trains participants to be part of the nation’s Incident Management Team focused in the Emergency Medical Services System. Successful students in this certificate will have the skills necessary to seek employment as Emergency Medical Responders (EMRs) and Emergency Medical Technicians (EMTs) in State and National Fire and Incident Management Systems. The program consists of Emergency Medical Responder and Emergency Medical Technician courses, as well as wildland fire training/mechanical skills and forest field skills courses. Courses in search and rescue management and wilderness survival round out the certificate, providing graduates with the skills necessary for playing a successful and safe role on a fire or natural disaster incident.

Fisheries and Wildlife Management - Associate of Science Degree (60 credits)

The Fisheries and Wildlife Management AS is designed as a transfer program with a strong component of field-based courses early in the academic schedule, preparing students to be wildlife managers and biologists. Courses included focus on basic field skills, knowledge of plant communities, wildlife species habitat requirements, and biological and ecological concepts. This mix of field-based courses, along with the mathematic and scientific rigor of this academic program, will allow students an opportunity to gain summer employment in the field, while continuing to make progress toward a 4-year degree. Students that complete both the Fisheries and Wildlife Management AS degree program and the Wildlife Ecology Certificate qualify for North American Wildlife Technician Association accreditation (www.nawta.org). Please notify your program coordinator if you intend to seek the NAWTA accreditation.

Geographic Information Systems (GIS) Professional - Certificate (16 credits)

Minnesota North College is committed to meeting the needs of the local and regional community, and offers a fully online, 16-credit Geographic Information Systems (GIS) Certificate. The program utilizes Environmental Systems Research Institute's ArcGIS software, a world leader in GIS development and applications. GIS is a vital tool that can be applied to a diverse range of employment opportunities, and its application is well integrated at all levels of government. The curriculum reflects input from local, regional, and national GIS professionals, and is tailored to prepare individuals with the technical skills and confidence to be productive within the professional GIS working environment. Students may enter the program in either fall or spring. The fall entry course sequence allows students to complete the certificate in one year (two semesters, plus summer session). The spring entry can be completed in a little more than one year (5 terms) and offers a reduced pace to program completion.

Geography/Geographic Information System (GIS) - Associate of Science Degree (60 credits)

The Geography/Geographic Information Systems (GIS) AS degree program is designed to provide individuals with a background in geography, spatial processes, mapping techniques, and the ability to manage and utilize geographic information as a planning and decision-making tool. The program guides the student in developing a sound approach to geographic inquiry and analysis, and provides the opportunity for students to explore the diverse political, economic, social, and environmental interrelationships at local, regional, and global scales. Embedded in this interdisciplinary science is a focus on the technical components of mapping, cartographic analysis and production, and the use of state-of-the-art GIS, global positioning systems, and remote sensing software for advanced level data acquisition, integration, and spatial analysis.

Land Surveying - Certificate (23 credits)

The Land Surveying Certificate combines 23 credits in the area of mathematics, field skills, land surveying, GIS, AutoCAD, and an internship in the surveying profession. The certificate does not replace an Associate of Science degree in Land Surveying for employment, but is designed as a sub-credential certificate of the Land Surveying AS. The benefit of the certificate is to enhance an existing degree program and gain additional experience with GIS, GPS, and applications of mapping, above and beyond other Associate degrees. Land Surveying students may want additional field experience in combination with their transfer degree, or students who are pursuing a Natural Resources Technology program may want to enhance mathematical and surveying application skills to maximize employment opportunities at the technician level.

Land Surveying - Associate of Science Degree (60 credits)

The Land Surveying AS degree program includes a strong historical focus on the Public Land Survey System and the US government survey of public lands, but applicable to the technology and issues facing present day land surveyors and technicians. Important elements of training key to employment include basic mapping skills using coordinate grid systems, latitude/longitude, Public Land Survey System, and the Universal Transverse Mercator System. Students will use a variety of GPS models to gain skills in data acquisition and computerized mapping. Students interested in survey technician positions are encouraged to also complete the Natural Resource Technology-Forestry/Wildlife AAS (to provide a strong base for all aspects of natural resource technician employment) and the Land Surveying Certificate.

Natural Resources - Associate of Applied Science Degree (64 credits)

The Natural Resources AAS degree program provides students with the knowledge and skills to be proficient in the technical aspects of management and protection of forest resources. Graduates will successfully perform as natural resource technicians using a science-based approach, with an understanding of social, economic, and environmental issues within the natural resources field. Minnesota North College's Natural Resources program at Itasca leads to the Associate of Applied Science degree and is accredited by the Society of American Foresters (SAF). The Council for Higher Education Accreditation recognizes SAF as the specialized accrediting body for forestry education in the United States. A student pursuing this award can choose one of four different emphasis areas: Forest Resources, Geospatial, Law Enforcement, or Wildland Firefighting.

Natural Resources Technology, Forestry/Wildlife - Associate of Applied Science Degree (67 credits)

The Natural Resource Technology (NRT)-Forestry /Wildlife AAS degree program is designed to qualify graduates for positions at the technical level in forestry, wildlife, and other related natural resource disciplines. The program is accredited by the Society of American Foresters with core content emphasizing the skills necessary to be a forestry technician. This program is also accredited by the North American Wildlife Technician Association (NAWTA), for skills necessary to be a wildlife technician. Please notify your program coordinator if you intend to seek the NAWTA

accreditation. An application to receive NAWTA accreditation must be completed with supporting documentation provided prior to graduation. The NRT program is designed to maximize technical skills in natural resources, allowing students the best opportunity to work in the field of natural resources after two years of education.

Water Operations - Diploma (34 credits)

The Water Operations Diploma is designed to prepare students for entry-level positions with the potential and skills to advance to supervisory and management positions in water operations, wastewater treatment, environmental laboratory work, equipment maintenance, public health work, and environmental engineering technical work. Upon completion of this diploma, students are eligible to take the Class D Water and Wastewater Operators license examination.

Water Quality Science - Associate of Applied Science Degree (60 credits)

The Water Quality Science program is designed to prepare students for entry-level positions with the potential and skills to advance to supervisory and management positions in water operations, wastewater treatment, environmental laboratory work, equipment maintenance, public health work, and environmental engineering technical work. Upon completion of this degree program, students are eligible to take the Minnesota Class D Water and Wastewater Operators license examination. Completion of the required two-credit Water Resources Internship allows application of the full educational equivalency of two years' experience toward Minnesota Department of Health and Minnesota Pollution Control Agency Class D Operations Licensure. Graduates may also elect to continue their education toward a baccalaureate degree.

Watershed Science - Associate of Science Degree (60 credits)

The Watershed Science AS degree program is designed to prepare students for positions in field data collections, analysis, groundwater sampling, streamflow monitoring, and laboratory analysis. Graduates may elect to continue their education toward a baccalaureate degree. Optional field experience in the form of the Water Resources Internship and elected between the first and second year, is strongly recommended to demonstrate work potential and enhance employability.

Wildland Firefighting - Diploma (32 credits)

The Wildland Firefighting Diploma consists of seven National Wildfire Coordination Group (NWCG) courses taught by certified instructors and supporting Natural Resource courses. The goal of the diploma is to provide students with the necessary background to become wildland firefighters, while also building Natural Resource skills to help secure employment during non-fire periods. The current job market for wildland firefighters is excellent, and graduates are hired by many natural resource agencies.

Wildlife Ecology - Certificate (25 credits)

The Wildlife Ecology Certificate recognizes specialization in subjects related to wildlife resources. It is a combination of 25 credits in the area of wildlife management and ecology. Students can choose from a variety of courses unique to Vermilion. The certificate does not replace a natural resource degree program for employment in the wildlife field. This certificate has been designed as a sub-credential of the Natural Resource Technology (NRT)-Forestry/Wildlife AAS degree program at Vermilion. With 19 of the certificate's 25 required credits included in that program, it allows the NRT students to also earn this certificate by taking only six additional credits. With 14 of the 25 credits built into the Fisheries and Wildlife Management AS degree program, completing this certificate can be achieved with only nine additional credits of coursework by those students. Generally, an Associate's Degree is required to gain employment as an entry-level wildlife technician. Students enrolled in any number of Vermilion's two-year programs can enhance their resume and gain additional ecology, behavior, and animal identification skills through the coursework of the Wildlife Ecology Certificate. Additionally, it is a good way to get involved in the field and gain skills while preparing to enter either the Natural Resource Technology-Forestry/Wildlife AAS degree program or Fisheries and Wildlife Management AS degree program.

Transfer students may be interested in earning the certificate to strengthen their field skills and for exposure to environmental issues they will encounter throughout their professional careers. These field-based courses may give any student an edge and the experience needed to succeed in a competitive field. Students that complete both the Fisheries and Wildlife Management AS and the Wildlife Ecology Certificate qualify for North American Wildlife Technician Association accreditation (www.nawta.org). Please notify your program coordinator if you intend to seek the NAWTA accreditation.

Outdoor Recreation

Backcountry Guide - Certificate (16 credits)

The Backcountry Certificate consists of 16 credits of outdoor leadership, parks and recreation, wilderness, physical education, biology, and health courses. The certificate is designed to give students academic and technical knowledge related to the field of guiding trips, excursions, and recreational activities in a backcountry or wilderness setting. Students can choose from a wide variety of courses unique to Vermilion Community College. This certificate is intended to complement another degree in a student's training and education. This certificate has been designed as a sub-credential of the Outdoor Leadership AS, Outdoor Leadership Professional AAS, Wilderness and Park Management AAS, or Wildland/Wildlife Law Enforcement AAS at Vermilion. There are two distinct topic areas that a student may pursue. The Outdoor Leadership topic area is designed for those students who wish to pursue opportunities relating to wilderness and outdoor adventure leadership while the Naturalist Guide topic area is designed for those who wish to pursue opportunities relating to environmental interpretation and education. This certificate is embedded in the Outdoor Leadership Professional AAS degree. It also serves to augment other degree programs at Vermilion such as the Wilderness and Park Management AAS, Fisheries and Wildlife Management AS, Natural Resources Technology-Forestry/Wildlife AAS, Water Quality Science AAS, Watershed Science AS, Wildland/Wildlife Law Enforcement AAS, and the Liberal Arts and Sciences AA.

Outdoor Leadership - Certificate (30 credits)

The Outdoor Leadership Certificate consists of the 30 core credits of OUTL, PREC, and HLTH courses contained in the Outdoor Leadership AS degree. The certificate is designed to give students academic and technical knowledge related to the field of Outdoor Leadership and recognizes the specialization related to subjects in Outdoor Leadership. Students can choose from a wide variety of courses unique to Vermilion. This certificate is intended to complement another degree in a student's training and education and is not intended to replace the Outdoor Leadership AS. This certificate has been designed as a sub-credential of the Outdoor Leadership AS at Vermilion. It is generally recognized that students wanting to be employed in Outdoor Leadership have at least a two-year degree. Transfer students may wish to pursue the Outdoor Leadership Certificate to gain leadership and teaching experience as well as outdoor technical skills that they may employ in related fields such as natural resources and recreation management, teaching, and business. Successful students in this program gain fundamental skills in the planning, delivery, and assessment of outdoor leadership programming.

These skills will aid them in gaining employment in the fields of adventure education, experiential education, guiding/instructing in outdoor pursuits, wilderness and backcountry travel, adventure tourism, and as backcountry recreation technicians. This certificate may also serve to augment the education of transfer students planning to pursue teaching licensure as it is becoming more common for schools to employ adventure education programming in their curriculum.

Outdoor Leadership - Associate of Science Degree (60 credits)

This program develops students' academic and technical knowledge related to the field of Outdoor Leadership. It recognizes the specialization related to subjects in Outdoor Leadership, Outdoor Education, Experiential Education, and Wilderness Leadership. Program courses are a mix of

theoretical and foundational knowledge, as well as an extended wilderness trip, skill development, and professional certification. This program may also serve to augment the resume of transfer students planning to pursue teaching licensure as it is becoming more common for schools to employ adventure education programming in their curriculum.

Outdoor Leadership Professional - Associate of Applied Science Degree (60 credits)

The AAS degree in Outdoor Leadership gives students a solid and broad foundation in the field. Outdoor Leadership Professionals need a strong technical outdoor skill-set and broad understanding of a wide range of potential participants in their programs. This degree option delivers both. Students spend purposeful time developing and honing outdoor skills such as paddling, rock climbing, winter camping, backpacking, wilderness medicine, backcountry travel, and Leave No Trace ethics. Additionally, the program offers experiential and classroom instruction in leadership, adventure education, risk management and decision making all aimed at serving diverse populations of participants. Graduates will be prepared to lead groups including youth, at-risk populations, people with disabilities, and adults in a wide range of outdoor pursuits. Professional certifications and assessments that are embedded in the curriculum and awarded through Wilderness Medical Associates, The American Canoe Association, The American Red Cross, and Center for Outdoor Ethics are of particular interest to employers and what makes this degree program stand out.

Outdoor Recreation Therapy - Associate of Science Degree (60 credits)

In today's world there are an increasing number of people who enjoy outdoor pursuits. People with disabilities are among the population of more active and engaged outdoor recreationists. The Outdoor Recreation Therapy AS degree at Vermilion provides students with a rewarding education and skill-set to serve the disabled community in an outdoor recreation context. Students will learn to work with and understand adaptive techniques for people experiencing various disabilities. Students will learn to apply adaptive technology, equipment, and techniques that are required to provide outdoor recreational activities to people experiencing physical, cognitive, emotional, and psychological disabilities. Recreation participant needs, limitations, assessment, and possibilities are examined in order to lead and facilitate outdoor activities such as paddlesports, backcountry travel, skiing, rock climbing and other outdoor pursuits. The program courses also examine various adaptive outdoor programs, legislation, and current practices, as well as hands on experience with adaptive recreation service providers.

Wilderness and Park Management - Associate of Applied Science Degree (68 credits)

The AAS degree in Wilderness and Park Management is designed to provide the academic and experiential background to qualify students for entry level positions in the management of protected lands. The curriculum addresses the history, attitudes, philosophy, legal foundations, and ecosystem and human benefits of protected lands in the United States and beyond. This framework is supplemented by the hands-on skills and certifications necessary for the planning, maintenance, and interpretive elements of management.

Students will also learn about the Federal and state agencies and non-profit organizations which play vital roles in land management. Through collaborative field experiences with such agencies as the U.S. Forest Service, National Park Service and Minnesota State Parks, students gain a realistic perspective of land management occupations and the professional preparation necessary to enter the field.

Physical Education and Coaching

Coaching - Certificate (10 credits)

The Coaching Certificate program prepares students to be a head varsity coach in the Minnesota public school system and meets Minnesota State High School League requirements per Minnesota Statute Section 122A.33 Subdivision 1 License and Degree Exemption for Head Coach. While this

coaching certification may or may not be a requirement for head coaching in other states it is strongly recommended. This certification complements any degree, especially those within the field of education. Courses in coaching theory, communication, first aid, injury care, and weight training/conditioning are all included.

Exercise Science Transfer Pathway - Associate of Science Degree (60 credits)

The Exercise Science Transfer Pathway offers students a powerful option: the opportunity to complete an Associate of Science/Arts degree with course credits that directly transfer to designated Exercise Science bachelor's degree programs at Minnesota State universities.* The curriculum has been specifically designed so that students completing this pathway degree and transferring to one of the seven Minnesota State universities enter the university with junior-year status. All courses in the Transfer Pathway associate degree will directly transfer and apply to the designated bachelor's degree programs in a related field. (*Universities within the Minnesota State system include Bemidji State University; Metropolitan State University; Minnesota State University, Mankato; Minnesota State University Moorhead; Southwest Minnesota State University; St. Cloud State University; and Winona State University.)

Fitness Specialist - Certificate (10 credits)

The Fitness Specialist Certificate will equip students with the knowledge, skills, and understanding to enhance employment prospects in the health and fitness business, sports and leisure industry, coaching, and associated fields. The Certificate is a great addition to the Associate Degree.

Trades and Industry

Automotive Technician - Diploma (64 credits)

The Automotive Technician program combines classroom study and practical hands-on application, to provide students with the essential skills needed to determine and make the appropriate repairs on today's vehicles.

Carpentry - Diploma (31 credit)

Lab activities involve actual hands-on construction. Working models and mock-ups as well as actual recreational and storage buildings and garages will be constructed by first-year students. Related instruction emphasizes math, blueprint reading, estimating, materials of construction, tools and equipment, principles of carpentry and safety.

Construction Trades - Diploma (59 credits)

The Construction Trades Program teaches students modern construction methods, as well as the art of craftsmanship. We prepare our students to become highly skilled professionals. The program focuses on safety, problem-solving, work attitude, technical, and occupation-specific skills, along with gaining experience in construction materials, methods, and trade standards. Providing real-world experience with a full-year internship in the field.

Diesel Mechanics and Heavy Equipment Maintenance - Diploma (67 credits)

Diesel mechanics understand the diesel engine. They can troubleshoot, repair, and adjust it; they are knowledgeable about fuel injection and turbochargers as well as electrical and hydraulic systems. Heavy equipment mechanics repair all parts of large trucks, buses, construction, and earth moving equipment. They inspect, test and repair heavy equipment systems, including hydraulics, pneumatics and electrical.

MNC’s Diesel and Heavy Equipment program provides a modern equipped diesel shop including a fuel injector room and use of an engine dynamometer. Students learn theory and application of 2-cycle and 4-cycle engines, electrical and hydraulic systems, clutches, heavy equipment, recordkeeping, power transmissions, and steering, brakes, and tires.

Diesel Mechanics and Heavy Equipment Maintenance - Associate of Applied Science Degree (75 credits)

Heavy equipment mechanics repair all parts of large trucks, buses, construction, and earth moving equipment. They inspect, test and repair heavy equipment systems, including hydraulics, pneumatics and electrical. Students in the Diesel Mechanics program develop the skills to troubleshoot and repair a Diesel engine through our hands-on learning approach. MNC's Diesel and Heavy Equipment program provides a modern equipped diesel shop including a fuel injector room and use of an engine dynamometer. Students learn theory and application of 2-cycle and 4-cycle engines, electrical and hydraulic systems, fuel injection, turbochargers, clutches, heavy equipment, recordkeeping, power transmissions, and steering, brakes, and tires.

Electrical Controls and Maintenance - Diploma (67 credits)

The Electrical Controls and Maintenance program provides training in the areas of electrical Maintenance, industrial electronics, process control, instrumentation, fluid power, electrical-mechanical systems, and integrated computer control. The first semester of the program focuses on the fundamentals of electrical/electronic theory in lecture and practical applications performed in lab exercises. The second semester of the program teaches the basics of industrial control, including motor control, instrumentation/process control, programmable logic controllers, and the national electrical code. In the second year of the program, lecture-based lab work builds on the basics with additional technology continually being introduced.

Electrical Controls and Maintenance - Associate of Applied Science Degree (72 credits)

The Electrical Controls and Maintenance program provides training in the areas of electrical maintenance, industrial electronics, process control, instrumentation, fluid power, electrical-mechanical systems, and integrated computer control. The first semester of the program focuses on the fundamentals of electrical/electronic theory in lecture and practical applications performed in lab exercises. The second semester of the program teaches the basics of industrial control, including motor control, instrumentation/process control, programmable logic controllers, and the national electrical code. In the second year of the program, lecture-based lab work builds on the basics with additional technology continually being introduced.

Electrical Maintenance and Construction - Diploma (75 credits)

The Electrical Maintenance program is unique in that it covers an array of employment opportunities in the electrical field. Electrical maintenance workers understand electrical theory in its many diverse applications from residential and commercial construction and maintenance to heavy industrial power and control installations. They apply the latest technology and codes to diagnose, test and repair electrical equipment including appliances, motors, generator, distributors, and control circuits.

Heating and Cooling Technician - Diploma (35 credits)

The HCT Program prepares graduates for careers as mechanics in the heating, ventilation, air-conditioning and refrigeration (HVACR) industry. Students train to install, troubleshoot, and maintain residential and light commercial heating, cooling, and refrigeration equipment.

Industrial Mechanical Technology - Diploma (60 credits)

Industrial Mechanical Technology, also known as millwright or maintenance mechanics, is a two-year program where students learn safety, measurements, troubleshooting, repair procedures and the use of hand and power tools. The program also covers hydraulics, pneumatics, lubrication systems, pumps, conveyors, bearings, and welding.

Welding - Certificate (12 credits)

The Welding Certificate program provides students with welding and fabrication techniques.

Welding, Entry Level - Diploma (33 credits)

Entry Level Welding Technology is a 33 credit, two semester program with a diploma for the successful graduate. Students can continue in the Advanced Welding program to earn a 65 credit Advanced Welding Diploma.

Welding, Advanced - Diploma (65 credits)

Advanced Welding is a 65 credit, four semester diploma program with includes the Entry Level Welding Diploma (Semesters 1 and 2) and an additional two semester (3 and 4) of advanced work.

Transfer Pathways

Biology Transfer Pathway - Associate of Science Degree (60 credits)

The Biology Transfer Pathway AS offers students a powerful option: the opportunity to complete an Associate of Science degree with course credits that directly transfer to designated Biology bachelor's degree programs at Minnesota State universities. The curriculum has been specifically designed so that students completing this pathway degree and transferring to one of the seven Minnesota State universities enter the university with junior-year status. All courses in the Transfer Pathway associate degree will directly transfer and apply to the designated bachelor's degree programs in a related field. Universities within the Minnesota State system include Bemidji State University; Metropolitan State University; Minnesota State University, Mankato; Minnesota State University Moorhead; Southwest Minnesota State University; St. Cloud State University; and Winona State University.

Chemistry Transfer Pathway - Associate of Science Degree (60 credits)

The Chemistry Transfer Pathway AS offers students a powerful option: the opportunity to complete an Associate of Science degree with course credits that directly transfer to designated Chemistry bachelor's degree programs at Minnesota State universities. The curriculum has been specifically designed so that students completing this pathway degree and transferring to one of the seven Minnesota State universities enter the university with junior-year status. All courses in the Transfer Pathway associate degree will directly transfer and apply to the designated bachelor's degree programs in a related field. Universities within the Minnesota State system include Bemidji State University; Metropolitan State University; Minnesota State University, Mankato; Minnesota State University Moorhead; Southwest Minnesota State University; St. Cloud State University; and Winona State University.

Communication Studies Transfer Pathway - Associate of Arts Degree (60 credits)

The Communication Studies Transfer Pathway AA offers students a powerful option: the opportunity to complete an Associate of Arts degree with course credits that directly transfer to designated Communication Studies bachelor's degree programs at Minnesota State universities. The curriculum has been specifically designed so that students completing this pathway degree and transferring to one of the seven Minnesota State universities enter the university with junior-year status. All courses in the Transfer Pathway associate degree will directly transfer and apply to the designated bachelor's degree programs in a related field. Universities within the Minnesota State system include Bemidji State University; Metropolitan State University; Minnesota State University, Mankato; Minnesota State University Moorhead; Southwest Minnesota State University; St. Cloud State University; and Winona State University.

English Transfer Pathway - Associate of Arts Degree (60 credits)

The English Transfer Pathway AA offers students a powerful option: the opportunity to complete an Associate of Arts degree with course credits that directly transfer to designated English

bachelor's degree programs at Minnesota State universities. The curriculum has been specifically designed so that students completing this pathway degree and transferring to one of the seven Minnesota State universities enter the university with junior-year status. All courses in the Transfer Pathway associate degree will directly transfer and apply to the designated bachelor's degree programs in a related field. Universities within the Minnesota State system include Bemidji State University; Metropolitan State University; Minnesota State University, Mankato; Minnesota State University Moorhead; Southwest Minnesota State University; St. Cloud State University; and Winona State University.

History Transfer Pathway - Associate of Arts Degree (60 credits)

The History Transfer Pathway AA offers students a powerful option: the opportunity to complete an Associate of Arts degree with course credits that directly transfer to designated History bachelor's degree programs at Minnesota State universities. The curriculum has been specifically designed so that students completing this pathway degree and transferring to one of the seven Minnesota State universities enter the university with junior-year status. All courses in the Transfer Pathway associate degree will directly transfer and apply to the designated bachelor's degree programs in a related field. Universities within the Minnesota State system include Bemidji State University; Metropolitan State University; Minnesota State University, Mankato; Minnesota State University Moorhead; Southwest Minnesota State University; St. Cloud State University; and Winona State University.

Mathematics Transfer Pathway - Associate of Arts Degree (60 credits)

The Mathematics Transfer Pathway AA offers students a powerful option: the opportunity to complete an Associate of Arts degree with course credits that directly transfer to designated Mathematics bachelor's degree programs at Minnesota State universities. The curriculum has been specifically designed so that students completing this pathway degree and transferring to one of the seven Minnesota State universities enter the university with junior-year status. All courses in the Transfer Pathway associate degree will directly transfer and apply to the designated bachelor's degree programs in a related field. Universities within the Minnesota State system include Bemidji State University; Metropolitan State University; Minnesota State University, Mankato; Minnesota State University Moorhead; Southwest Minnesota State University; St. Cloud State University; and Winona State University.

Psychology Transfer Pathway - Associate of Arts Degree (60 credits)

The Psychology Transfer Pathway AA offers students a powerful option: the opportunity to complete an Associate of Arts degree with course credits that directly transfer to designated Psychology bachelor's degree programs at Minnesota State universities. The curriculum has been specifically designed so that students completing this pathway degree and transferring to one of the seven Minnesota State universities enter the university with junior-year status. All courses in the Transfer Pathway associate degree will directly transfer and apply to the designated bachelor's degree programs in a related field. Universities within the Minnesota State system include Bemidji State University; Metropolitan State University; Minnesota State University, Mankato; Minnesota State University Moorhead; Southwest Minnesota State University; St. Cloud State University; and Winona State University.

Sociology Transfer Pathway - Associate of Arts Degree (60 credits)

The Sociology Transfer Pathway AA offers students a powerful option: the opportunity to complete an Associate of Arts degree with course credits that directly transfer to designated Sociology bachelor's degree programs at Minnesota State universities. The curriculum has been specifically designed so that students completing this pathway degree and transferring to one of the seven Minnesota State universities enter the university with junior-year status. All courses in the Transfer Pathway associate degree will directly transfer and apply to the designated bachelor's degree programs in a related field. Universities within the Minnesota State system include Bemidji State University; Metropolitan State University; Minnesota State University, Mankato; Minnesota State

University Moorhead; Southwest Minnesota State University; St. Cloud State University; and Winona State University.

Veterinary Science

Veterinary Technician - Associate of Applied Science Degree (75 credits)

The Veterinary Technology program is academically rigorous, and it takes a highly motivated individual to succeed. Students must have better than average ability to master a sizeable course load of scientific and medical material in a relatively short time. In order for a student to be eligible to sit for the Veterinary Technician National Examination (VTNE) the student must graduate from an American Veterinary Medical Association (AVMA) accredited program. The AVMA has specific educational criteria which must be taught in a program and which must be learned by students. In order to adequately cover the AVMA specified educational criteria, Veterinary Technician AAS degree programs average about 72 credits nationally, and slightly higher in Minnesota. MNC's Veterinary Technology AAS degree program at Vermilion includes 18 credits MnTC and 57 credits technical coursework in the field of Veterinary Technology. It is designed to include five semesters of academic coursework, and concludes with an internship the sixth semester. Vermilion is one of only a few AVMA accredited programs in Minnesota, and the only one in the northern portion of the state.

COURSE DESCRIPTIONS

Accounting

ACCT 2511 Financial Accounting
4 credits (**Lecture**)
This is a practical accounting course that stresses the basic principles of accounting and reinforces those principles with illustrations, examples, and correlated problems. Topics given special emphasis are the accounting cycle, end of cycle procedures, payroll records and taxes, control systems, evaluations of current and fixed assets, accruals and deferrals, current liabilities, an introduction to corporate accounting, and the four primary financial statements.

ACCT 2512 Managerial Accounting
4 credits (**Lecture**)
This is a practical accounting course which stresses the basic principles of managerial accounting. This course builds on ACCT 2511 Financial Accounting to include differences between financial and managerial accounting, planning and decision-making based on cost behaviors, cost-volume-profit relationships, several inventory valuation methods, budgeting, standard costs and variance, responsibility accounting, special types of decision-making, and several management performance evaluation tools. Prerequisite(s): ACCT 2511

ACCT 2513 Payroll Accounting
3 credits (**Lecture**)
This course is designed to develop an understanding of the various federal and state payroll laws applicable to business concerns. Through the study and preparation of employment records, payroll registers, employee earning records, and state and federal forms, students learn to maintain payroll records and payroll reports. Prerequisite(s): ACCT 2511

ACCT 2515 Accounting Software
3 credits (**Lecture**)
This course is an introduction to accounting software. During the course, students complete the accounting cycle using an up-to-date version of a popular small business accounting software package. By means of a practical, hands-on approach, students apply abstract accounting principles to concrete accounting procedures. Students record cash sales and deposits, prepare invoices, enter bills, write checks, maintain inventory, process payroll, reconcile accounts, generate financial statements and other managerial reports, close the period, and manage vital data lists. Prerequisite(s): ACCT 2511

ACCT 2590 Accounting Internship
Variable, 1-4 credits (**Internship**)
This internship utilizes on-the-job experience in accounting to provide assessment of a student's technical skill attainment. With input from the internship coordinator, the site supervisor organizes a schedule for the student, which allows a variety of tasks to be performed. Upon completion, the student will have the opportunity to apply the knowledge learned in the program and gain a perspective of the various aspects of accounting. Instructor permission required. Prerequisite(s): ACCT 2511

Addiction Studies

ADDS 1250 Treatment Coordination
2 credits (**Lecture**)
This course is a study of treatment and service coordination approaches in treatment/recovery oriented settings. Emphasis will be placed on dimension/placement criteria, case management, defining addictive systems, co-occurring disorders, recovery, community resource building, referral process, multicultural considerations, advocacy, ethics, professionalism, consultation and collaboration, and documentation. Intended audience: people initially entering or currently in-field.

ADDS 1255 Introduction to Addiction Studies
3 credits (**Lecture**)
This course is a study of addictive systems and practical approaches to intervening in these systems. Emphasis will be placed on symptomology, therapeutic approaches and treatment/recovery.

ADDS 1261 Counseling Theory and Skills
3 credits (**Lecture**)
This course will examine the various theories of addiction and modalities of treatment. Emphasis will be placed on effects of addiction on relationships, family systems, and business and industry. The Minnesota Model of Addiction, both theory and treatment, will be a major thrust of the course.

ADDS 1262 Racial, Cultural, and Ethical Considerations in Addictions Counseling
2 credits (**Lecture**)
This course is a study of multicultural factors, racial/cultural aspects, and ethical standards of practice in the addictions field. Emphasis will be placed on practical approaches that include prevention, intervention, and treatment regarding persons of color, cultural milieu, and ethnic background. In addition, ethical considerations and professional requirements in alcohol and drug counseling will also be explored.

ADDS 1263 Adolescent Substance Use: Misuse, Addiction, and Prevention
2 credits (**Lecture**)
This course is a study of adolescent substance use, misuse, addiction and practical approaches to prevention, intervention, and treatment. Emphasis will be placed on adolescent drug use trends, ideology of adolescent drug use, and strategies to enhance adolescent treatment.

ADDS 1264 Pharmacology, Medicated Assisted Therapy, and Drug Use
2 credits (**Lecture**)
This course examines pharmacology of various drugs and their interaction within the body. Emphasis is placed on effects of drugs in the human body and their use in society. In addition to discussing the basic informational aspects of drugs and alcohol, this course will also examine some of the social, psychological, legal, medical, and rehabilitative aspects of drug and alcohol abuse. (Course meets licensure and permit requirements for the MN Board of Behavioral Health and Therapy for Licensed Alcohol and Drug Counselor.)

ADDS 2221 Practicum 1
5 credits (**Internship**)
The course is designed to equip the student with the intellectual tools and core counseling skills necessary to become an effective addictions counselor. It is during this practicum phase that the student has the opportunity to practice and further develop these skills under the supervision of a licensed alcohol and drug counselor at an approved practicum site. A weekly seminar to discuss the field experience is also required. Five credits may be taken in each of two sequential semesters totaling ten credits -- requiring 880 total hours. Prerequisite(s): ADDS 2231

ADDS 2222 Practicum 2
5 credits (**Internship**)
The course is designed to equip the student with the intellectual tools and core counseling skills necessary to become an effective addictions counselor. It is during this practicum phase that the student has the opportunity to practice and further develop these skills under the supervision of a licensed alcohol and drug counselor at an approved practicum site. A weekly seminar to discuss the field experience is also required. Five credits may be taken in each of two sequential semesters totaling ten credits -- requiring 880 total hours. Prerequisite(s): ADDS 2221, ADDS 2240

ADDS 2230 Addictions Assessment
3 credits (**Lecture**)
This course is a study of addiction assessment. Emphasis is placed on practical application and practice in the use of assessment skills. Prerequisite(s): ADDS 1255, ADDS 1261, ADDS 1264, HSER 1465

ADDS 2231 Case Management and Treatment
3 credits (**Lecture**)
This course is designed to give students an operational understanding of treatment procedures in the different fields of addiction. Students will be given an opportunity to incorporate practical procedures within the theoretical framework of service delivery throughout the continuum of care. To be taken as final course in Addiction Studies Option Program. Prerequisite(s): ADDS 2230

Allied Health

ALHE 1100 Heartsaver First Aid with CPR and AED
1 credit (**Lecture**)
This Heartsaver course from the American Heart Association (AHA) is designed for anyone with little or no medical training who needs first aid and/or CPR training and a course completion card for job, regulatory (e.g., OSHA), or other regulatory or licensing requirements. This course is for laypeople or those who have the duty to respond in the workplace (non-healthcare professionals or those not seeking employment in the healthcare profession), who would like to have a well-rounded education and certification in First Aid, CPR and AED. This course empowers students to act with confidence in the event of an emergency at work, home, or in the community.

ALHE 1200 Responding to Emergencies
2 credits (**Lecture**)
This course prepares the student to assess and make appropriate decisions regarding first aid care in accidents and sudden emergencies. Upon successful completion, the student will receive American Red Cross certification in Responding to Emergencies including Adult/Child/Infant CPR and AED.

The Responding to Emergencies (RTE) program is a lay responder program designed to help participants recognize and respond to cardiac, breathing and first aid emergencies. The courses in this program teach the knowledge and skills needed to give immediate care to an injured or ill person and to decide whether advanced medical care is needed.

This program is designed primarily for use in secondary schools, colleges, universities and other settings that require a curriculum of greater length than the American Red Cross First Aid/CPR/ AED program. With the additional course length, RTE provides more in-depth lecture and discussion content as well as extended time for skill activities such as giving CPR and using an AED.

ALHE 1300 Essential Concepts of First Aid and CPR
3 credits (**Lecture**)
This is a general First Aid and CPR course taught to American Heart Association standards. This is an introductory course intended for the lay person, those in non-healthcare related fields, and anyone who may be the first to respond in an emergency situation. This course covers basic first aid care and treatment of adults, children, and infants. Topics include CPR, choking, use of an AED, medical, injury, environmental emergencies, and injury prevention.

This course is taught to the standards of the American Heart Association. Participants who successfully complete course requirements and complete the AHA written exam and skills competencies according to AHA policies and procedures will be issued a Heartsaver First Aid CPR AED card that is valid for two years.

ALHE 1400 Basic Life Support / CPR
1 credit (**Lecture**)
The American Heart Association (AHA) Basic Life Support (BLS) for the Healthcare Provider course is designed to train participants going into or currently working in healthcare related fields on recognizing and responding to various life-threatening emergencies. Skills integral to this course include both individual demonstration and team collaboration of CPR for adults, children, and infants; using an AED, BVM, and relieving choking in a safe, timely and effective manner. There are no prerequisites or requirements for this course and anyone may participate to learn the life-saving skills of CPR. This course fulfills the requirements for health care programs such as Nursing as well as other programs that require work in outdoor/wilderness settings. Participants who successfully complete course requirements and complete the AHA written exam and skills competencies according to AHA policies and procedures will be issued a Basic Life Support for Healthcare Providers certification card that is valid for two years.

ALHE 1500 Introduction to Health Professions
3 credits (**Lecture**)
This course explores allied health professions and prepares students to make informed decisions in choosing a health-field program of study. Students will learn about the roles and responsibilities of various occupations, explore the ethical, legal, and financial factors influencing the healthcare system and settings, and further their knowledge in a particular career through participation in job-shadow or interview of a health professional.

ALHE 1510 Introduction to Healthcare Concepts
4 credits (**Lecture/Lab**)
This course explores the soft skills and core components of the values, behaviors and professionalism needed in the healthcare industry. An introduction and application of basic computer skills needed in communication will be emphasized. The content aligns with state and national standards for the preparation of students pursuing healthcare careers. Introduction to Healthcare Concepts course provides: skills needed to be successful in healthcare careers, support for making informed career and educational choices, and pathways to multiple health careers.

ALHE 1525 Trained Medication Aide
3 credits (**Lecture**)
This course will focus on introducing students to drug therapy and safe administration of prescribed medications. The students will learn

how to read medication records, prepare and administer medications, assist patients with self-administration, document administration and report to nurses and authorized persons. Students will also receive information on drug action and side effects. An overview of metric, apothecary, and household measurement abbreviations will be included.

ALHE 1530 Phlebotomy Skills for Health Professionals
1 credit (**Lab**)
This course is designed to teach health care providers about the equipment, supplies, and skills needed to collect blood from patients. Both dermal (capillary) puncture and venipuncture techniques are addressed in detail.

ALHE 1610 Medical Terminology
Variable, 1-2 credits (**Lecture**)
Based on Greek and Latin roots, medical terminology is a consistent and uniform vocabulary used throughout the healthcare profession for effective and accurate communication to interpret and understand medical terminology. This course is designed to give the student an overview of how medical terms are formed and utilized in the health care industry. A primary emphasis is placed on defining various word elements, analyzing how they are constructed, and utilized in medical reports and health care settings.

ALHE 1620 Applied Medical Terminology
2 credits (**Lecture**)
This course introduces students to medical terminology, including word elements (roots, combining forms, prefixes, and suffixes), singular and plural forms and medical abbreviations. Emphasis will be on understanding definitions, correct spelling, proper usage and pronunciation of terms related to medical procedures, human anatomy and physiology, and pathophysiology. Students will use terms correctly in medical reports and health care settings.

Anishinaabe

ANSH 1211 Ojibwe 1
4 credits (**Lecture**)
This is the first course in an introductory Ojibwe language sequence emphasizing listening, understanding, vocabulary, speaking, reading, and writing. Topics include work using the double vowel writing system, grammar and the Ojibwe culture.
MnTC Goal Area(s): 8

ANSH 1212 Ojibwe 2
4 credits (**Lecture**)
The second course in an introductory Ojibwe language sequence. This course emphasizes listening, understanding, vocabulary, speaking, reading, and writing. Topics include work using the double vowel writing system, grammar and the Ojibwe culture. Prerequisite(s): ANSH 1211
MnTC Goal Area(s): 8

Anthropology

ANTH 1215 Cultural Anthropology
3 credits (**Lecture**)
Cultural Anthropology is the study of human cultures and the relationship of culture to human behavior. Emphasis is placed on interrelationships of the elements of culture, the similarities and differences among cultures, and the basic theory and terminology of cultural anthropology.
MnTC Goal Area(s): 5, 8

ANTH 1225 Sports and Culture
3 credits (**Lecture**)
Sports and Culture examines various aspects of sports from ancient times to the present-day as they relate to human cultures and the relationship of culture to human behavior. Because sports shape cultures, drive economies, influence politics, and underscore various identities, students will explore developments pertaining to race, ethnicity, gender, education, community, and entertainment. Sports-specific topics will include ancient Roman gladiator games, the Olympics, tennis, basketball, baseball, hockey, American football, and soccer. Anthropology-specific topics will include interrelationships of the elements of sports in cultures, the similarities, and differences among cultures in sports, and the basic theories of sports and cultures.
Because we live in what is popularly called a multicultural society, Sports and Culture addresses the following questions: Why do individuals participate in sports? Why do some cultures tend to favor specific sports over others? What themes are common among cultures that participate in sports?
MnTC Goal Area(s): 5, 7

Architecture

ARCH 1415 Introduction to Landscape Architecture
3 credits (**Lecture**)
This course is a survey of introductory theories, methods and practice of landscape architecture. Basic design principles are explored in graphic representations using traditional drawing media, computer generated designs, and combined field research projects/presentations.

ARCH 1425 Environmental Design
3 credits (**Lecture**)
Environmental design is the process of addressing surrounding environmental parameters in creative work. It is an applied arts and sciences course dealing with creating the human-designed environment. By its very nature it is interdisciplinary as it encompasses a variety of fields including architecture, geography, urban planning, park planning, landscape architecture, product design, alternative building methods and sustainability. Political, economic, and cultural design influences are considered as this course covers the elements, principles, and processes of visual design as a foundation for environmental design. Emphasis is on the development of creativity and skills through the application of theory and techniques in a series of two- and three-dimensional design projects as applied to environmental design fields and review of contemporary and historical environmental design topics.

Art

ART 1215 Art Appreciation
3 credits (**Lecture**)
This art course introduces students to human creativity and expressions in a variety of forms of visual art. Students will develop visual awareness and language to appreciate a wide spectrum of diverse works and global art methods.
MnTC Goal Area(s): 6, 8

ART 1216 Art History: Prehistory to Gothic
3 credits (**Lecture**)
This course is an introduction to the social and cultural movements from which art developed from prehistoric times to the Gothic period during the Middle Ages. Emphasis is on architecture, painting, sculpture, and craft of Western and non-Western worlds with a global perspective.
MnTC Goal Area(s): 6, 8

ART 1217 Women in Art
3 credits (**Lecture**)
Women in Art will investigate women as visual artists, as subjects of art, and as critics, theorists, and historians of art, across history, geography, and society. The role of gender from nudes in classical art to feminist theory, conventional narratives such as the overlooked woman artist, the forgotten maverick, will be examined with readings emphasizing the material realities of their lives and the formal integrity of their work, and their contribution to film and art.
MnTC Goal Area(s): 6, 7

ART 1218 Art History: Renaissance to Contemporary
3 credits (**Lecture**)
This course is a survey of Early Renaissance to Contemporary art, with emphasis on relevant forms of artistic expression of the Western and non-Western cultural and global perspective. Exploration of the social, political, and cultural context that shaped various developments in architecture and art.
MnTC Goal Area(s): 6, 8

ART 1310 Introduction to Art
3 credits (**Lecture/Lab**)
This is an introductory course that explores Western and non-Western concepts, materials, and techniques used in the visual arts. Students are introduced to the elements and principles of art and explore a variety of media and studio processes. This is a basic course designed to provide a foundation for all art studio courses and is recommended for the student with little to no previous art background as well as required for art majors.
MnTC Goal Area(s): 6, 8

ART 1311 2-D Design
3 credits (**Lecture/Lab**)
2-D Design introduces students to the underlying structure of visual form in two-dimensional design. A variety of techniques and materials will be used to investigate and reinforce design elements and compositional skills. Projects assigned will enable students to explore 2-D design and aesthetics.
MnTC Goal Area(s): 6

ART 1312 3-D Design
3 credits (**Lecture/Lab**)
3-D Design introduces students to the fundamentals of three-dimensional design. This course is a continuation of the visual structures

discussed in 2-D Design allowing further investigation into the three-dimensional concepts of form/volume, and space. Projects assigned will enable students to explore 3-D design and aesthetics. Prerequisite(s): ART 1311
MnTC Goal Area(s): 6

ART 1321 Drawing 1
3 credits (**Lecture/Lab**)
This is an introduction to drawing fundamentals. Emphasis is placed on increasing individual perception, aesthetic language, and fostering visual awareness. Students will be required to create drawings that illustrate technical skill and technique.
MnTC Goal Area(s): 6

ART 1335 Acrylic Painting
3 credits (**Lecture/Lab**)
This studio course introduces students to painting with acrylic medium. It presents a variety of traditional and innovative concepts, techniques, and approaches to painting. Emphasis is placed on increasing individual perception, aesthetic language, and fostering visual awareness.
MnTC Goal Area(s): 6

ART 1345 Basic Black and White Photography
3 credits (**Lecture/Lab**)
Basic black and white film photography is designed for the beginning photographer. The course focuses on camera operation, composition, film processing, printing and presentation. In addition to classroom lecture, students are required to complete hours in the darkroom lab.
MnTC Goal Area(s): 6

ART 1346 Digital Photography
3 credits (**Lecture/Lab**)
Digital photography is an introductory course focusing on camera operation, image composition and design, editing and digital manipulation. In addition to classroom instruction, students are required to independently capture specific subject matter on location. Students are required to provide their own digital camera with manual controls.
MnTC Goal Area(s): 6

ART 1347 Alternative Photographic Processes
3 credits (**Lecture/Lab**)
The course introduces students to several historic non-silver photo processes along with a variety of contemporary image and print making practices, such as photo transfers and contact printing. Focus is on developing aesthetic values, technical skill, and image building.
MnTC Goal Area(s): 6

ART 1348 Digital Imaging
3 credits (**Lecture/Lab**)
Digital Imaging introduces students to the underlying structure of visual design and manipulation of digital imagery using a variety of techniques and tools. Application of technical skills, introduction to file formats, image editing, and various tools in Photoshop will be utilized.
MnTC Goal Area(s): 6

ART 1355 Printmaking
3 credits (**Lecture/Lab**)
This course is an introduction to the principles of the printmaking process and production of multiple images. Students focus on the technique, materials, and relationship to the printed image. This class is for beginners as well as students majoring in art.
MnTC Goal Area(s): 6

ART 1360 Basic Ceramics
3 credits (**Lecture/Lab**)
This is an introductory course exploring the historical, technical and aesthetic concepts of the ceramic arts. Students will use a variety of techniques to create functional and expressive works of ceramic art. Students will develop an aesthetic language and learn to create and discuss ceramic art.
MnTC Goal Area(s): 6

ART 1361 Ceramics: Handbuilding 1
3 credits (**Lecture/Lab**)
Handbuilding 1 introduces students to working with clay. A variety of construction methods and glazing techniques will be used to create ceramic pieces. Aesthetic analysis of form and content are incorporated as they relate to historical ceramics and student work.
MnTC Goal Area(s): 6

ART 1365 Ceramics: Wheelwork
3 credits (**Lecture/Lab**)
Introduction to wheel throwing ceramics that explores the historical, technical, and aesthetic concepts of the ceramic arts. Students will focus on specific potter's wheel working methods and techniques of clay construction and glazing.
MnTC Goal Area(s): 6

ART 1375 Sculpture
3 credits (**Lecture/Lab**)
Sculpture explores three-dimensional visual expression using a wide variety of construction methods and space considerations. Exploration of materials and processes help students develop creativity and problem-solving techniques.
MnTC Goal Area(s): 6

ART 1380 Introduction to Video and the Moving Image
3 credits (**Lecture/Lab**)
This course is an introduction to film that examines the diverse ways moving images are used in the fine arts, short film and cinema. Students will become familiar with basic field production and editing techniques while exploring the varied ways moving images are used for individual expression, entertainment, social and intellectual inquiry. Through screenings, discussions and critiques students will develop abilities of conceptualization, interpretation, and evaluation of video-based art and film.
MnTC Goal Area(s): 6

ART 1393 Special Topics in Art
Variable, 1-3 credits (**Lecture**)
This course is an in-depth investigation in a studio setting of selected topics in the visual arts. Issues of current and historical interests, methods, and techniques are addressed for the specified art topic. Topics and art media will vary in accordance with changes in student needs and interests. The course is intended for students interested in art for career opportunities as well as personal growth and self-expression. The title of this course, credit level, and lecture/lab hours may differ depending on the topic being covered when the course is offered.
MnTC Goal Area(s): 6

ART 1415 Introduction to Landscape Architecture
3 credits (**Lecture**)
This course is a survey of introductory theories, methods and practice of landscape architecture. Basic design principles are explored in graphic representations using traditional drawing media, computer generated designs, and combined field research projects/presentations.

ART 1425 Environmental Design
3 credits (**Lecture**)
Environmental design is the process of addressing surrounding environmental parameters in creative work. It is an applied arts and sciences course dealing with creating the human-designed environment. By its very nature it is interdisciplinary as it encompasses a variety of fields including architecture, geography, urban planning, park planning, landscape architecture, product design, alternative building methods and sustainability. Political, economic, and cultural design influences are considered as this course covers the elements, principles, and processes of visual design as a foundation for environmental design. Emphasis is on the development of creativity and skills through the application of theory and techniques in a series of two- and three-dimensional design projects as applied to environmental design fields and review of contemporary and historical environmental design topics.

ART 1485 Canoe Paddle Building
2 credits (**Lecture/Lab**)
This course will introduce the student to the art of canoe paddle creation. The student will make a paddle while gaining an understanding of how to safely use various hand and power tools. Design features, aesthetic considerations. and skills acquisition and execution are all covered during the course. The final product is both functional and aesthetically pleasing.

ART 1486 Kayak Paddle Building
1 credit (**Lecture/Lab**)
This course will introduce the student to the art of Greenland kayak paddle creation. The student will design and build a paddle while gaining an understanding of how to safely use various hand and power tools. The final product will be both aesthetically pleasing and functional.

ART 2218 Portfolio Creation
1 credit (**Lecture**)
Portfolio Creation will focus on the presentation and documentation of a thematic body of work specific to studio art. Students will practice business and organizational skills in practical applications to assist in transfer and career building. This class culminates in students installing an exhibition of their work.
Prerequisite(s): ART 1321, ART 1335
MnTC Goal Area(s): 6

ART 2235 Airbrush Techniques
2 credits (**Lecture/Lab**)
Airbrush introduces students to the history, the aesthetic and ethical issues, technical skills, and processes available to the artist while utilizing an airbrush. Creative possibilities and practical

applications will be explored along with details on how paints and pigmentation work, color theory, tips on airbrush usage, accessories and maintenance. The range of projects will progress from basic operation, masking methods and freehand illustration to advanced airbrush effects. Students are introduced to the basic design principles in class projects using both B/W and color mediums. Airbrush emphasizes both creative and technical applications for areas such as illustration, commercial art, taxidermy, and automotive applications.
MnTC Goal Area(s): 6

ART 2312 Drawing 2
3 credits (**Lecture/Lab**)
This advance course emphasizes the expanded study and development of creative expression, freehand drawing, and visual thinking utilizing several media. A variety of materials and subjects are explored to develop alternative methods of personal expression. Students will be required to create a group of drawings that illustrate advanced technical skill and technique. Prerequisite(s): ART 1321
MnTC Goal Area(s): 6

ART 2335 Watercolor Painting
3 credits (**Lecture/Lab**)
This studio course introduces students to painting with watercolor medium. It presents a variety of traditional and innovative concepts, techniques, and approaches to painting. Emphasis is placed on increasing individual perception, aesthetic language, and fostering visual awareness within a watercolor medium. Prerequisite(s): ART 1310, ART 1321
MnTC Goal Area(s): 6

ART 2336 Advanced Painting Techniques
3 credits (**Lecture/Lab**)
This advanced course explores conceptual, technical, and aesthetic aspects of painting. A variety of materials and subjects are used to explore alternative painting methods, experimentation, and development of personal expression. Students will be required to create a group of paintings that illustrate advanced technical skill and technique. Prerequisite(s): ART 1335, ART 2335
MnTC Goal Area(s): 6

ART 2362 Ceramics: Handbuilding 2
3 credits (**Lecture/Lab**)
Ceramics-Handbuilding 2 continues a variety of construction methods to further explore surface technique, investigation of form, and sculptural aspects. The goal is to further develop previously learned skills to achieve a higher level of technique and aesthetics in ceramics construction. Prerequisite(s): ART 1361, ART 1365
MnTC Goal Area(s): 6

ART 2365 Alternative Kiln Fired Ceramics: Wood, Raku, Soda
3 credits (**Lecture/Lab**)
Students will explore various alternative firing techniques and the artistic and cultural history behind each technique. Firing techniques covered vary by course offering and may include techniques such as wood firing, Raku, sawdust firings, soda glazing, the use of saggars at different temperatures, vapor glazes and primitive pit kilns. Surface treatments that enhance the uniqueness of the firing are stressed. Students will design and construct forms based on hand building and/or wheel-throwing techniques and participate in glaze mixing, kiln firing and kiln preparations including fuel preparation. Students will also be introduced to a variety of historical and contemporary ceramic works through lectures that introduce the elements and principles of aesthetic language and include art theory and criticism concerns of sculptural, as well as, functional clay forms.
MnTC Goal Area(s): 6

ART 2651 Advanced Studio
1 credit (**Lab**)
In Advanced Studio students will focus on developing specific studio projects and techniques that relate to their AFA exhibition or as advanced artists who are seeking to expand their professional development. This may include techniques in sculpture, ceramics, painting, photography, printmaking, and drawing. This course may be repeated one time as elective credit.
MnTC Goal Area(s): 6

Automotive Technician

ASES 1011 Steering and Suspension
4 credits (**Lecture/Lab**)
Steering and Suspension covers the complete suspension and steering system. This includes

theory of operation and service of the many different types of steering and suspension systems. Also, the theory of wheel alignment, prealignment inspection, and alignment and correction of vehicle problems are solved.

ASES 1012 Manual Transmission and Drivelines
3 credits (**Lecture/Lab**)
Manual Transmission and Drivelines covers the designs, power flow, inspection, diagnosis, and overhaul of manual transmissions, transaxles, drivetrains, and differentials.

ASES 1014 Engine Diagnosis and Repair
4 credits (**Lecture/Lab**)
Engine Diagnosis and Repair covers basic engine theory and construction, part identification, along with measuring and testing engine components. The reconditioning of cylinders and other machine procedures are approached.

ASES 1016 Fuel and Emission Systems
2 credits (**Lecture/Lab**)
Fuel and Emission Systems covers the operation, diagnosis, and repair of the automotive fuel system. Fuel injections are introduced. Theory, design, diagnosis and service of the vehicle's emission system are included.

ASES 1018 Automotive Math Applications
1 credit (**Lecture**)
Automotive Math Applications offers a problem-solving approach to math applications used by automotive technicians. These applications employ basic mathematical principles, direct and computed measurements, gear and pulley applications, formula solution, and geometric fundamentals.

ASES 1019 Starting and Charging Systems
2 credits (**Lecture/Lab**)
Starting and Charging Systems covers the theory and operation of starting motors and alternators. This includes the identification of components and electrical circuits used in starting and charging systems. The student services, repairs, and tests these components. Prerequisite(s): Instructor approval.

ASES 1020 General Service Shop
2 credits (**Lab**)
General Service Shop introduces the student to basic shop practices and concepts. Shop safety will be stressed. Automotive maintenance will be introduced.

ASES 1022 Four Wheel/All Wheel Drive
1 credit (**Lab**)
Four Wheel/All Wheel Drive explains operation, diagnosis and repair of components used in four wheel drive/all wheel drive systems. Topics include transfer cases, power transfer units, and axle disconnects.

ASES 1023 Basic Electricity and Ignition Systems
4 credits (**Lecture/Lab**)
Basic Electricity and Ignition Systems covers the theory of electricity and its automotive application. This will include the basic electrical system, theory of operation, and troubleshooting. The ignition system, primary and secondary, will also be covered.

ASES 1025 Automatic Transmissions / Transaxles
4 credits (**Lecture/Lab**)
Automatic Transmission/Transaxle covers the operation, diagnosis and repair of automotive automatic transmissions and transaxles. Topics include internal components and operation, power flow through the unit, and overhaul.

ASES 1026 Brakes
3 credits (**Lecture/Lab**)
Brakes covers basic principles of brakes, hydraulic system basics, disc and drum brakes, parking brakes and power assist units. Rear wheel anti-lock systems are also covered. Emphasis is placed on operation, diagnosis and repair of various types of braking systems.

ASES 2010 Brakes-ABS
2 credits (**Lecture/Lab**)
The Antilock Brake and Traction Control course covers operation, diagnosis and repair of antilock brakes and traction control systems currently found in industry. Two systems, Teves Mark IV and Delco ABS VI, are covered in depth using school supplied vehicles for hands on applications.

ASES 2014 Customer Auto 1
3 credits (**Lab**)
The Customer Auto 1 course allows the student to work in a supervised shop environment on vehicles that have been scheduled for actual repairs. The course is designed to increase skills needed for an entry-level position in the

automotive technology repair field. Prerequisite(s): Instructor approval.

ASES 2015 Customer Auto 2
3 credits (**Lab**)
The Customer Auto 2 course allows the student to work in a supervised shop environment on vehicles that have been scheduled for actual repairs. The course is designed to increase skills needed for an entry-level position in the automotive technology repair field. Prerequisite(s): Instructor approval.

ASES 2018 Shop Management/Supervision
1 credit (**Lecture**)
Shop Management/Supervision introduces concepts and business practices used in the managing or supervising in the automotive field. Topics include customer and employee relations, productivity monitoring, estimate construction, and repair order writing. Prerequisite(s): Instructor approval.

ASES 2020 Advanced Ignition Systems
2 credits (**Lecture/Lab**)
Advanced Ignition Systems covers the ignition systems that are not distributor based. The systems taught will be EI (electronic ignition) and the COP (coil on plug) system. Theory of operation and the proper diagnostic and repair procedures will be covered.

ASES 2022 Transmission and Transfer Case Controls
2 credits (**Lecture/Lab**)
Transmission and Transfer Case Controls covers the interaction between an electronic controller and the operation of the automatic transmission and the 4x4 transfer case. Theory of operation and proper diagnostic procedures are included. Use of the scan-tool and digital lab scope to assist in proper diagnosis will also be covered.

ASES 2023 Automotive Electrical Accessories
4 credits (**Lecture/Lab**)
The Automotive Electrical Accessories course covers operation, diagnosis and repair of various electrically operated accessories found on automobiles. Topics include lighting, windshield wipers and washers, power windows and locks, inflatable restraints, body controllers.

ASES 2024 Automotive Heat/Air Conditioning
3 credits (**Lecture/Lab**)
Automotive Heat/Air Conditioning covers theory, operation, diagnosis and repair of automotive climate control systems. Topics include heating, air conditioning, controls, and electrical circuits.

ASES 2026 Advanced Engine Performance
4 credits (**Lecture/Lab**)
Advanced Engine Performance course expands upon the knowledge learned in Auto Computers. OBDII (On Board Diagnostic 2nd generation) operation and program logic will be covered. Diagnosis and repair of drivability problems associated with OBDII systems will be taught in this course. Practical exercises on school vehicles reinforce learned knowledge with hand-on experience.

ASES 2027 Automotive Computers
4 credits (**Lecture/Lab**)
Automotive Computers covers the operation and diagnosis of the engine control computer. The operation and diagnosis of the inputs and outputs used on Ford, GM, and Daimler Chrysler are stressed.

Biology

BIOL 1100 Exploring Biology
1 credit (**Lecture**)
This course is an introduction to the basic characteristics, processes, and techniques common to the study of biological sciences. This class is intended to prepare students interested in exploring life sciences and enhancing basic science skills.

BIOL 1131 Dendrology
3 credits (**Lecture/Lab**)
Proper identification of all the vegetation in a forest setting provides the framework for much of the future coursework in natural resources. This course covers the identification and classification of many of the trees and shrubs found throughout northern Minnesota and includes important Eastern and Western species. Students will learn to identify plants and plant assemblages as a path to understand native plant communities. The course includes a mix of classroom and field lectures, as well as field identification labs.

BIOL 1200 Introduction to Biology
4 credits (**Lecture/Lab**)
This course is an introduction to biological principles designed for nonscience majors and those who need preparation for General Biology or Anatomy & Physiology. It includes an overview of a broad range of biological concepts including scientific method, cells, DNA and genetics, evolution, diversity and ecology of organisms, and current biological topics in society.
MnTC Goal Area(s): 3, 10

BIOL 1215 Human Biology
4 credits (**Lecture/Lab**)
This course is designed for the non-science major and is a general introduction to human biology with a structure/function approach. Major topics include cell biology, genetics, and anatomy and physiology, including organization of the body into organs and organ systems, and applying the scientific method.
MnTC Goal Area(s): 3

BIOL 1255 Dendrology and Plant Ecology
3 credits (**Lecture/Lab**)
This course is an introductory course in the structure and function of plants, which includes a heavy emphasis on field identification of major trees, shrubs and herbs of Minnesota. The major characteristics of commercial forest tree species are included as well. Field trips to local plant communities are used to illustrate various aspects of plant ecology. (Cross-listed course; students can enroll only in BIOL 1255 or NRT 1255.)
MnTC Goal Area(s): 3

BIOL 1300 Introduction to Human Anatomy and Physiology
4 credits (**Lecture/Lab**)
This one semester course is designed as an introduction to human anatomy and physiology for allied health careers and the liberal arts. The class includes basic cell structure and function and a survey of the human body organ systems
MnTC Goal Area(s): 3

BIOL 1320 Introduction to Microbiology
3 credits (**Lecture/Lab**)
This course is an introduction to the basic characteristics of microorganisms and their impacts on human health, including the classification, structure, and function of bacteria and other microorganisms. Introduction to Microbiology is intended for those interested in allied health careers and liberal arts studies.
MnTC Goal Area(s): 3

BIOL 1325 Biology of Women
3 credits (**Lecture/Lab**)
This course introduces students to important topics in reproductive health and biology, as well as the history and current state of women's health and status. Emphasis will be on reproductive physiology, development, pathology, health care, contemporary and historical issues, and global healthcare and sociopolitical challenges.
MnTC Goal Area(s): 3, 7

BIOL 1340 Ecology of Northern Minnesota
4 credits (**Lecture/Lab**)
Explore the ecology of Northern Minnesota's coniferous forest biome, which includes the Boundary Waters, Voyageurs National Park, the Iron Range, and surrounding state and national forests. Ecological processes at the population, community, and ecosystem levels will be introduced, along with biodiversity and adaptations of organisms on land and in water. Students will use ecological principles to inform their analysis of environmental issues in the region, including recreation, resource use, and effects of climate change.
MnTC Goal Area(s): 3, 10

BIOL 1345 Plants and Society
4 credits (**Lecture/Lab**)
This project-based course covers basic principles in botany and ecology placing a strong emphasis on the economic aspects and social implications of plants. Outdoor activities and nature exploration are included. This course is intended for any student for completion of a science course with lab requirement.
MnTC Goal Area(s): 3, 10

BIOL 1445 Mammal Tracking
1 credit (**Lecture**)
This course uses field-based projects to familiarize the student with the common mammals of northern Minnesota and the identification and interpretation of their tracks. It covers basic mammal life histories, habitat use and predator prey interactions. (Cross-listed course; students can enroll only in BIOL 1445 or NRT 1445.)

BIOL 1446 Field Biology
2 credits (**Lecture/Lab**)
This is a field-oriented course covering a broad range of data collection techniques in ecology, forestry and wildlife. Plant and wildlife sign identification are included as well as an introduction to basic map and compass skills. (Cross-listed course; students can enroll only in BIOL 1446 or NRT 1446.)

BIOL 1448 Wolf Research Practicum
2 credits (**Lecture/Lab**)
This is a field-oriented course designed to provide the student with practical hands-on experience in the objectives and techniques of modern wolf research, including study design, data collection and analysis. Training and orientation to basic wolf ecology, behavior, physiology and habitat requirements will also be emphasized. (Cross-listed course; students can enroll only in BIOL 1448 or NRT 1448.) Prerequisite(s): BIOL 1465, NRT 1211

BIOL 1465 Introduction to Wolf and Deer Ecology
1 credit (**Lecture**)
This course covers the basic principles of wolf and deer ecology and includes lectures on life history, predator-prey interactions, social structures and communication. Wolf and deer research techniques will be introduced. (Cross-listed course; students can enroll only in BIOL 1465 or NRT 1465.)

BIOL 1466 Black Bear Ecology
1 credit (**Lecture**)
This course covers the basic principles of black bear ecology, including lectures on life history, food habits, physiology, social behavior, current research and management. The role of bears in early cultures and bear species of the world will be addressed. This course includes discussions with bear management agencies, both government and non-government organizations. (Cross-listed course; students can enroll only in BIOL 1466 or NRT 1466.)

BIOL 1467 Beaver Ecology
1 credit (**Lecture**)
This course is an in-depth look at the beaver with an emphasis on its ecology in the northern forest. Classroom and field activities will investigate the impact of beaver on stream ecology, fisheries, riparian vegetation and plant community succession. Physical and behavioral adaptations to life in an aquatic environment will be covered. Current issues in research and management will be discussed. (Cross-listed course; students can enroll only in BIOL 1467 or NRT 1467.)

BIOL 1468 Moose Ecology
1 credit (**Lecture**)
This course covers the basic principles of moose ecology including lectures on population dynamics, census techniques, habitat analysis, and physiology. Field assignments help students investigate habitat, conduct tracking surveys, and relate forest succession to moose population dynamics. (Cross-listed course; students can enroll only in BIOL 1468 or NRT 1468.)

BIOL 1476 Introduction to Ethology/Wolf Behavior
2 credits (**Lecture/Lab**)
This course covers the basic principles of animal behavior including: behavioral development, stimuli and communication, motivation, learned versus instinctual behavior, social organization, and the adaptability and evolution of behavior. Emphasis will be placed on imagery/video observations of wild wolf behavior, research of existing ethograms and field activities including observing and recording behavioral data from cooperating captive facilities. (Cross-listed course; students can enroll only in BIOL 1476 or NRT 1476.)

BIOL 1545 Fundamentals of College Biology
4 credits (**Lecture/Lab**)
This course is an introduction to biological principles designed for non science majors. Topics include scientific method, introductory chemistry of life, cells and cell processes, DNA and genetics, ecology and ecosystems, and current topics.

BIOL 1561 General Biology of Cells
4 credits (**Lecture/Lab**)
Intended as the first of a two-course sequence for biology majors. This course is used to investigate the basic principles of living organisms at the cellular level by applying the scientific method. The course emphasizes characteristics and evolution of living organisms, biochemistry, cell structure and function, cell reproduction, molecular processes in cells, genetics, and biotechnology.
MnTC Goal Area(s): 3

BIOL 1562 General Biology of Organisms
4 credits (**Lecture/Lab**)
Intended as the second of a two-course sequence for biology majors. This course investigates foundational concepts of living organisms and biodiversity. This course emphasizes mechanisms of evolution, speciation, and comparative anatomy, physiology, and adaptations for different groups of organisms. Concepts of biomes, the roles of human activities, and their effects on the ecological balance of the ecosystem will also be emphasized. Prerequisite(s): BIOL 1561
MnTC Goal Area(s): 3, 10

BIOL 2131 Forest Ecology
4 credits (**Lecture/Lab**)
This course will provide students with an understanding of basic forest ecology concepts including: spatial and temporal ecosystem change; source and effect of genetic variation; regeneration, plant structure, and growth in forest communities; climate and site variables (moisture, nutrients, heat, and light); land form and soil features affecting ecosystem function; succession principles and forest community change; and biological diversity. The course lab work will concentrate on the 03correlation of terrestrial environmental variables with ecosystem function and forest community development. Students will present lab findings in written form and as an oral seminar.

BIOL 2320 Microbiology
4 credits (**Lecture/Lab**)
Microbiology focuses on the classification, structure, and function of microorganisms. Emphasis will be on bacteria, but the course also includes the fungi, protists, viruses, and parasitic helminth worms. Metabolism, reproduction, and genetics of microorganisms will be discussed, along with methods of controlling growth, biotechnology applications, environmental roles, and uses in industry, food production, and medical fields. Additional topics include the pathogenicity of microorganisms and the diseases they cause, the human immune response, epidemiology, and immunology. Prerequisite(s): BIOL 1200, BIOL 1561, BIOL 2371
MnTC Goal Area(s): 3

BIOL 2325 Ecology
4 credits (**Lecture/Lab**)
Ecology is the study of the relationships between organisms and the environment. In this course, students will be introduced to the major themes of ecology, which include energy and nutrient cycling, distribution of organisms in the environment, population dynamics, interactions within and among species, evolution and adaptation, communities, and ecosystems. Application of ecological principles to current issues will be discussed. Prerequisite(s): BIOL 1562
MnTC Goal Area(s): 3

BIOL 2330 Genetics
4 credits (**Lecture/Lab**)
Genetics is an exploration of heredity and the variation of inherited characteristics. Emphasis will be placed on classical genetic analysis and the biochemistry of gene transmission, expression, and regulation. Labs will measure genetic characteristics seen in individuals and populations of species as they change over time, in different environments. Prerequisite(s): BIOL 1561

BIOL 2371 Human Anatomy & Physiology 1
4 credits (**Lecture/Lab**)
Human Anatomy & Physiology 1 is the first of two courses on the structure and function of human organ systems, with emphasis on the concept of homeostasis. Cell structures and functions, including signaling and metabolism, tissues, and the structures (microscopic and gross anatomy), functions, and physiological mechanisms of the integumentary, skeletal, muscular, and nervous systems will be studied. The course is designed for students interested in nursing or other health-related professions, biological sciences, science education, and physical education programs, as well as liberal arts students. Previous coursework in Biology is recommended.
MnTC Goal Area(s): 3

BIOL 2372 Human Anatomy & Physiology 2
4 credits (**Lecture/Lab**)
Human Anatomy & Physiology 2 is the second of two courses on the structure and function of human organ systems, with emphasis on the concept of homeostasis. Structures (microscopic and gross anatomy) and functions and physiological mechanisms of the endocrine, cardiovascular, lymphatic, respiratory, urinary, digestive, and reproductive systems will be studied. Multi-system processes of fluid and electrolyte balance, acid-base balance, and pregnancy will also be included. The course is designed for students interested in nursing or other health-related professions, biological

sciences, science education, and physical education programs, as well as liberal arts students. Prerequisite(s): BIOL 2371
MnTC Goal Area(s): 3

BIOL 2449 Ecology and Management of Northern Fishes
2 credits (**Lecture/Lab**)
This introductory course on the ecology and management of fishes emphasizes local habitats and species within the Northern Forest region. Topics include habitat types, fish anatomical and behavioral characteristics, population dynamics, fisheries management, and aquatic, invasive species. (Cross-listed course; students can enroll only in BIOL 2449 or NRT 2449.)

BIOL 2455 Limnology
3 credits (**Lecture/Lab**)
This course is a lecture and lab-based examination of the structure and function of freshwater ecosystems with an emphasis on the relationships among physical, chemical, and biological properties of lakes. Applications to wise use of water resources will be covered.

BIOL 2710 Student Research Project
Variable, 1-3 credits (**Independent Study**)
This course is an opportunity to complete an independent project under faculty supervision.

Business

BUS 1455 Introduction to Entrepreneurship
3 credits (**Lecture**)
This course is designed to explore attributes of successful entrepreneurs and prepare students to start a business. In this course, potential small business owners will gain a better understanding of what it takes to start and manage a small business. Sample topics to be explored include: the foundations of entrepreneurship, profiling the target customer, reading and beating the competition, building a winning team, developing and analyzing financial statements, legal aspects of owning a business and creating a successful business plan.

BUS 1500 Introduction to Business
3 credits (**Lecture**)
This course provides students with an overview of the business world. Studies the major components of a business and the interrelation of these components with environmental forces both local and global.

BUS 1515 Business Computers
3 credits (**Lecture**)
Introductory course in Business Computers. Course topics include anatomy of a computer system, computer terminology, file management, and ethical and social issues regarding computers. Course work includes hands-on use of integrated business software packages and training in using word processing, spreadsheets, databases, presentation software, e-mail, and the Internet to solve business problems while following professional design standards.

BUS 1530 Legal Environment of Business
3 credits (**Lecture**)
This course presents the legal aspects of managing a business. It includes a review of the basic U.S. legal system, ethics, torts, contracts, liability, employment, consumer issues, and international business law.

BUS 2525 Principles of Marketing
3 credits (**Lecture**)
This course will examine how marketing plans are developed within a business environment. Students will learn the process of marketing research and how it is used to serve market segments. The basic components of marketing, product offerings, promotion pricing, and distribution strategies will be covered.

BUS 2526 Principles of Management
3 credits (**Lecture**)
This course is a study of the foundations, principles and functions of management. The course provides students with a theoretical and practical background of management. Emphasis is placed upon understanding the basic activities managers perform. An overview of managerial functions of planning, organizing, leading and control are examined.

BUS 2535 Human Resource Management
3 credits (**Lecture**)
This course is an overview of the principles and practices of administering the human resource management functions in modern organizations to achieve an organization's objectives. Topics include employee selection and retention, training, job evaluation, compensation, health and safety, labor-management relations, communication with diverse workforces, motivation, and employment law.

BUS 2590 Business Internship
Variable, 1-4 credits (**Internship**)
This course offers students an opportunity to apply principles and practices learned in a business program to practical work experience in an on-the-job training, an entrepreneurial, or a supervised learning experience.

Business Operations and Management

BOPM 1241 Project Management 1: Microsoft Word
3 credits (**Lecture/Lab**)
This course will introduce the basic and intermediate features of Microsoft Word. Students will develop strategies for determining best application use. This course will teach students steps to use Microsoft Word effectively and efficiently for a variety of business needs. Students will continue to develop keyboarding skills for speed and accuracy. Students will learn document creation, layout, and design.

BOPM 1242 Project Management 2: Microsoft Excel
3 credits (**Lecture/Lab**)
This is a comprehensive course exploring the functions and practical applications in using Microsoft Excel. Students will create Excel worksheets to analyze date; edit and format worksheets to enhance the appearance; use function formulas; and add visual elements such as graphs/charts; and work with multiple worksheets and tables.

BOPM 1243 Project Management 3: Records / Data Management
3 credits (**Lecture**)
The Records/Data Management course is designed to provide a comprehensive introduction to the complex field of records and information management. Emphasis will be placed on learning the principles and practices of effective records and information management for physical and electronic record systems. The importance of information privacy and security will also be discussed including applicable laws and practices to support keeping information, both in hard copy and electronic, private and secure.

BOPM 1244 Project Management 4: Microsoft PowerPoint and Publisher
3 credits (**Lecture/Lab**)
Students will develop digital communication skills to support work in a professional business environment. Students will learn and enhance skills in Microsoft Power Point and Publisher to support employer needs and enhance internal and external business communications with a variety of stakeholders. This course provides comprehensive coverage of software, delivery methods, tools, techniques, and methodologies that develop and enhance the skills necessary to effectively and efficiently create professional business materials and presentations.

BOPM 1245 Project Management 5: Microsoft Access
3 credits (**Lecture/Lab**)
This is a comprehensive course exploring the functions and practical applications in using Microsoft Access. Students will learn how to create a database; add, change, and delete data in the database; sort and retrieve the data; and create forms and reports using the data.

BOPM 1246 Keyboarding
3 credits (**Lecture/Lab**)
The objective of the course is to teach proper typing techniques, to build speed and accuracy, and to utilize a professional word processing system for business applications, such as document storage and retrieval, editing, and document distribution. Students develop fundamental skills by mastering the alphabetic keyboard, top-row numbers, symbols, and the numeric keypad.

BOPM 1251 Operations Management 1: The Professional Office
3 credits (**Lecture**)
This course prepares students for the realistic situations, tasks, and problems they will encounter in a state-of-the-art office environment. Increased emphasis is given to help students understand employers' expectations, build confidence, and develop into strong, competent employees and leaders.

BOPM 1252 Operations Management 2: Business Accounting with QuickBooks
4 credits (**Lecture/Lab**)
This course is an introduction to fundamental accounting concepts and includes analyzing, interpreting, and recording transactions. The course includes the preparation of financial

statements, bank reconciliations, and payroll transactions. The use of the most current version of QuickBooks will be integrated into this course emphasizing the use of personal computers to process accounting data.

BOPM 2253 Operations Management 3: Customer Relations in a Global Environment
3 credits (**Lecture**)
The course presents a practical approach to understanding, implementing, and practicing the principles of customer service within different types of organizations. Students will examine service strategies in different organizations and businesses, learn about different supporting tools and techniques to provide quality service, and analyze customer information to identify opportunities for service improvement.

BOPM 2261 Business Operations and Management Capstone Project
4 credits (**Independent Study**)
The Business Operations and Management Capstone course is the comprehensive integration of various competencies including business knowledge, data management, computer techniques, and communication skills. The BOPM Capstone allows a student the opportunity to put into practice the skills and knowledge they have learned through their coursework. The BOPM Capstone also allows students to work directly with a business developing communication and networking skills.

Carpentry / Construction Trades

CARP 1221 Blueprint Reading & Estimating 1
3 credits (**Lecture/Lab**)
This course offers the basics of reading and drawing blueprints for residential construction and estimating material requirements and creating material lists.

CARP 1222 Blueprint Reading & Estimating 2
2 credits (**Lecture**)
This course covers advanced approaches to identifying and understanding blueprint drawing and details of residential and commercial construction. Prerequisite(s): CARP 1221

CARP 1227 Introduction to Building Codes
1 credit (**Lecture**)
This course covers the Introduction to Building Codes. It includes the purpose for codes, scope of building codes, and how to use the UBC code book.

CARP 1228 Cabinetry
1 credit (**Lab**)
This course introduces students to various types of cabinetry and countertops used in commercial and residential construction in addition to instruction regarding the appropriate installation process for each type of building material(s).

CARP 1229 Concrete
2 credits (**Lab**)
This course provides "hands-on" instruction in working with concrete in commercial and residential structures. Forming various types of walls, footings, and steel forms will be addressed.

CARP 1231 Principles of Carpentry 1-A Theory
2 credits (**Lecture**)
This course is designed to teach and apply safety regulations, compliant work environments, and construction/carpentry theory.

CARP 1232 Principles of Carpentry 1-B Theory
3 credits (**Lecture**)
This course consists of learning the different methods of installation and finishing of drywall, interior/exterior finishing, window and door installation, trim, and siding. Prerequisite(s): CARP 1231

CARP 1234 Safe Operation of Power Industrial Lift Trucks & Material Handling
2 credits (**Lecture/Lab**)
This course is designed to provide students with an opportunity to develop and demonstrate an understanding of the safe operation of Powered Industrial Lift Trucks as required under the Occupational Safety and Health Administration (OSHA) 29 CFR 1910.178 training requirement. Students will also be introduced to the safe use and identification of rigging materials as required under the Occupational Safety and Health Administration (OSHA) 29 CFR 1910.184. Materials Handling Standard.

CARP 1235 Core Construction Trade Skills
4 credits (**Lecture/Lab**)
Core Construction Trade Skills provides the essential framework for individuals desiring to become proficient in the skilled trade of construction. This course provides a thorough study of the safe and proper use of hand and

power tools, safety training based on OSHA 29 CFR 1926, and mathematics commonly used in construction trades.

CARP 1241 Principles of Carpentry 1-A Lab
4 credits (**Lab**)
This course covers the lab portion of preparation of a job site for the construction of a building and teaches the fundamentals of carpentry.

CARP 1242 Principles of Carpentry 1-B Lab
4 credits (**Lab**)
This course includes actual hands-on experience of hanging sheetrock, installing doors and windows, installing insulation, trim work, siding and stair building.

CARP 1260 Construction Trades Internship 1(A)
7 credits (**Internship**)
This course provides the essential framework for students desiring to become proficient in the skilled trade of construction. It is through this internship the student has the opportunity to learn the necessary skills through lecture and a hands-on approach with a licensed contractor. The course will include lecture and fieldwork. This course provides an in depth study of how to analyze building specifications and drawings in order to determine system requirements and installation.

CARP 1261 Construction Trades Internship 1(B)
7 credits (**Internship**)
This course provides the essential framework for students desiring to become proficient in the skilled trade of construction. It is through this internship the student has the opportunity to learn the necessary skills through lecture and the hands-on approach with a licensed contractor. The course will include lecture and fieldwork. This course provides an in depth study of CFS system, building envelope, exterior finish, and drywall assembly. Prerequisite(s): CARP 1241

CARP 2280 Construction Trades Internship 2(A)
7 credits (**Internship**)
This course provides the essential framework for students desiring to become proficient in the skilled trade of construction. It is through this internship the student has the opportunity to learn the necessary skills through lecture and the hands-on approach with a licensed contractor. This course will include lecture and fieldwork. This course provides an advanced study of concrete, form layout, reinforcing steel requirements. Safety requirements of trenches/excavation, and rigging are thoroughly discussed in lecture. Prerequisite(s): CARP 1261

CARP 2281 Construction Trades Internship 2(B)
7 credits (**Internship**)
This course provides the essential framework for students desiring to become proficient in the skilled trade of construction. It is through this internship the student has the opportunity to learn the necessary skills through lecture and the hands-on approach with a licensed contractor. This course will include lecture and fieldwork. This course provides an advanced study of the construction trade to prepare the student for leadership. Prerequisite(s): CARP 2280

Chemistry

CHEM 1200 Introduction to Chemistry
4 credits (**Lecture/Lab**)
This course is an introduction to chemistry for students who have never taken a chemistry course. Topics include measurement, energy, atomic structure, chemical bonds, chemical reactions, stoichiometry, nuclear chemistry, gases, solutions, acids and bases, organic chemistry and topics related to environmental concerns. Laboratory emphasizes observation, data collection and report writing. Introduction to Chemistry is intended for non-science majors and may serve as preparation for General Chemistry 1. Prerequisite(s): MATH 0200
MnTC Goal Area(s): 3, 10

CHEM 1300 Introduction to Organic and Biochemistry
4 credits (**Lecture/Lab**)
This course is a one-semester survey covering the effects and identification of medicinal and biological compounds. Coursework and laboratory experiences cover the fundamental aspects of organic chemistry and biological chemistry. The chemistry, biological activity and environmental consequences of each compound and process will be explored including the impact and associated problems, mechanisms of dispersal and highlighting some solutions to environmental problems. Topics include metric conversions, atomic structure, chemical bonding, chemical structures, chemical reactions, pollutant hydrocarbons, natural resources, recycling,

changes in energy, solutions and colloids, pH and buffers, organic functional groups, carbohydrates, lipids, proteins, enzymes, and basic metabolism. Prerequisite(s): MATH 0200
MnTC Goal Area(s): 3, 10

CHEM 1521 General Chemistry 1
4 credits (**Lecture/Lab**)
This course is a study of the fundamental theories and principles of chemistry. Topics include measurement, nomenclature, basic chemical reactions, stoichiometry, thermochemistry, electron configurations, periodic properties chemical bonding, molecular geometry and gases. Laboratory emphasizes observation, data collection and report writing. General Chemistry 1 is meant primarily for students majoring in engineering, science, or medicine, as well as liberal arts studies. Prerequisite(s): MATH 1220
MnTC Goal Area(s): 3

CHEM 1522 General Chemistry 2
4 credits (**Lecture/Lab**)
This course is a continuation of General Chemistry 1. Topics include liquids, solids and intermolecular forces, solutions, kinetics, equilibrium, thermodynamics, electrochemistry, nuclear chemistry, and an introduction to organic chemistry. Laboratory emphasizes observation, data collection and report writing. Prerequisite(s): CHEM 1521
MnTC Goal Area(s): 3

CHEM 2311 Organic Chemistry 1
5 credits (**Lecture/Lab**)
This course is a study of the chemistry of carbon compounds emphasizing the theories and mechanisms which account for their physical and chemical properties. Techniques of purification, separation, and synthesis are practiced in the laboratory. Laboratory emphasizes observation, data collection and report writing. Organic Chemistry 1 is meant for students planning to major in biology, chemistry, chemical engineering, pharmacy, and certain medical fields. Prerequisite(s): CHEM 1522

CHEM 2312 Organic Chemistry 2
5 credits (**Lecture/Lab**)
This course is a continuation of Organic Chemistry 1. The chemistry of carbon compounds emphasizing the theories and mechanisms which account for their physical and chemical properties is again studied. Techniques of purification, separation, and synthesis are practiced in the laboratory. Laboratory emphasizes observation, data collection and report writing. Prerequisite(s): CHEM 2311

Cisco / IT Networking

CNT 1010 Networking Fundamentals
3 credits (**Lecture/Lab**)
Networking Fundamentals covers networking architecture, structure, and functions. The course introduces the principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations to provide a foundation for the curriculum.

CNT 1020 Router Theory and Router Technologies
3 credits (**Lecture/Lab**)
Router Theory and Router Technologies covers 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. Prerequisite(s): CNT 1010

CNT 1030 Advanced Routing and Switching
3 credits (**Lecture/Lab**)
Advanced Routing and Switching covers the architecture, components, and operations of routers and switches in larger and more complex networks. 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, and STP in both IPv4 and IPv6 networks. Prerequisite(s): CNT 1020

CNT 1040 Advanced Networking & Management
3 credits (**Lecture/Lab**)
Advanced Networking and Management 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 requirement. Students learn how to configure and troubleshoot network devices and resolve common issues with data link protocols. Students will also develop the knowledge and skills needed to implement virtual private network (VPN) operations in a complex network. Prerequisite(s): CNT 1030

CNT 1100 Cisco Certificate Preparation
1 credit (**Lab**)
Cisco Certificate Preparation is designed to assist students to prepare for CISCO certification exams. Students may use CISCO hardware to prepare for one or more of the following Cisco certification exams: CCENT, CCNA, CCNA-S, including related exams.

CNT 2010 Information Assurance
3 credits (**Lecture/Lab**)
In this class, 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. In this class, students will learn the skills necessary for Security + certification. Prerequisite(s): ITNS 1505, ITNS 1510

CNT 2070 Digital Forensics
3 credits (**Lecture/Lab**)
This course deals with the preservation, identification, extraction, documentation and interpretation of computer data. Topics covered include evidence handling, chain of custody, collection, preservation, identification and recovery of computer data. This course will feature the use of NTI forensics tools. Prerequisite(s): ITNS 1505, ITNS 1510

College Prep

PREP 0210 College Reading/Writing Prep
0 credits (**Lecture**)
College Prep 1

PREP 0220 College Math Prep 1
0 credits (**Lecture**)
College Math Prep 1

PREP 0545 Law Enforcement Bridge
0 credits (**Lecture**)
Prep for Law Enforcement Program

Communications

COMM 1210 Introduction to Communication
3 credits (**Lecture**)
Introduction to Communication helps the student become a more efficient communicator in interpersonal and presentation situations. Students will explore the basic elements of interpersonal communication and public speaking. Interpersonal components include critical thinking, self-concept, perception, listening, verbal and nonverbal expression, relationships, and conflict management. Public speaking components include topic selection, research, organization, audience analysis, delivery, and critical listening.
MnTC Goal Area(s): 1

COMM 1215 Public Speaking
3 credits (**Lecture**)
This communication course will focus on the research, development, content, and delivery of oral presentations. Through group workshops, hands-on speech construction, and self-evaluation, students will learn methods and techniques for preparing and delivering a variety of effective speeches. Students will study the relationship between speaker, content, and audience. Students will demonstrate ability to construct and deliver presentations in personal, academic, and work-centered contexts.
MnTC Goal Area(s): 1

COMM 1220 Interpersonal Communication
3 credits (**Lecture**)
Communication is the study of messages and how they influence our relationships. This course will explore interpersonal (person-to-person) communication and intrapersonal (in our minds) communication theory. Students will study communication theories, patterns, and behaviors within the context of family, friend, romantic, and professional relationships. This class will increase students understanding of their own communication choices with emphasis on conflict management and intercultural communication.
MnTC Goal Area(s): 1

COMM 1225 Intercultural Communication
3 credits (**Lecture**)
In our technology-driven, global world, students interact and work with people with diverse backgrounds. Intercultural Communication is designed to help students learn about their own cultural identities, recognize cultural differences, understand perception and bias, identify barriers, adjust their communication to manage intercultural exchanges, and build successful relationships to help them better succeed in their professional and personal lives.
MnTC Goal Area(s): 1, 7

COMM 1230 Small Group Communication
3 credits (**Lecture**)
Small Group Communication examines group formation and development. This course will give students insights into the dynamics of group member communication and will help students develop skills to influence future groups in effective ways. Students will explore group development, culture formation, group member roles, leadership, problem-solving, decision-making, and conflict management.
MnTC Goal Area(s): 1

COMM 1400 Communication for Career Success
3 credits (**Lecture**)
This course teaches communication strategies to obtain and keep employment. Students will learn communication concepts and skills including impression management, listening, verbal and nonverbal communication, conflict management, and basic presentation and interview skills. Students will apply these concepts to the job search process and workplace to increase success at getting and keeping a job. This course is designed for students entering technical careers such as electricians, diesel and automotive mechanics, and heating and refrigeration technicians.

COMM 2215 Mass Communication
3 credits (**Lecture**)
This course provides a survey of the theories and concepts important to understanding mass communication. A strong emphasis will be placed on the effects of newspapers, magazines, radio, television, Internet, and social media on a global society. The role and responsibility of the mass media in a free society will be analyzed.
MnTC Goal Area(s): 5, 9

Computer Science

CSCI 1100 Introduction to Computers
3 credits (**Lecture**)
An introductory course in the use of computers. Topics include computer organization, operating systems, file management, anatomy of a computer system, Internet basics, computer applications, and ethical and social issues regarding computers. The course consists of hands-on use of an integrated software package and training in word processing, spreadsheets, and presentation business applications software.
Prerequisite(s): MATH 0200

CSCI 1515 Business Computers
3 credits (**Lecture**)
This is an introductory course in Business Computers. Course topics include anatomy of a computer system, computer terminology, file management, and ethical and social issues regarding computers. Course work includes hands-on use of integrated business software packages and training in using word processing, spreadsheets, databases, presentation software, e-mail, and the Internet to solve business problems while following professional design standards.

CSCI 1525 C++ Programming
3 credits (**Lecture**)
This course provides an introduction to problem solving and program development using object oriented design, structured programming techniques and the C++ programming language. Students will design, construct, and test programs with primarily scientific and mathematical applications. Prerequisite(s): MATH 0300

Construction Management and Supervision

CMSV 2100 Soils and Concrete Technology
4 credits (**Lecture**)
Discusses the history and fundamentals of concrete, admixtures, soils, and aggregates. Examines the interactions of concrete, weather, and soil conditions; the proper placement of concrete; bearing capacity of soils; and the basic principles of concrete and soil inspection.

CMSV 2860 Construction Plan Reading
2 credits (**Lecture**)
This course walks students though an example set of construction documents including Architectural, structural, mechanical, and electrical drawings. Emphasis is placed on understanding standard conventions and symbols and navigating a drawing set to find specific information.

CMSV 2870 Construction Management
3 credits (**Lecture**)
Examines estimating, purchasing, bidding, scheduling, coordinating, expediting, and supervising work and dealing with public agencies, the design professions, suppliers, and subcontractors as these activities relate to the operation of a building contracting company.

CMSV 2875 Mechanical and Electrical Systems
3 credits (**Lecture**)
Identify, analyze, and evaluate all aspects of building mechanical, electrical, and plumbing systems. The students will explore a variety of systems found typically in both residential and commercial buildings and will have the opportunity to gain detailed knowledge on how systems are designed, constructed, and perform.

CMSV 2885 Construction Estimating
3 credits (**Lecture**)
Examines the basic techniques and guidance of estimating. The student will develop skills to prepare material takeoffs and discuss how these relate to labor, equipment, and time. Practical step-by-step estimating procedures will be applied to an actual building project. Prerequisite(s): CMSV 2860, CMSV 2870, CMSV 2890

CMSV 2890 Building Organization and Technology
3 credits (**Lecture**)
Examines the basic techniques and guidance of estimating. The student will develop skills to prepare material takeoffs and discuss how these relate to labor, equipment, and time. Practical step-by-step estimating procedures will be applied to an actual building project.

CMSV 2900 Construction Scheduling
3 credits (**Lecture**)
Examines the planning, scheduling, management, and control relating to both core and higher functions associated with network diagram analysis, CPM scheduling, project diagnostics, forecasting techniques. Prerequisite(s): CMSV 2860, CMSV 2870, CMSV 2890

CMSV 2970 Construction Management Internship
3 credits (**Lecture**)
Provides the student an opportunity to observe and participate in all aspects of construction management that are typically encountered in the construction workplace.

Criminal Justice

CRJS 1412 Criminal Investigations
3 credits (**Lecture**)
Students will study the fundamentals of investigation, crime scene search and recording, collection and preservation of physical evidence, scientific aids, modus operandi, sources of information, interview and interrogation, follow-up and case separation.

CRJS 2212 Criminal Evidence and Procedure
3 credits (**Lecture**)
Students will study the constitutional, legislative, and judicial regulation of the criminal justice system, with particular emphasis upon the police process, including arrest, search and seizure, interviews and interrogations, identification procedures and rules of evidence controlling criminal proceedings.

CRJS 2213 Criminal Law/MN Statutes/Traffic Law
4 credits (**Lecture**)
Students will be provided with an introduction to criminal law, including the classification and analysis of crimes and criminal acts with an emphasis on the Minnesota Criminal code and the study of criminal law as a means of preserving and protecting life and property. Students will also be introduced to Minnesota traffic law, specifically required by the Minnesota Board of Peace Officer Standards and Training.

CRJS 2214 Critical Issues and Community Relations
3 credits (**Lecture**)
Students will examine the following criminal justice issues: law enforcement and First Amendment rights, police ethics, community relations, crime prevention, crisis intervention, including recognizing and handling abnormal persons, stress management, officer liability, selected judicial decisions, statutes and reporting. The course explores relationships between the criminal justice system and the community with emphasis on developing positive relationships. Students will complete a service learning project during the semester.

CRJS 2220 Law Enforcement and Resource Protection Internship
Variable, 1-6 credits (**Internship**)
This course provides structure to a work experience with an agency or department related to this career field. This internship will offer the

opportunity to learn from on-the-job experience in law enforcement, land management and natural resource protection while evaluating skills for career preparation. Students will be expected to complete 80 hours of on-the-site work for each credit taken. This course may be taken twice during a student's academic coursework. (Minimum 2.0 GPA required for registration.) Prerequisite(s): CRJS 1412, ENGL 1240

CRJS 2285 Park Ranger Law Enforcement Academy
19 credits (**Lecture/Lab**)
The Park Ranger Law Enforcement Academy is a semester long, 19-credit course designed as preparation for a career in law enforcement. Specialized content and hands-on instruction is provided by more than two dozen subject matter experts who have extensive experience working as law enforcement officers in the National Park Service (NPS) and other federal, state, and municipal law enforcement agencies, and the law enforcement coordinator serves as the instructor of record. Students train in constitutional and criminal law, behavioral science, park patrol and enforcement, driving, firearms, and officer safety. With the inclusion of NPS curriculum, successful graduates will have met the education requirement for eligibility for a law enforcement commission and can apply for a seasonal position with the NPS. Successful completion of the NPS requirements is contingent upon achieving a minimum score of 70 percent or higher (the score will not be rounded) on six written examinations, and attaining a "satisfactory" or higher mark on each practical evaluation, administered in over a dozen content areas. (Detailed information will be provided in the U.S. Department of the Interior /NPS Trainee Standards Handbook.) Additionally, this is the final component of the Professional Peace Officer Education (PPOE) curriculum required prior to taking the POST examination for licensing in Minnesota. Meeting physical fitness standards, passing a psychological evaluation, and passing drug, medical, and background/criminal history screenings are all requirements for admission into this PPOE program.
This is the only course required by the Park Ranger Law Enforcement Academy (PRLEA) certificate. Students accepted by the enrollment office into the PRLEA program will have completed a related Associate Degree (or higher) from an accredited college or university. Only students pursuing this certificate can enroll in this course.

Culinary Arts / Pastry Artist

CAMT 1600 Introduction to Food Service
6 credits (**Lecture/Lab**)
Introduction to Food Service includes an introduction to the food service industry, culinary terms, counter service, ware washing techniques, and meat, poultry, and fish or shellfish identification. This course also covers basic cooking techniques, knife identification and use, and basic kitchen first aid and safety.

CAMT 1602 Basic Food Production Principles
6 credits (**Lab**)
Basic Food Production Principles teaches the preparation and serving of stocks, sauces, soups, meats, and poultry using various cooking methods and techniques. This course also includes basic baking methods and uses for the preparation of finished products such as quick breads, yeast breads, pies, cakes, and cookies.

CAMT 1603 Institutional Food Production 1
4 credits (**Lab**)
Institutional Food Production 1 is a supervised course covering the actual production learned in basic food production principles. Students are responsible for preparation and service of soups, sauces, and meat, fish, and poultry items using various moist and dry heat methods. This course also covers identification and preparation of vegetables, rice, and pasta products.

CAMT 1604 Quality Assurance
1 credit (**Lecture**)
Quality Assurance develops an understanding of the basic principles of sanitation and safety in order to protect the consumer by maintaining a safe and healthy environment in the food service industry. The laws and regulations related to safety, fire and sanitation in food service operation are also covered.

CAMT 1605 Institutional Food Production 2
4 credits (**Lab**)
Institutional Food Production 2 reviews the basic production skills acquired in the previous courses; Introduction to Food Service Production, Basic Food Production Principles, and Institutional Food Production 1.

CAMT 1606 Culinary Mathematics
1 credit (**Lecture**)
Culinary Math is designed to aid the Culinary Arts student with the basic math skills that are used in

the day-to-day operations in the food service industry.

CAMT 2200 Edible Design and Showpieces
4 credits (**Lecture/Lab**)
In this course students are taught a variety of Vegetable, Sugar, Chocolate and Bread decorations and sculpting techniques to produce decorations that can embellish other desserts or artistic showpieces for display. They will learn techniques such as applying color with air brush, use of various types of molds, free form decorations that will be incorporated into dishes and showpieces. Students are introduced to various techniques to create a variety of showpieces. Students will use a given theme to design and build a vegetable, sugar, chocolate and gingerbread showpieces.

CAMT 2202 Advanced Baking
4 credits (**Lecture/Lab**)
Advanced Baking is designed to introduce the student that has a base knowledge of baking to the more advanced art of baking.

CAMT 2203 Cake Baking
4 credits (**Lecture/Lab**)
In this course, students will learn how to correctly mix and bake a variety of cakes as well as how to scale up and down recipes. They will also learn how to properly design a storyboard for a cake to present to a customer.

CAMT 2204 Cake Design and Decoration
4 credits (**Lecture/Lab**)
In this course, students will learn how to design and decorate a variety of cakes, a three-tier fondant cakes. Students will also be introduced to a variety of decorating mediums, such as gum paste, fondant, buttercream, sugar, and chocolate.

CAMT 2400 Food Service Procurement and Cost Control
3 credits (**Lecture**)
Food Service Procurement and Cost Control covers the basic food service cost control techniques for the modern kitchen. Menu development, cost factor, food procurement, receiving, and storage are included.

CAMT 2410 Hotel and Restaurant Food Production 1
4 credits (**Lecture/Lab**)
Hotel and Restaurant Food Production 1 provides experience in production speed, skill, and development in the assigned meal preparation stations in a working kitchen and restaurant. Students plan and prepare menu items and serve menu items as a team under the direction of a certified culinary arts instructor. Students follow and perform sanitation procedures as part of the daily operation.

CAMT 2420 Hotel and Restaurant Food Production 2
5 credits (**Lecture/Lab**)
Hotel and Restaurant Food Production 2 provides an advanced level of meal preparation in a working restaurant. The student plans, prepares, and serves required menu items while following a set station rotation. The student follows set clean up and sanitation procedures as part of daily operations.

CAMT 2430 Advanced Culinary Skills 1
6 credits (**Lecture/Lab**)
In Advanced Culinary Skills 1, the student plans, supervises, and manages the execution of any specialty buffets or banquets. The student is responsible for the planning, preparation, demonstration, and service of all aspects of the event.

CAMT 2440 Advanced Culinary Skills 2
6 credits (**Lecture/Lab**)
Advanced Culinary Skills 2 helps to prepare the student to enter the job market by refining skills previously addressed with further emphasis placed on applying managerial skills in a working restaurant lab.

CAMT 2450 Specialty Foods Preparation
5 credits (**Lecture/Lab**)
Specialty Foods Preparation covers a review and application of the quantity cooking methods used in the production of menu items for buffets and institutional operations.

CAMT 2470 Restaurant Management
2 credits (**Lecture**)
Restaurant Management prepares the student for the transition from employee to supervisor by development of effective skills in human relations and personnel management, budgeting, and cost control.

Dental Assistant

DAS 1501 X-Ray 1
2 credits (**Lecture/Lab**)
X-Ray 1 will teach the students the diagnostic importance of dental X-rays. The student will expose, process, and evaluate X-rays on skulls and mannequins. The student will utilize radiation safety and infection control guidelines. This course is a prerequisite for X-Ray 2.

DAS 1504 Nutrition and Dental Health
1 credit (**Lecture**)
Nutrition and Dental Health studies the basic concepts and principles of nutrition as they apply to the dental profession. Topics include digestion, nutrients, the Food Pyramid, energy exchange, and health risks related to diet. Vitamins and minerals are discussed in addition to deficiencies seen intraorally and extraorally. Preventive dentistry nutrition is also included.

DAS 1507 Dental Anatomy 1
3 credits (**Lecture**)
Dental Anatomy 1 is an introduction to all the oral structures and their functions within the human body. The student becomes aware of cell structure and formation and the development of the head and dental structures. This course is a prerequisite for Dental Anatomy 2.

DAS 1512 Chairside Assisting 1
3 credits (**Lecture/Lab**)
Chairside Assisting 1 is an introduction to the dental operatory, equipment, and materials. It provides general background knowledge and skill development for the basics of all assisting in general dentistry. Also included are endodontic and oral surgery. This course is a prerequisite for Chairside Assisting 2.

DAS 1517 Dental Lab
2 credits (**Lab**)
Dental Lab provides the basic necessary information on dental materials and the skills necessary to handle lab equipment.

DAS 1520 Dental Science
2 credits (**Lecture**)
Dental Science introduces applied psychology and its relationship to the dental office. This course also prepares the dental assistant to deal with medical and dental emergencies. Pharmacology is included to help students better understand the medications used in dentistry.

DAS 1525 Expanded Duties 1
3 credits (**Lecture/Lab**)
Expanded Duties 1 covers skill development and knowledge of the legal Expanded Duties for Dental Assistants in the State of Minnesota.

DAS 1528 Infection Control
1 credit (**Lecture**)
Infection Control covers the major classifications of microorganisms, disease transmission, and infection control in the dental office. Compliance with current Occupational Safety and Health Agency (OSHA) and Center for Disease Control and Prevention (CDC) guidelines is discussed and practiced.

DAS 1529 Expanded Duties 2
3 credits (**Lecture/Lab**)
Expanded Duties 2 provides background knowledge and skill development in the orthodontics and periodontics specialty areas of dentistry. Local dentists are on duty to evaluate the students and give them direction with expanded duties. Prerequisite(s): DAS 1525

DAS 1530 Office Management
1 credit (**Lecture**)
Office Management is designed to acquaint the student with clinical and business record keeping of a dental practice. This includes the patients' data, appointment control, telephone and written communications, dental insurance, supplies, and dental forms.

DAS 1542 X-Ray 2
2 credits (**Lecture/Lab**)
X-Ray 2 will teach the production of X-rays, the biological changes radiation can cause, tubehead components, bisect and parallel technique, extraoral and digital radiography, and quality assurance. The student will expose, process, and evaluate x-rays on patients using parallel and digital technique, using asepsis and safety guidelines. Prerequisite(s): DAS 1501

DAS 1547 Dental Anatomy 2
2 credits (**Lecture**)
Dental Anatomy 2 is designed to teach the students the development of the teeth, supporting structures, and the face. It will also cover the disease processes, cause, manifestations and effects of disease on living tissue as it relates to the oral cavity. Prerequisite(s): DAS 1507

DAS 1552 Chairside Assisting 2
3 credits (**Lecture/Lab**)
Chairside Assisting 2 deals only with the specialty areas of dentistry. It will give the student the knowledge and skills to assist dentists in these specialized positions. Prerequisite(s): DAS 1512

DAS 1572 Extramural 1
7 credits (**Internship**)
Extramural 1 will enable students to work in private dental offices with dentists and staff and will assist with office and patient related duties. The student will fulfill the role of an employed dental assistant.

DAS 1582 Nitrous Oxide-Oxygen Inhalation Sedation
1 credit (**Lecture**)
Nitrous Oxide-Oxygen Inhalation Sedation provides the basic necessary information on inducing and monitoring nitrous oxide analgesia and the skills necessary to handle patients and equipment in a clinical setting. Prerequisite(s): DAS 1525

DAS 2656 Special Project
Variable, 1-3 credits (**Lab**)
Special Project covers a special project related to dentistry. This project may be a research paper, presentation, field project or anything else that is acceptable to all parties involved. The project must be approved by the instructor before beginning the course.

DAS 2658 Extramural 2
Variable, 1-4 credits (**Internship**)
Extramural 2 will enable students to work in private dental offices with dentists and staff and will assist with office and patient related duties. The student will fulfill the role of an employed dental assistant. Instructor approval required.

Diesel Mechanics / Heavy Equipment Maintenance

DSL 1501 General Shop Practices 1
2 credits (**Lecture/Lab**)
General Shop Practices teaches shop procedures, and safe shop administration in the Heavy Equipment and Diesel Shop. Safety in the use of hand tools, electric tools, and other equipment used by the technician are covered. The Minnesota Right-to-Know Law is presented. Shop procedures are covered with emphasis on safety and personal protection equipment. Emergency first aid procedures are covered.

DSL 1510 Diesel Engines 1
4 credits (**Lecture/Lab**)
Diesel Engines 1 covers the fundamentals of diesel engine construction and operating principles. A major disassembly of a Detroit Diesel two-cycle engine is performed by the students with a study of the internal components, their functions, and operation. Measurements and analyses of all parts are made.

DSL 1511 Diesel Engines 2
4 credits (**Lecture/Lab**)
Diesel Engines 2 covers the maintenance practices, component repair, fuel and governing systems and diagnostics of a diesel engine. Prerequisite(s): DSL 1510

DSL 1512 Diesel Sub Systems
1 credit (**Lecture/Lab**)
Diesel Sub Systems covers the operation, maintenance, and service procedures for the air, cooling, EGR, and exhaust after treatment systems. Diesel sub systems will cover troubleshooting and testing the EGR system, testing the exhaust after treatment system, testing the cooling system, testing the air induction and exhaust system, Students work on "running engines" in the lab. Experiments on the engine including the four flow systems are done. Prerequisite(s): DSL 1501, DSL 1510, DSL 1511

DSL 1519 Heavy Equipment Hydraulics 1
2 credits (**Lecture/Lab**)
Heavy Equipment Hydraulics 1 covers the fundamentals of hydraulics including the application of Pascal's Law and the operation, construction, troubleshooting, and repair of various system components.

DSL 1527 Welding for Diesel Mechanics
2 credits (**Lab**)
Welding for Diesel Mechanics is designed to give the diesel mechanic a basic understanding of the most commonly used welding equipment in the diesel mechanic field. Arc and gas welding safety are covered. Students experience various types of welding equipment and processes.

DSL 1530 Heavy Equipment Hydraulics 2
2 credits (**Lecture/Lab**)
Heavy Equipment Hydraulics 2 covers the fundamentals of hydraulics including the application of Hydrostatic Theory and the

operation, construction, troubleshooting, and repair of various system components. Prerequisite(s): DSL 1519

DSL 1531 Heavy Duty Air Brakes
3 credits (**Lecture/Lab**)
Heavy Duty Air Brakes focuses on the operation, repair and rebuild procedures of the air handling system and foundation brakes found on the heavy duty trucks and off-road equipment.

DSL 1537 Electronics/Electrical Systems 1
3 credits (**Lecture/Lab**)
Electronics/Electrical Systems 1 will focus on atomic structure, electron theory of electricity, testing conductors, semi-conductors and insulators, construction and operation of storage batteries, Ohm's law theory, the applications to series, parallel, and series/parallel DC circuits, 12/24 volt DC components, operation, troubleshooting, repair, 12/24 volt DC charging circuits, 12/24 volt DC starting circuit, operation, troubleshooting, repair.

DSL 1538 Electronics/Electrical Systems 2
3 credits (**Lecture/Lab**)
Electronics/Electrical Systems 2 will focus on lighting, accessory and control systems, electrical schematics/diagrams, diagnostics, and troubleshooting. Prerequisite(s): DSL 1537

DSL 1560 Heavy Equipment Air Conditioning
3 credits (**Lecture/Lab**)
Heavy Equipment Air Conditioning covers the basic fundamentals of air conditioning and their application to heavy duty equipment such as semi-tractors, delivery trucks, and off-road equipment. Students learn the operating principles and apply them in troubleshooting and servicing on actual equipment.

DSL 2500 General Shop Practices 2
1 credit (**Lab**)
General Shop Practices 2 teaches shop procedures, and safe shop administration in the Heavy Equipment and Diesel Shop. Safety in the use of hand tools, electric tools, and other equipment used by the technician are covered. The Minnesota Right-to-Know Law is presented. Shop procedures are covered with emphasis on safety and personal protection equipment. Emergency first aid procedures are covered. Prerequisite(s): DSL 1501

DSL 2515 Machine Tool Technology
3 credits (**Lecture/Lab**)
Machine Tool Technology will address the operation, maintenance and application of machine tools used in the Heavy Duty Truck and Off Road Equipment industry. The course will focus on the application of critical measuring, comparison and repair procedures needed to repair component parts.

DSL 2524 Power Shift Transmissions and Torque Converters
3 credits (**Lecture/Lab**)
Power Shift Transmissions and Torque Converters focuses on the Allison automatic transmissions and converters and the theory of operation and their repair.

DSL 2533 Electronics/Electrical Systems 3
4 credits (**Lecture/Lab**)
Electronics/Electrical Systems 3 will focus on lighting, accessory and control systems, electrical schematics/diagrams, diagnostics, and troubleshooting.

DSL 2535 Undercarriage
1 credit (**Lecture**)
Evaluation and maintenance of undercarriage used on earth moving equipment.

DSL 2536 Heavy Equipment Hydraulics 3
4 credits (**Lecture/Lab**)
Heavy Equipment Hydraulics 3 covers the fundamentals of trouble shooting and repair of hydraulic systems. Prerequisite(s): DSL 1530

DSL 2540 Standard Transmissions/Clutches
4 credits (**Lecture/Lab**)
Standard Transmissions/Clutches focuses on theory, operation, repair and rebuild procedures for manual transmissions and clutches that are used in on/off highway vehicles and heavy equipment.

DSL 2543 Differentials/Drivelines
3 credits (**Lecture/Lab**)
Differentials/Drivelines focuses on the operation, repair/rebuild procedures for the differential used in the Heavy Duty Truck and Off Road Equipment and the principles, operation and repair procedures for drivelines used to connect the transmission to the differential.

DSL 2545 Steering and Alignment
2 credits (**Lecture/Lab**)
Steering and Alignment focuses on the operation and repair of the steering systems used on the heavy duty truck and off-road heavy equipment and correct alignment factors critical to proper operation. This course also focuses on theory of design and operation for truck and off-road tires.

DSL 2550 Customer Repair Internship
5 credits (**Lab**)
Customer Repair internship allows the student to perform required repairs on selected customer equipment. This enables the individual student to apply the skills learned from courses and to complete repair work in accordance with manufacturers' guidelines and to customer satisfaction.

Early Childhood Education

ECED 1107 Practicum
1 credit (**Internship**)
This course is designed to support students who are working toward the CDA, each semester students will have a field experience in one of the following: a home-based family childcare or a center-based program that is set up by the instructor. Students will complete 3 credit hours (120 hours) by the end of year in conjunction with course work. Students will spend time observing and interacting with infants, toddler, and preschool age children. Making connections between course content and hands on experience. Students must have a cleared Minnesota Criminal Background Study.

ECED 1108 Practicum
2 credits (**Internship**)
This course is designed to support students who are working toward the CDA, each semester students will have a field experience in one of the following: a home-based family childcare or a center-based program that is set up by the instructor. Students will complete 3 credit hours (120 hours) by the end of year in conjunction with course work. Students will spend time observing and interacting with infants, toddler, and preschool age children. Making connections between course content and hands on experience. Students must have a cleared Minnesota Criminal Background Study.

ECED 1202 Child Development and Learning
3 credits (**Lecture**)
This course covers the developmental stages of children, prenatal through age eight. It is designed to help students understand the whole child by being aware of social, emotional, motor and intellectual stages of growth and development. Attention will be placed on theories, developmentally appropriate practices and the importance of relationships between teachers, children and families. Must be willing to obtain and pass a Minnesota Criminal Background study.

ECED 1203 Observation and Assessment
3 credits (**Lecture**)
This course explores the effectiveness of formal and informal assessments and the strategies necessary to record objectively. A focus on how to interpret children's behaviors and developmental characteristics, and how to plan appropriate programs, and environments. An emphasis on the strengths and weaknesses of recording strategies, rating systems, multiple assessment tools and portfolios are explored. Students will use reflective practice to evaluate personal growth. Students will observe in a pre-approved childcare facility for 16 hours.

ECED 1205 Relations and Management
3 credits (**Lecture**)
This course emphasizes the role of the teacher when planning and conducting age-appropriate classrooms, taking into account the schedule, routines, transitions room arrangements, and diverse learners. Focus will be given to positive guidance techniques used to support all children, the development of a class community where all children feel welcomed and safe, and the role of social and emotional development. Students will observe in a pre-approved childcare facility for 16 hours. Must have a cleared Minnesota Criminal Background Study.

ECED 1206 Diverse Children and Family Relations
3 credits (**Lecture**)
This course covers the relationship between the caregiver, families and co-workers and it explores the use of strategies to establish these relationships. Attention will be given to understanding biases, and how to build a class community, apply differentiated learning approaches for all children, address barriers and benefits of parent involvement, and develop effective teacher techniques that can be used

when working with diverse children and families. This course requires a clear Minnesota Criminal Background study.

ECED 1207 Children's Health, Safety & Nutrition
3 credits (**Lecture**)
This course will explore the issues surrounding health, safety, and nutrition for children. Emphasis will be placed on planning a healthy, safe, and supportive learning environment; how to support the physical social and emotional needs of children; the signs and consequences of domestic violence, neglect, stress, and trauma on children and the procedures for reporting abuse; and the procedures for addressing childhood illnesses and communicable diseases. Reflective practice will focus on how personal choices and actions impact children, families and other professionals while engaging in observations and practicum field experiences in a pre-approved childcare facility. This course requires a clear Minnesota Criminal Background Study.

ECED 2132 Special Needs in Early Childhood
3 credits (**Lecture**)
This course examines the areas of exceptionality in learning and how students differ in their approaches to learning. A focus on how teachers can support and integrate a variety of strategies and adaptations to provide all children and environment that focuses on the whole child, including children with disabilities, perceptual difficulties, physical and mental challenges, gifts and talents. Students will observe in an instructor pre-approved classroom setting. This course requires a clear Minnesota Criminal Background Study.

ECED 2133 Creative Activities and Environments
3 credits (**Lecture**)
This course will explore play-based activities and experiences that support creativity and encourage self-expression for children ages birth through age eight. Students will focus on understanding creativity and the development of skills young children need to express themselves. How art, music, drama and movement are integrated into the curriculum, and how to support children during one -on- one, choice time, and large group. This course requires a clear Minnesota Criminal Background Study. Students will observe in a pre-approved childcare facility for 16 hours.

ECED 2134 Introduction to Language and Literacy
3 credits (**Lecture**)
This course provides an overview of language and literacy development in children ages birth to age 8. The focus will be on the continuum of language, literature, and literacy development; the relationship between language acquisition and early literacy; the importance of early literacy for all children particularly children with differing abilities and diverse backgrounds; the various home and school experiences that support children to read and write; and the foundation for reading and writing. This course requires a clear Minnesota Criminal Background Study. Students will participate in 20 hours of field experience throughout this course.

ECED 2202 Early Childhood Internship
3 credits (**Internship**)
This course provides the students and opportunity to integrate theory and practice, applying knowledge and skills in an instructor approved, licensed preschool development setting. Students implement a variety of learning experiences that are developmentally appropriate and culturally sensitive for a specific group of children. Students complete a portfolio documenting learning experiences based on selected MN. Professional Educators Licensing standards Board. Prerequisite(s): Instructor Permission. Corequisite: ECED 2132. This course requires a clear Minnesota Criminal Background Study. Prerequisite(s): EDUC 1300

Economics

ECON 1200 Introduction to Economics
3 credits (**Lecture**)
This course is an introduction to economics, which includes information on supply and demand, marginal reasoning, markets and market failure, the consumer's role, the producer's role, impact of government, money and banking, and trade. Domestic and international contexts are used throughout the course. Prerequisite(s): ENGL 0200, READ 0100 MnTC Goal Area(s): 5, 8

ECON 1215 Macroeconomics
3 credits (**Lecture**)
This course will provide an overview of macroeconomic issues: the determination of output, employment, unemployment, interest rates, and inflation. Monetary and fiscal policies

are discussed, as are the public debt and international economic issues. We introduce basic models of macroeconomics. High school economics and or Econ 1200 (Introduction to Economics) are strongly encouraged. Prerequisite(s): ENGL 0200, READ 0100
MnTC Goal Area(s): 5, 8

ECON 1220 Microeconomics
3 credits (**Lecture**)
This course examines the market system, elasticity, utility analysis, costs of production, market structures, resource markets, corporate finance, market regulation and income distribution. High school economics and/or ECON 1200 (Introduction to Economics) are strongly encouraged. Prerequisite(s): ENGL 0200, READ 0100
MnTC Goal Area(s): 5, 8

ECON 1225 Introduction to the World Economy
3 credits (**Lecture**)
This course introduces the demographic, historical, economic, legal, and other social factors that contribute to the increasingly connected and dynamic world economy. Trade in goods and services as well as trade in knowledge and capital are examined. The effect of protectionist measures and international trading agreements on domestic employment and economic growth are reviewed.
MnTC Goal Area(s): 5, 8

ECON 1310 Ecological Economics
3 credits (**Lecture**)
This course is a survey of the natural, social, and citizen-action context for environmental awareness. Issues affecting soils, forests, grasslands, fresh water, oceans, wildlife, mineral resources, and urbanization are considered. Economic approaches for improving environmental decision-making are emphasized.
MnTC Goal Area(s): 5, 10

Education

EDUC 1101 Introduction to Teaching
2 credits (**Lecture**)
Introduction to Teaching provides the support of a cohort as students learn introductory education topics such as classroom management, standards, lesson planning, professionalism, the effect of poverty on learning, and how to earn a teaching degree. The course will prepare students for a hands-on, independent field experience in a local classroom beginning spring semester. Students will read and discuss current critical issues in education while connecting content to the five propositions from the National Board for Professional Teaching Standards. This course will incorporate Ojibwe culture and history and students will learn the importance of cultural competency in the classroom. As a cohort students will visit local schools and volunteer in the community.

EDUC 1102 Class Act Seminar 1
2 credits (**Lecture**)
Class Act Seminar 1 provides the support of a cohort as students begin independent field experience in local schools. Students will read and discuss current critical issues in education and reflect upon classroom experiences. They will go on a variety of field trips and have guest speakers to provide multiple perspectives on the world of education. Students will learn education theory and connect to lesson planning and classroom environment. Students are required to complete 35 total hours of field experience at a local school. Prerequisite(s): EDUC 1101

EDUC 1103 Class Act Seminar 2
2 credits (**Lecture**)
Class Act Seminar 2 provides the support of a cohort as students work through their second field experience in a local school. Students will read and discuss current critical issues in education and connect course concepts to field experience. They will identify required steps to transfer and prepare for licensure exams. Students will participate in book clubs as they compare education systems around the world, and will continue learning and diving deeper into lesson planning, education theory, and classroom management. Students are required to complete 35 total hours of field experience at a local school. Prerequisite(s): EDUC 1101, EDUC 1102

EDUC 1185 Class Act Camping
1 credit (**Lab**)
Students will travel as a cohort on an overnight camping trip to learn a variety of cooperative games and skills. They will have the chance to try out many different camping activities such as canoeing, orienteering, GPS, building survival shelters, and archery. Students will learn about the benefits of outdoor classrooms while getting to know their classmates. Prerequisite(s): Admittance to the Class Act Program.

EDUC 1300 Foundation of Early Childhood
3 credits (**Lecture**)
Students will gain understanding about philosophical, historical, pedagogical, societal, and institutional foundations of infant/toddler, pre-primary and primary grade education. Attention is given to the efforts of modern program and the research for best practices, and to formal and informal assessment strategies to ensure intellectual, social and physical development. Students will explore how personal choices effect families, other professionals within the learning community.

EDUC 1435 Methods of Teaching Early Childhood Literature
3 credits (**Lecture**)
This course provides education students with the skills necessary to select developmentally appropriate books and non-books for young children. Additionally, a whole language approach will be used as a progressive means of integrating children's literature into the existing curriculum.

EDUC 1515 Foundational Issues in Early Childhood
3 credits (**Lecture**)
This course will explore historical and cultural foundations of Early Childhood Education programs while examining theoretical models and strategies that will enable students to develop positive interactions with young children and their families.

EDUC 2100 Introduction to the Foundations of Education
3 credits (**Lecture**)
Students will examine the historical, social, philosophical and political foundations of public school education. This course surveys the role of education in our pluralistic society and studies issues affecting education in American public schools. Thirty (30) hours of observation in the public school setting is required.

EDUC 2210 Human Relations in Education
3 credits (**Lecture**)
In this course students will explore their own beliefs, assumptions and self-concept as they examine how various racial, cultural, and economic groups contribute to our society. They will understand how to use diversity sensitive behaviors in the classroom and how social justice is related to education. Students will demonstrate how to create a learning environment that creates positive interpersonal relationships. A 20 hour field experience in a work or school setting is required for this course.

EDUC 2414 Infant and Toddler Strategies
3 credits (**Lecture**)
This course provides a framework for building on participant's knowledge and skills in the area of early childhood special education. The content will focus specifically on infant/toddler development and how to work effectively with children who have disabilities or are at risk for disabilities. Parent-professional partnerships, interagency and interdisciplinary planning as well as the development of a comprehensive individual family service plan will be addressed. Prerequisite(s): TAIA 1202

EDUC 2415 Cognitive Development and Children's Mental Health
3 credits (**Lecture**)
This course will explore the complexities of early brain development and address how early experiences are paramount in helping to shape optimal emotional development. In addition, this course will provide an overview of infant mental health and discuss the negative effects of trauma and stress during early development.

EDUC 2514 Preschool Strategies
3 credits (**Lecture**)
This course provides a framework for building on participant's knowledge and skills in the area of early childhood special education. The content will focus specifically on children with special needs from 3 - 6 years of age. Participants will be required to plan and implement individual as well as group/inclusionary programming. Effective developmentally appropriate teaching strategies in all of the domains will be presented. Prerequisite(s): TAIA 1202

EDUC 2516 Early Childhood Creative Expressions
3 credits (**Lecture**)
This course provides students with hands-on opportunities to explore the creative processes involved in working with young children. Students will learn how to adapt activities in the areas of art, music, creative drama, and movement to enhance learning and foster creativity. Prerequisite(s): EDUC 1515

Electrical Controls and Maintenance

ECM 1244 Industrial Pneumatics
2 credits (**Lab**)
The course is a "hybrid" or "blended" course with the majority of the learning environment traditional in-class lectures and hands-on lab work which also includes web-based learning activities to complement face-to-face work. This course covers the general fundamentals of machine control utilizing pneumatics and electro-pneumatics. Concentrates on pneumatic systems, control devices and actuators related to machine control with practical applications involving robotic workcells, pick and place robots, parts handlers, motion control and interfacing of air and electrical circuits.

ECM 1251 Programmable Logic Controllers
3 credits (**Lecture/Lab**)
The course is a "hybrid" or "blended" course with the majority of the learning environment traditional in-class lectures and hands-on lab work which also includes Web-based learning activities to complement face-to-face work. This course is an introductory class covering the installation, operation, and programming of industrial programmable logic controllers (PLCs). Lecture reviews a variety of PLC types/manufacturers and the components of a PLC system. Labs provide hands-on activities demonstrating the practical use of PLCs in industrial control. Prerequisite(s): ECM 1264

ECM 1252 Introduction to Ethernet Networks
3 credits (**Lecture/Lab**)
This course is designed to provide a foundational knowledge of the first three layers of the seven layer OSI Model. A particular focus will be the hardware and addressing requirements in an Ethernet network, and how this communication protocol applies to industrial control systems.

ECM 1260 Electrical Safety
1 credit (**Lecture**)
The course is a "hybrid" or "blended" course with the majority of the learning environment traditional in-class lectures and hands-on lab work which also includes Web-based learning activities to complement face-to-face work. This course is designed to familiarize the student with the safety practices and procedures applied in the installation and maintenance of electrical systems and equipment. Instruction includes the identification of the hazards associated with working on electrical equipment and distribution systems, identification and use of Personal Protection Equipment (PPE) and safe and proper use of test equipment. In addition, the course presents information on general industrial safety practices such as lock-out-tag-out, material safety data sheets (MSDS) and confined space identification.

ECM 1264 Electrical and Electronic Theory
7 credits (**Lecture/Lab**)
This course is designed to provide foundational knowledge of electronic / electrical theory to students preparing for entry level employment in the fields of industrial electrical maintenance and industrial process automation. Areas of focus will be the theory related to AC, DC, Solid State and Digital circuits. The students will apply instruction received in the classroom to the construction, analysis and troubleshooting of circuits in a laboratory setting. This course is not designed to provide the level of expertise required to design, build or troubleshoot electronic circuits to the component level.

ECM 1265 National Electrical Code
3 credits (**Lecture/Lab**)
The course is a "hybrid" or "blended" course with the majority of the learning environment traditional in-class lectures and hands-on lab work which also includes Web-based learning activities to complement face-to-face work. This course is an introduction to the National Electrical Code (NEC). The course covers the layout of the code book, definitions of terminology used in the NEC, and a review of code sections related to industrial wiring. The course provides practice in locating and applying articles from the NEC to solve specific electrical design problems and/or calculation parameters needed for the sizing and selection of equipment and material.

ECM 1266 Industrial Motor Control
6 credits (**Lecture/Lab**)
The course is a "hybrid" or "blended" course with the majority of the learning environment traditional in-class lectures and hands on lab work but also includes Web-based learning activities to complement face-to-face work. This course covers the design, wiring, and operation of AC motor control circuits from the power distribution system, or source, to the final control circuit and motor. The student will receive instruction in the installation, troubleshooting, and maintenance of equipment associated with motors and motor controls. Topics include three

phase power, transformers, control devices, motor starters and motors. Students should possess knowledge of basic electricity and electronic fundamentals. Prerequisite(s): ECM 1264

ECM 1275 Introduction to Process Control
2 credits (**Lecture/Lab**)
The course is a "hybrid" or "blended" course with the majority of the learning environment traditional in-class lectures and hands-on lab work which also includes Web-based learning activities to complement face-to-face work. This course is an introduction to industrial process control. The course will cover basic definitions, types of control, symbols and prints, instruments used in control, and elementary control loop design. The course will identify the duties and tasks performed by instrumentation technicians. Prerequisite(s): ECM 1244, ECM 1264

ECM 1276 Electrical/Mechanical Tools, Equipment, and Systems
3 credits (**Lecture/Lab**)
The course is a "hybrid" or "blended" course with the majority of the learning environment traditional in-class lectures and hands-on lab work which also includes Web-based learning activities to complement face-to-face work. This course is designed to familiarize the student with tools, materials, and procedures used in the installation and maintenance of electrical systems and equipment. Instruction includes the safe and proper usage of specialized tools and test equipment used in electrical work. The student will gain a working knowledge of the specifications, application, and standards related to materials used in electrical distribution. The course examines the mechanical applications and procedures used in the installation of electrical equipment and systems.

ECM 2235 Industrial Data Communications
3 credits (**Lecture/Lab**)
The course is a "hybrid" or "blended" course with the majority of the learning environment traditional in-class lectures and hands-on lab work which also includes web-based learning activities to complement face-to-face work. This offering is designed to provide the student with a fundamental knowledge of industrial data transmission. Basic standards and protocols will be studied with an emphasis on Ethernet, DH+, Modbus, and Fieldbus. Lab safety and the safe and proper use of tools and test equipment are emphasized. Prerequisite(s): ECM 1252

ECM 2245 Industrial PC Applications
3 credits (**Lecture/Lab**)
The course is a "hybrid" or "blended" course with the majority of the learning environment traditional in-class lectures and hands-on lab work which also includes web-based learning activities to complement face-to-face work. This offering is designed to provide the student with a fundamental knowledge of industrial personal computer based applications. PC based applications related to industrial controls will be studied with an emphasis on project / device documentation, data management and SCADA. Lab safety and the safe and proper use of tools and test equipment are emphasized.

ECM 2253 Automated Machine Control
6 credits (**Lab**)
This course is designed to facilitate the application of previous classroom/lab instruction on basic Programmable Logic Controllers (PLC's), basic motor and motor control circuits, basic Ethernet networking, computer aided design, and on the associated discreet control devices typically applied to digital machine control systems. This lab course will require that students, working in small groups, submit for instructor approval a proposal for a curriculum appropriate project. Approved projects will then be designed, built and commissioned by the students. Included in this project will be the requirement to plan and implement a project "timeline", as well as the requirement that the final project be properly documented. Prerequisite(s): ECM 1251, ECM 1252, ECM 1266, ECM 1276

ECM 2264 Automation Components & Equipment
3 credits (**Lecture/Lab**)
The course is a "hybrid" or "blended" course with the majority of the learning environment traditional in-class lectures and hands-on lab work which also includes web-based learning activities to complement face-to-face work. This course covers the discrete devices and integrated circuit components used in modern automated control systems. Topics include the components and design of systems for power distribution and control interfacing. The course details the operation, configuration, and installation of devices and equipment used for position, motion and speed control of motor drives. Course lab assignments provide hands-on experience in designing, wiring, and configuring system components into an integrated control system. Additional topics covered will include print

reading, hazardous location wiring, and power quality analysis. Prerequisite(s): ECM 1266, ECM 1275

ECM 2266 Temperature, Strain, and Analytical Instruments
3 credits (**Lecture/Lab**)
The course is a "hybrid" or "blended" course with the majority of the learning environment traditional in-class lectures and hands-on lab work which also includes web-based learning activities to complement face-to-face work. This course is designed to encompass three independent areas of instrumentation that utilize measurement methods that are similar in design and theory. The course covers the terminology, methods, and application of temperature, strain, and analytical measurement. The course provides the knowledge and skills required for operational understanding, proper installation, and accurate calibration of the primary elements and transducers used in these measurement areas. Prerequisite(s): ECM 1244, ECM 1264

ECM 2267 Pressure, Flow, and Level Instruments
3 credits (**Lecture/Lab**)
The course is a "hybrid" or "blended" course with the majority of the learning environment traditional in-class lectures and hands-on lab work which also includes web-based learning activities to complement face-to-face work. This course is designed to encompass three related areas of industrial instrumentation measurement. The course covers the terminology, mathematical relationships, and physical properties involved with the measurement of pressure, level, and flow. The course provides the knowledge and skills required for operational understanding, proper installation, and accurate calibration of the primary elements and transducers used in these measurement areas. Prerequisite(s): ECM 1244, ECM 1264

ECM 2276 Automated Process Control
7 credits (**Lecture/Lab**)
The course is a "hybrid" or "blended" course with the majority of the learning environment traditional in-class lectures and hands-on lab work which also includes web-based learning activities to complement face-to-face work. This course covers advanced automated control for medium and large industrial manufacturing with an emphasis on concepts related to analog (process) control. Included in this project based course will be topics related to pre-engineering and design, mechanical installation/wiring, digital and analog control loops within the PLC, SCADA/HMI development and implementation as well as the integration into the project of DeviceNet and Foundation Fieldbus advanced field level network devices. Prerequisite(s): ECM 1251, ECM 1252, ECM 2264, ECM 2266, ECM 2267

ECM 2277 Controllers and Control Loops
2 credits (**Lecture/Lab**)
The course is a "hybrid" or "blended" course with the majority of the learning environment traditional in-class lectures and hands-on lab work which also includes web-based learning activities to complement face-to-face work. This course covers the core of industrial process control, control loops and controllers. The course defines the components, configuration, installation, and I/O calibration of control loops. Analysis of control modes and algorithms for PID control are studied and practices in a lecture/lab environment. Control mode design and system architecture completes the study. Prerequisite(s): ECM 1244, ECM 1264

ECM 2295 Computer Aided Design
2 credits (**Lab**)
The course is a "hybrid" or "blended" course with the majority of the learning environment traditional in-class lectures and hands-on lab work which also includes web-based learning activities to complement face-to-face work. This course covers the fundamentals of computer-aided design. Basic drawing commands are covered and understanding is reinforced through hands-on drawing exercised. The content will be focused on drawing electronic, electrical, loop sheets and P&ID diagrams. The proper procedures for file management and printing/plotting of completed work are also covered.

Electrical Maintenance and Construction

ELM 1005 Electrical Math Applications
2 credits (**Lecture**)
Electrical Math includes basic math, formula solutions, and technical applications needed to succeed in the electrical field.

ELM 1006 Algebra for Electricians
1 credit (**Lab**)
Algebra for Electricians presents algebraic skills essential in the electrical field. Algebra solutions, simultaneous equations, graphing and oral vectors are included. Electrical applications and projects will be incorporated. Prerequisite(s): ELM 1005

ELM 1101 DC Electrical Theory and Applications
5 credits (**Lecture/Lab**)
DC Electrical Theory and Applications covers the introduction of direct current, its production, Ohm's Law, series, parallel and combination circuits and applicable National Electrical Code articles.

ELM 1102 AC Electrical and Electronic Theory and Application
6 credits (**Lecture/Lab**)
AC Electrical and Electronic Theory and Applications covers the introductory elements of AC circuits, resistive, inductive, capacitive circuits, VARs, power factor, filter circuits and solid-state devices according to applicable National Electrical Code articles. This course is the second in a series of two related courses. Prerequisite(s): ELM 1101, ELM 1201

ELM 1201 AC/DC Electrical Circuits and Calculations
5 credits (**Lecture/Lab**)
AC/DC Electrical Circuits and Calculations covers the basics of electrical circuit construction, components, calculations, and analysis.

ELM 1202 Transformers, Generators, Alternators and Motors
6 credits (**Lecture/Lab**)
Transformers, Generators, Alternators, and Motors covers the basic operation and construction of: 1-phase and 3-phase transformers, generators, alternators, DC motors, 1-phase AC motors and 3-phase AC motors. Prerequisite(s): ELM 1101, ELM 1201, ELM 1301

ELM 1301 Residential Wiring and Code 1
5 credits (**Lecture/Lab**)
Residential Wiring and Code 1 covers some of the skills and knowledge necessary to apply practical residential wiring procedures as they relate to the National Electrical Code (NEC).

ELM 1302 Residential Wiring and Code 2
6 credits (**Lecture/Lab**)
Residential Wiring and Code 2 covers the skills and knowledge necessary to apply practical residential wiring procedures as they relate to the National Electrical Code. Prerequisite(s): ELM 1101, ELM 1201, ELM 1301

ELM 1400 Attendance Make-Up Project
Variable, 1-3 credits (**Lecture/Lab**)
Attendance make-up Project covers a special project related to the missed material due to absence from required class time per the Electrical Maintenance Department's attendance policy. Projects may include a research paper, presentation, field project or anything else acceptable to both parties involved. Credits: 1-3 variable. Prerequisite(s): Instructor approval.

ELM 2101 Print-reading/Specifications and Lighting Systems
5 credits (**Lecture/Lab**)
Print-reading/Specifications and Lighting Systems instructs the students in the identification and usage of blueprints and specifications. The course includes wiring a residential house project. Prerequisite(s): ELM 1101, ELM 1102, ELM 1201, ELM 1202, ELM 1301, ELM 1302

ELM 2102 Commercial/Industrial Wiring Methods
5 credits (**Lecture/Lab**)
Commercial/Industrial Wiring Methods covers the design and installation of wiring methods used in commercial and industrial applications. Prerequisite(s): ELM 1101, ELM 1102, ELM 1201, ELM 1202, ELM 1301, ELM 1302, ELM 2101,

ELM 2201 AC/DC Motor Control 1
5 credits (**Lecture/Lab**)
AC/DC Motor Control 1 covers the function, operation, installation, protection, maintenance and troubleshooting of motor controls, various starting circuits and motors according to applicable National Electrical Code articles.

ELM 2202 AC/DC Motor Control 2
5 credits (**Lecture/Lab**)
AC/DC Motor Control 2 covers the installation, maintenance and troubleshooting of motor and process controls, motors, variable frequency drives, and programmable logic controllers according to applicable National Electrical Code articles. Prerequisite(s): ELM 2201

ELM 2311 Power Limited Circuit and Instrumentation
5 credits (**Lecture/Lab**)
Power limited circuits and instrumentation covers the installation, maintenance and repair of low voltage circuits and the fundamentals of instrumentation. Prerequisite(s): ELM 1102, ELM 1202, ELM 1302

ELM 2313 Renewable Energy Systems and House Project
6 credits (**Lecture/Lab**)
Renewable Energy Systems and House Project covers the basic types, purposes and installations of wind and solar systems. The course also involves the wiring of a residential house project.

ELM 2401 Photovoltaic Systems Theory and Design
4 credits (**Lecture/Lab**)
Photovoltaic (PV) Systems Theory and Design covers the introduction of photovoltaic fundamentals, terms, applications and applicable National Electrical Code articles. This is the first of two courses to prepare students for the North American Board of Certified Energy Practitioners (NABCEP) Entry Level Certificate of Knowledge test.

ELM 2402 Photovoltaic Systems Installation, Maintenance and Troubleshooting
4 credits (**Lecture/Lab**)
Photovoltaic (PV) Systems Installation and Maintenance covers the installation and commissioning of various photovoltaic systems and applicable National Electrical Code articles. This is the second of two courses to prepare students for the North American Board of Certified Energy Practitioners (NABCEP) Entry Level Certificate of Knowledge test.

ELM 2405 Drones in Industry
2 credits (**Lecture/Lab**)
Drones in Industry covers the basic operation of drones and how they are used in the electrical industry. The focus will be on imaging with drones and basics of take-off, flight and landing.

Emergency Services

EMSV 1120 Personal Well-being
2 credits (**Lecture**)
This course explores the six (6) dimensions of personal well-being of health - physical, social, intellectual, emotional, spiritual, and environmental. This course examines concepts of the mindfulness theme and research on the benefits of mindfulness practices and tools. (Cross-listed course; students can enroll only in EMSV 1120 or HLTH 1120.)

EMSV 1275 Wilderness First Responder
3 credits (**Lecture/Lab**)
Wilderness First Responder (WFR) is the definitive course in medical training for outdoor educators, guides, search and rescue (SAR) team members, and others who work or play in remote areas. The curriculum is comprehensive and practical, including all of the essential principles and skills required to assess and manage medical problems in isolated and extreme environments. Graduates will receive WFR certification by Wilderness Medical Associates®, valid for three years, as well as Basic Life Support/Cardiopulmonary resuscitation (CPR) and anaphylaxis certification. Students must be at least 18 years of age at time of certification, and have skills in lifting and communication.

EMSV 1300 Emergency Vehicle Operator Safety
1 credit (**Lecture**)
Drawing on the most current research about the behaviors and other hazards that lead to crashes, EVOS features case studies and analyses of both common and catastrophic collisions. EVOS challenges EMS practitioners to reconsider their preconceptions about safe vehicle operations.

EMSV 1360 Fireline EMT Preparation
1 credit (**Lecture**)
This is a preparatory course that introduces the additional depth of understanding and breadth of concepts necessary for Emergency Medical Technicians (EMTs) on a fireline. It requires application of knowledge and skills in scenario situations an EMT might encounter. Students will begin to master the content and skills necessary to successfully pass the arduous pack test. Students will learn how and when to apply to fireline EMT positions, including fireline EMT, base camp EMT, and natural disaster EMT work.

EMSV 1400 Emergency Medical Responder (EMR)
3 credits (**Lecture/Lab**)
The Emergency Medical Responder course educates participants to be a part of the nation's Emergency Medical System. Using National EMS Education Standards, this course provides

students the knowledge and skills training required by the Emergency Medical Responder (EMR). The EMR course is designed to train volunteers and professionals to assess and provide emergency care to patients with trauma, medical and environmental emergencies in the field of emergency medicine. The primary focus of the EMR is to initiate immediate lifesaving care to critical patients who access the emergency medical system. This individual possesses the basic knowledge and skills necessary to provide lifesaving interventions while awaiting additional EMS response and to assist higher level personnel at the scene and during transport. EMR's function as part of a comprehensive EMS response, under medical oversight. EMRs perform basic interventions with minimal equipment.

EMSV 1450 Emergency Medical Responder (EMR) Refresher
1 credit (**Lecture**)
Emergency Medical Responder Refresher courses are designed to update and refresh volunteers and professionals to deal with trauma and medical emergencies. Emphasis includes assessing the scene and preventing further harm, assessing patients, following protocols for equipment use, and working within the established EMS system to access medical care.

EMSV 1490 EMT Bridge
5 credits (**Lecture/Lab**)
This is a final course that comprises a state-approved EMT program which follows the National EMS Education Standards. The primary focus of the EMT is to provide basic emergency medical care and transportation for critical and emergent patients who access the emergency medical system. This individual possesses the basic knowledge and skills necessary to provide patient care and transportation. EMTs function as part of a comprehensive EMS response, under medical oversight. EMTs perform interventions with the basic equipment typically found on an ambulance. The EMT is a critical link from the scene to the emergency health care system. This course includes both a hospital/clinical experience with patient assessments and a field experience with documented patient contacts.

Successful completion of this course fulfills the requirements to apply for Minnesota State and National Registry EMT certification within two years. This course is a state-approved EMT course exceeding US DOT EMT curriculum. The requirements include a minimum age of 18, successful completion of an approved national skills test (the NREMT psychomotor exam), and an application process with a criminal background check. National EMT certification requires successful completion of both a cognitive and psychomotor exam. (Consult the National Registry for EMTs and the State of Minnesota EMS Regulatory Board for additional information.)

Students will be certified in NIMS 200 and NIMS 800 after this course. These courses will pair with the required NIMS 100 and NIMS 700 from the EMSV 1400 Emergency Medical Responder (EMR) course previously taken.

In addition to the required hours of classroom instruction and online assignments, the National EMS Education Standards requires that clinical/field training must be completed prior to taking the National Registry Examination, written or practical. It is required that each student have patient interaction in a clinical or field setting with experienced preceptors.

This course, plus EMSV 1400 Emergency Medical Responder (EMR) comprise a pair of courses equivalent to EMSV 1500 Emergency Medical Technician (EMT). Prerequisite(s): EMSV 1400

EMSV 1500 Emergency Medical Technician (EMT)
8 credits (**Lecture/Lab**)
The Emergency Medical Technician course educates participants to be a part of the nation's Emergency Medical System. Using National EMS Education Standards, this course provides students the knowledge and skills training required by the Emergency Medical Technician (EMT). The EMT course is designed to train volunteers and professionals to assess and provide emergency care to patients with trauma, medical and environmental emergencies in the field of emergency medicine. he primary focus of the EMT is to initiate immediate lifesaving care to critical patients, assess and give treatment on scene and throughout transportation to those who access the emergency medical system. This individual possesses the basic knowledge and skills necessary to provide lifesaving interventions until the patient is transferred to a higher level of care. EMT's function as part of a comprehensive EMS response, under medical oversight.

EMSV 1550 Emergency Medical Technician (EMT) Refresher
2 credits (**Lecture**)
The Emergency Medical Technician Refresher course provides updated course materials for participants to be re-certified as part of the nation's biyearly Emergency Medical System re-certification process. Emphasis includes a review of scene control, patient assessment, triage, use of standard equipment, transport concerns, legalities, and physiological theory related to medical and trauma situations.

EMSV 1761 Technical Rescue 1
2 credits (**Lecture/Lab**)
This course provides wilderness rescue operations training and patient management in a wilderness setting. Topics include wilderness rescue considerations, and ATV, both calm and swift water, and boat rescue. The course addresses multiple aspects of wilderness emergency response, and includes outdoor activities. Emergency Medical Responders and EMTs may use the training for Continuing Education hours. Successful students earn Minnesota State ATV Operator and Minnesota State Boat Operator Certificates.

EMSV 1762 Technical Rescue 2
2 credits (**Lecture/Lab**)
This course allows participants to learn wilderness rescue considerations and patient management in a wilderness setting including winter rescue operations, ice rescue, snowmobile, and low angle rope rescue. The course will address multiple aspects of wilderness emergency response, and include outdoor activities. Emergency Medical Responders and EMTs may use the training for Continuing Education hours. Certificates coming out of this class include: Minnesota State Snowmobile.

Engineering

ENGR 1105 Careers in Engineering
Variable, 1-3 credits (**Lecture**)
This course helps students gain insight to the vast set of personal, interpersonal, and professional topics required for success in engineering education and their profession through a series of community service-based projects. This course will enhance their understanding of the engineering design process as members of a team.

ENGR 1115 Digital Logic
3 credits (**Lecture/Lab**)
This course provides an introduction to the fundamentals of digital circuit design. Topics include logic gates, Boolean algebra, Karnaugh maps, mathematical operations, flip-flops, and counters. Topics are explored through classroom and laboratory exercises. The course is intended for electrical engineering majors.

ENGR 1117 Introduction to AutoCAD
2 credits (**Lecture**)
This course introduces the fundamentals of graphical representation of engineering components and systems using the 2-dimensional capabilities of the AutoCAD software system

ENGR 1220 Introduction to Engineering
3 credits (**Lecture/Lab**)
This course helps students gain an understanding of the profession of engineering, the pathway to obtaining an engineering education, and being members of a learning community involving faculty, staff and fellow students. Multiple hands-on projects, as well as motivational discussions and professional techniques are incorporated to meet these goals. Knowledge gained will be applied by students to improve their performance in their education and in determining their career choice.

ENGR 1232 Engineering Design 2
2 credits (**Lecture/Lab**)
This course helps students gain insight into the vast set of personal, interpersonal, and professional topics required for success in their education and their profession through a series of seminars. This course will also continue student development in the engineering design process as members of a team. Prerequisite(s): ENGR 1220

ENGR 2001 Fundamentals of Solid Modeling
3 credits (**Lecture/Lab**)
Fundamentals of graphical communication for design and manufacturing with modern solid modeling software. Topics include basic 3D geometry construction, drawings, assemblies, parametric modeling and geometric dimensioning and tolerancing. Finite element analysis applications are explored.

ENGR 2011 Solid Modeling 1
1 credit (**Lab**)
The first course in the Solid Modeling series. Fundamentals of graphical communication for design and manufacturing with modern solid modeling software. Topics include basic through advanced 3D geometry construction of parts and multi-view part drawings. Geometric dimensioning and tolerancing concepts are introduced.

ENGR 2012 Solid Modeling 2
1 credit (**Lecture**)
The second course in the Solid Modeling series. Fundamentals of graphical communication for design and manufacturing with modern solid modeling software. Topics include 3D geometry assemblies, assembly drawings, parametric modeling and geometric dimensioning and tolerancing. Prerequisite(s): ENGR 2011

ENGR 2013 Solid Modeling 3
1 credit (**Lab**)
The third course in the Solid Modeling series. Fundamentals of graphical communication for design and manufacturing with modern solid modeling software. Topics include 3D geometry construction of parts and assemblies for use in rapid prototyping and analysis of mechanisms, creation of 2D layouts, and an introduction to finite element analysis applications. Prerequisite(s): ENGR 2012

ENGR 2101 Static Mechanics
3 credits (**Lecture**)
This course focuses on statics of particles, equivalent systems of forces, rigid bodies, equilibrium of rigid bodies, centroids and centers of gravity, and analysis of structures. This is the first course in the mechanics sequence and includes open-ended design. Prerequisite(s): MATH 1311, PHYS 2261

ENGR 2102 Dynamics
3 credits (**Lecture**)
This course focuses on the application of the principles of particle motion, conservation principles, dynamics of particle systems and plane rigid bodies, and technical applications. Students learn to analyze the motion of bodies using Newton's Second Law, the method of work and energy, and the method of impulse and momentum. This course is intended for engineering majors and includes open-ended design. Prerequisite(s): ENGR 2101

ENGR 2103 Mechanics of Materials
3 credits (**Lecture**)
This course focuses on the application of the principles of the mechanics of deformable bodies including the underlying concepts of stress and strain. The course further examines the relationships among loads on deformable bodies, the stresses and strains within those bodies and the deformations and stability of those bodies. Methods of plane stress transformation are explored. This course is intended for engineering majors and includes open-ended design. Prerequisite(s): ENGR 2101

ENGR 2104 Fluid Mechanics
3 credits (**Lecture**)
This course covers fluid properties, fluid statics and dynamics, transport theory and analogies, conservation of mass, energy and momentum, dimensional analysis, boundary layer concepts, conduit flow, compressible fluid flow and open-channel flow. This course is intended for engineering majors and includes open-ended design. Prerequisite(s): ENGR 2101, PHYS 2261

ENGR 2105 Thermodynamics
3 credits (**Lecture**)
This course covers basic thermal energy relationships, processes and cycles, the First and Second Laws of Thermodynamics, entropy and availability. This course is intended for engineering majors and includes open-ended design. Prerequisite(s): MATH 1312, PHYS 2261

ENGR 2106 Circuits 1
4 credits (**Lecture/Lab**)
This is the first course in electrical circuits for engineering majors. Foundations of electrical engineering are introduced. Fundamental concepts of energy conversion, electronics, and circuit theory are developed. Lab work introduces methods of experimental circuit analysis and proper use of electrical laboratory equipment. Prerequisite(s): PHYS 2262

ENGR 2107 Circuits 2
4 credits (**Lecture/Lab**)
This course provides an examination of linear electric circuits in steady-state and transient conditions, single and polyphase systems, transformers, filter design wave analysis, and digital circuits. Prerequisite(s): ENGR 2106

ENGR 2108 Material Energy and Balance
3 credits (**Lecture**)
Application of chemical engineering fundamentals to elementary principles of chemical processes, emphasizing material and energy balances. Introduces the use of Process Flowsheet Simulation Software. Prerequisite(s): CHEM 1521, MATH 1311

ENGR 2233 Engineering Design 3
2 credits (**Lab**)
This course helps students gain insight into the vast set of personal, interpersonal, and professional topics required for success in their education and their profession through a series of seminars. This course will also continue student's development in the engineering design process as a member of a team, including working on project management skills. Prerequisite(s): ENGR 1232, ENGR 2101

ENGR 2234 Engineering Design 4
3 credits (**Lecture/Lab**)
This course helps students gain insight into the vast set of personal, interpersonal, ethical, and professional topics required for success in their education and their profession through a series of seminars. This course will also continue their development in the engineering design process, as members of a team, and in manufacturing techniques. Prerequisite(s): ENGR 2101, ENGR 2233

English

ENGL 0100 Fundamentals of College Writing
4 credits (**Lecture**)
Fundamentals of College Writing progresses from developing sentences which demonstrate a clear understanding of standard conventions of English, including grammar, punctuation, and mechanics, to creating structured paragraphs and composing organized essays. Effective language choices depending on context and audience are applied to the writing process: planning, drafting, revising, editing, and publishing. Emphasis is on the relationship between critical thinking and effective communication of ideas, using both print and non-print sources. Upon completion of this course, students will have learned and refined the writing skills necessary to be successful in their college-level coursework. Must earn a C or higher to advance to Composition 1.

ENGL 0200 Integrated Writing and Reading
4 credits (**Lecture**)
Students in this course will develop the reading and writing skills necessary to craft and understand college-level texts. This course integrates reading and writing instruction to prepare students for composing, reading, and comprehending academic essays. Upon completion of this course, students will have learned and refined the reading and writing skills necessary to be successful in their college-level coursework. Must earn C or higher to advance to Composition I unless enrolled in concurrent model.

ENGL 1110 Professional Organizational Writing
3 credits (**Lecture**)
This course prepares students to write effectively in the workplace. Students will learn to produce the technical documents they will encounter in their future professional environment, such as instructions and procedures, work orders, service reports, invoices, memoranda, letters, emails, and short reports. Students will analyze purpose and audience, identify and integrate valid sources, effectively organize information, and practice using established forms with technical clarity and Standard Written English. This course is designed for students in professional, technical, and science programs.

ENGL 1191 Literary Arts Magazine Practicum
1 credit (**Lecture**)
A course studying the design and production of literary magazines. Through the coursework, the class will produce a literary arts magazine.

ENGL 1200 Introduction to Poetry
3 credits (**Lecture**)
Introduction to the Poetry focuses on reading, discussion, and written analysis of poetry in order to develop 1) skill in comprehension and interpretation and 2) a joyful appreciation for the genre. Readings will include a variety of works, including canonized verse and selections of contemporary poetry.
MnTC Goal Area(s): 6

ENGL 1205 Introduction to Short Story
3 credits (**Lecture**)
Introduction to the Short Story focuses on reading, discussion, and written analysis of short stories in order to develop 1) skill in literary analysis and interpretation and 2) familiarity with the conventions of the short story. Readings will

include a variety of authors, including key figures in the development of the form as well as contemporary voices poised to influence the future of the genre.
MnTC Goal Area(s): 6

ENGL 1231 College Composition 1
4 credits (**Lecture**)
This course introduces students to the principles of writing. Students will practice techniques of academic writing and construct formal essays, using the writing process. Students will become comfortable responding to and responsibly incorporating outside information and ideas. Upon completion of this course, students will be cognizant of various approaches and organizational methods related to effective communication. Prerequisite(s): ENGL 0100, ENGL 0200
MnTC Goal Area(s): 1

ENGL 1232 College Composition 2
3 credits (**Lecture**)
Students in this advanced freshman-level composition course will focus on the basic principles of argument and the ability to apply those principles in written argument. Basic concepts of reasoning, critical thinking, and problem solving are introduced and included in a variety of argument papers. In addition, students will learn to conduct thorough and meaningful research and to present the results of such research in a formal research paper that employs a standard documentation style in the presentation of sources. Essay topics will be derived from current social and ethical issues. Prerequisite(s): ENGL 1231
MnTC Goal Area(s): 1, 2

ENGL 1240 Technical Report Writing
3 credits (**Lecture**)
This course prepares students to write effectively in technical or professional contexts. Students will produce documents which may include instructions and procedures, short reports, emails, proposals, formal reports, resumes, and letters, relevant to workplace communication. In addition, students will conduct research to address workplace or community issues and report results in a formal writing assignment. Prerequisite(s): ENGL 1231
MnTC Goal Area(s): 1

ENGL 1300 Introduction to Creative Writing
3 credits (**Lecture**)
This course introduces students to the craft of literary genres, such as poetry, fiction, non-fiction, and playwriting. Students read creative works, applying critical and analytical lenses, while learning and applying genre-specific techniques to original works. Students may participate in workshops or peer review to develop and practice the skills to discuss, critique, and revise writing.
MnTC Goal Area(s): 6

ENGL 2200 Introduction to Literary Studies
3 credits (**Lecture**)
This course explores major literary genres, such as fiction, poetry, and drama, by representing ethnically diverse authors and literature within and beyond American and British canons. Since literature broaches diverse, globally relevant issues, this course employs related terms and devices to analyze literary forms, themes, styles, and perspectives. Students will also learn literary terms and concepts to aid their understanding and analysis of these various genres.
MnTC Goal Area(s): 6, 8

ENGL 2215 American Indian Literature
3 credits (**Lecture**)
This course covers genres and examples of American Indian literature such as creation stories, historic speeches and documents, poetry, fiction, and non-fiction by American Indian writers to enable students to better understand Native American culture and history. In addition to early speeches and stories which began as part of an oral tradition, works by various contemporary authors, will be included in the reading. Focus will be on contextualizing each work studied in order to better appreciate and interpret in a still-emerging Native American literary tradition.
MnTC Goal Area(s): 6, 7

ENGL 2220 19th Century American Literature
3 credits (**Lecture**)
This survey course addresses the impacts of society, science, politics, and war on American life during the nineteenth century. Texts such as short stories, essays, poetry, and novels, introduce students to major literary movements and diverse perspectives. Students will think critically about the development of American identity during a contentious century of the nation's history.
MnTC Goal Area(s): 6, 7

ENGL 2221 American Literature: Beginnings through Civil War
3 credits (**Lecture**)
American Literature: Beginnings through Civil War traces literature from the colonial period to the romantic period, with an emphasis on both historical context and the themes that span the eras, such as westward expansion, slavery and freedom, and power dynamics between groups. Through reading, writing, and class discussion, students will be introduced to literary interpretation as they examine diverse works and literary characteristics of American writers from a historical perspective. Emphasis is on discovering the cultural and social relationships that shaped the emerging American literature.
MnTC Goal Area(s): 6, 7

ENGL 2222 American Literature: 1865 through the Present
3 credits (**Lecture**)
A survey of the writings of American authors from 1865 to the present, American Literature 1865 through the present places special emphasis on literary works whose authors represent the cultural diversity of American society. Special attention is given to writers not historically represented in the literary canon, including female, Native-American, African-American, and immigrant authors. Readings include stories, plays, and poems within the context of United States' history, keeping a close eye on unequal power relations between groups as well as the ethnic, regional, and cultural diversity of American society.
MnTC Goal Area(s): 6, 7

ENGL 2223 Multicultural American Literature
3 credits (**Lecture**)
Multicultural American Literature encourages awareness of cultural diversity in America. Readings explore themes related to culture, identity, society, language, and values, and consider historical and contemporary issues of politics, ethnicity, and the development of national identity. Literature represents diverse voices in genres such as fiction, non-fiction, and poetry.
MnTC Goal Area(s): 6, 7

ENGL 2231 Survey of British Literature
3 credits (**Lecture**)
This course traces the literature from the Middle Ages through the Romantic, Victorian, and Modern eras with an emphasis on both historical context and the universal themes that span the eras. Through reading, writing, and class discussion, students will be introduced to literary interpretation and develop an understanding of the evolution of English language and literature, emphasizing the cultural and historical relevance modern readers can find in great works.
MnTC Goal Area(s): 6

ENGL 2245 World Literature
3 credits (**Lecture**)
This course offers a survey of international literature. Readings will introduce students to diverse cultures, issues, and literary styles and genres, reflected in literatures that convey global significance. Students will develop their understanding of world literature through examination of human experiences across diverse national perspectives. The primary focus is on reading and discussion, including analysis, interpretation, and evaluation.
MnTC Goal Area(s): 6, 8

ENGL 2255 Mythology
3 credits (**Lecture**)
This course studies the characters, stories, and events in the major mythologies of the world. It also examines the symbolic, cultural, and psychological aspects and functions of mythology through a comparative approach. Emphasis is placed on mythology such as classical Greek and Roman, Norse, Celtic, Native American, African, Asian and/or other world mythologies.
MnTC Goal Area(s): 6, 8

ENGL 2256 Environmental Literature
3 credits (**Lecture**)
This course reviews major texts and figures in the literature of nature and the environment, as revealed through particular genres such as the short story, essay, diary, and poetry. The course also examines the ethical, scientific, and philosophical underpinnings of the changing relationship between humans and the natural world. Within an understanding of historical and social context, students will read and respond in discussion and writing.
MnTC Goal Area(s): 6, 10

ENGL 2257 Science Fiction
3 credits (**Lecture**)
This course introduces students to the elements and genres of science fiction. Readings focus on issues of historical and contemporary importance, explore human relationships with and perceptions of technology, and consider alternate value systems, communication styles,

and life forms. Further, students contemplate perspectives of intelligence and the role of humankind in speculative environments. Through reading, discussion, and analysis, students address humanity's ethic and civic responsibilities within these contexts.
MnTC Goal Area(s): 6, 9

ENGL 2258 Film as Narrative
3 credits (**Lecture**)
This course introduces students to the nature of film as a story-telling medium. Students explore compositional relationships between film and narrative print, while studying and applying social, historical, cultural, and philosophical lenses. The course emphasizes critical and comparative analysis and discussion, so students may develop an understanding of film relative to composition.
MnTC Goal Area(s): 6

ENGL 2295 English Topics
Variable, 1-4 credits (**Lecture**)
This humanities-based course focuses on texts chosen from a specific genre, theme, or movement, such as memoir, satire, modern drama, protest literature, graphic novels, etc. Content includes an examination of the historical, cultural, and social contexts influencing the texts.
MnTC Goal Area(s): 6

English for Speakers of Other Languages

ESOL 0900 Integrated Skills
3 credits (**Lecture**)
In this course, English language learners will develop and refine the communication skills necessary for success in mainstream college-level courses: reading, writing, listening, speaking, note-taking, etc. Curriculum can be adjusted to meet each student's specific needs at the time of taking the course.

ESOL 0910 Listening and Speaking
3 credits (**Lecture**)
In this course, English language learners will develop their speaking and listening skills. Students will participate in discussions and oral presentations in addition to listening to a variety of lectures, presentations, and other media. The student will learn the listening and speaking skills necessary to be successful in an academic setting.

ESOL 0920 Reading and Vocabulary
3 credits (**Lecture**)
In this course, English language learners will develop their reading and vocabulary skills. Students will be taught reading strategies as well as how to expand their vocabulary using word study tools and context clues. This course may include works of fiction and nonfiction

ESOL 0930 Writing and Grammar
3 credits (**Lecture**)
In this course, English language learners will develop their writing skills. Students will learn to draft well organized, sentences, paragraphs, and essays follow established guidelines for Standard American English. Students will study the parts of speech, sentence structure, grammar, and punctuation as well as how to apply them in a variety of modes of writing.

Forestry

FORT 1108 Introduction to Water
1 credit (**Lecture**)
This course is an introduction to the ecological systems which influence lakes, streams, wetlands, and the riparian transition areas. This class will include both classroom and field lectures coupled with field exercises designed to investigate the elements and interactions of our aquatic and terrestrial resources.

FORT 1109 Properties of Forest Soils
1 credit (**Lecture/Lab**)
This course provides a basic working knowledge of forest soils which is critical to making informed management decisions. This class will include both classroom and field lectures to investigate soil physical and chemical properties and soil map unit interpretation. An introduction to soil forming factors and glacial history is also included in this course.

FORT 1140 Leadership Enhanced (L-280)
1 credit (**Lecture/Lab**)
This course is designed as a self-assessment opportunity for individuals preparing to step into a leadership role. Topics include leadership values and principles, transition challenges for new leaders, situational leadership, team cohesion factors, ethical decision making, and after action review techniques. This course is a national Wildfire Coordinating Group (NWCG) course L-280, Followership to Leadership. Students learn leadership and teamwork principles through

challenging exercises. Prerequisite(s): FORT 1301

FORT 1201 Introduction to Natural Resources
1 credit (**Lecture/Lab**)
This course is a general introduction to the natural resource field. It examines a variety of natural resources, the social implications of multiple use and environmental impacts associated with extractive, consumptive, and active uses of the land. The course emphasizes the intersection of the science associated with land managers' decisions, legal requirements of the field of natural resource management, and the public's demands for resources.

FORT 1205 Forestry Mathematics
2 credits (**Lecture**)
This course will provide students with an understanding of applied trigonometry, algebra, and statistics. The course utilizes common natural resource examples to demonstrate trigonometry in surveying applications. The course also utilizes algebra to solve formulas in scaling and forest volume calculations. The course also utilizes cruising and inventory examples to provide a background in sampling and statistics.

FORT 1206 Forest Protection
2 credits (**Lecture/Lab**)
Causes, effects, prevention and suppression of forest fires. Includes fire weather, fire planning and controlled use of fire in the forest as well as principles of forest entomology and pathology. Also covers identification, life cycles, host damage, and control methods of important insect and disease groups.

FORT 1212 Forest Inventory
4 credits (**Lecture/Lab**)
This course is designed to provide an understanding of forest vegetation, its volume, growth, quality, and site conditions. Proper use of instruments and inventory techniques is emphasized. Calculations and summary of data using elementary statistics, including working with spreadsheets, is an integral part of this course. Development of a stand level inventory provides students with the ability to estimate forest volume and interpret the results to understand the basics of forest growth. Prerequisite(s): FORT 1205

FORT 1214 Natural Resource Careers
1 credit (**Lecture**)
Students are introduced to career opportunities and the necessary procedures for obtaining employment in natural resources. Topics include the summer field experience, job applications, interviews, and specific employment opportunities. Job search techniques will emphasize web-based applications, announcements, and resumes. This course also examines the personal characteristics and work habits required for successful job performance. (Cross-listed course; students can enroll only in FORT 1214 or NRT 1214.) Prerequisite(s): BIOL 1131, FORT 1201, FORT 1205, FORT 1206, FORT 1212, FORT 1301, NRT 1211

FORT 1301 Wildland Firefighting Training
3 credits (**Lecture/Lab**)
This course is made up of three National Wildfire Coordinating Group (NWCG) training courses, S 130 Firefighter Training, S 190 Introduction to Wildland Fire Behavior and L 180 - Human Factors on the Fireline, which are required of all personnel to be certified as firefighters. S 110 Wildland Fire Orientation is also covered in this course. Students are trained in basic firefighting skills, techniques and safety; management systems, fire behavior and physical training for firefighters.

Also included as online homework will be Federal Emergency Management Agency (FEMA) ICS 100 Introduction to the Incident Command System and IS700 National Incident Management System, which are required for all NIMS responders.

FORT 1309 Wildfire Power Saws (S-212)
2 credits (**Lecture/Lab**)
Wildlife Power Saws will provide students with a working knowledge and a demonstrable understanding of the use of forestry hand tools, including chainsaw use and equipment safety. Students will learn the fundamentals of working as a crew and directing the work of others to achieve objectives for a saw team. Students will obtain certification of completion of the NWCG S-212 course materials.

FORT 1310 Portable Pumps and Water Use (S-211)
2 credits (**Lecture/Lab**)
This is National Wildland Fire Coordinating Group (NWCG) course S211. The course gives students the knowledge and skills to design, setup,

operate, troubleshoot and shut down portable water delivery systems.

FORT 1312 Fire Behaviors and Effects
2 credits (**Lecture**)
This course will give students a basic understanding of how fires start and behave and how they affect the physical, chemical, and biological aspects of the environment

FORT 1315 Compass and Mapping
1 credit (**Lecture**)
This course will provide students with a basic understanding of map interpretation and compass use. The course includes the rectangular land survey system. It also introduces GPS field use.

FORT 1510 Air Operations
3 credits (**Lecture/Lab**)
This course covers interagency aviation firefighting operations, aircraft types and capabilities, aviation management and safety for flying in and working with firefighting aircraft, tactical and logistical uses of aircraft and basic aviation policy. The Interagency Aviation Training (IAT) program is also introduced and explored. Field visits to the Minnesota Interagency Fire Center Aviation Desk, an Interagency Tankerbase, and a MN DNR Helibase will link the classroom learning with on-the-ground knowledge and familiarization. This course will provide all the training in the National Wildfire Coordination Group's S-270 (Basic Air Operations) and will increase the employability of students who complete the course. Prerequisite(s): FORT 1301

FORT 1610 Introduction to Surveying
3 credits (**Lecture/Lab**)
This course provides students with an understanding of basic surveying methodology. The course includes a discussion and field proficiency on traverses, leveling, and line running with compasses and a variety of distance measure methods. The course provides background on the use of the rectangular land survey system. Utilizing GPS technology for line establishment and survey data collection is emphasized. Prerequisite(s): FORT 1205

FORT 2016 Principles of Silviculture
3 credits (**Lecture/Lab**)
This course will provide students with an understanding of silvicultural principles as they apply to management of forests in North America. Students will be exposed to forest management practices including regeneration and stand establishment, intermediate treatments, and single-, double-, and multi-cohort management systems. The course utilizes labs to demonstrate basic principles in density, stocking, silvical characteristics of select species, hardwood management, stand examination, and nursery and greenhouse seedling production techniques. Extensive lab work and field assignments allow students the opportunity to gain observational experience and relate principles discussed in the lecture. Prerequisite(s): BIOL 1131, FORT 1212

FORT 2050 Fireline Supervision (S-131)
1 credit (**Lecture**)
This is National Wildland Fire Coordinating Group (NWCG) Course S-131. In this course students will learn to use fireline reference tools and materials to facilitate the communication and decision making process. Students will plan operational strategies and tactics, conduct operational briefings, and manage mock wildfires and all hazard incidents. Incorporating and maintaining open lines of communication with supervisors, as well as subordinates, is experienced in the tactical decision making exercises of this course. Prerequisite(s): FORT 1301, FORT 2203

FORT 2105 Wood Products
2 credits (**Lecture/Lab**)
The course will help students to develop an understanding of major forest products. Students will be presented with an overview of the constituent elements of wood. Discussions will center around the impact of forest management practices on specific wood properties and how these properties ultimately affect the use of wood as a raw material. The use of woody materials for a variety of products, including a focus on pulp and paper, woody biomass, lumber and solid wood products, composite wood products, and extractives and new and emerging types of products are covered. An understanding of species characteristics and raw material specifications will be developed.

FORT 2107 Forest Management and Planning
3 credits (**Lecture/Lab**)
Forest Management and Planning will provide an overview of forest logging systems in Northern Minnesota. Through lab work, students will demonstrate a basic understanding of the use of forestry hand tools and equipment safety. This class will concentrate on harvesting methods, prescriptive harvest planning, timber sale set-up

and design, forest certification, road construction, and considerations and application of Best Management Practices. An overview of timber sale contract development and administration will be presented. A final project will include development of a forest stand management plan and harvest contract.

This class will serve as a capstone course, requiring students to incorporate principles learned in dendrology, ecology, forest inventory, wildlife management, forest protection, recreation, business and GIS into their management plan for forest stands. Prerequisite(s): FORT 1206, FORT 1212, FORT 2016, FORT 2112, GEOG 1204

FORT 2112 Business Applications for Natural Resources Managers
1 credit (**Lecture**)
Business Practices for Natural Resource Managers will provide an understanding of basic business structure and accounting practices used in natural resources management. The course will include a cost/benefit analysis of typical management scenarios. Prerequisite(s): FORT 1205

FORT 2120 Recreation Resource Management
2 credits (**Lecture**)
This course is designed to provide students with an understanding of present and anticipated outdoor needs of the recreating public. An examination of current recreational infrastructure and implications of the land management conflicts that arise from varied use will be a critical component. Prerequisite(s): BIOL 1131, FORT 1206

FORT 2121 Ecosystem Management
2 credits (**Lecture**)
This class integrates forest management,& biodiversity concepts at the stand and landscape levels. The importance of economic and social concerns on the forest resource is emphasized in the decision making process.

FORT 2199 Special Topics in Forestry
Variable, 0-8 credits (**Lab**)

FORT 2201 Natural Resources Internship-Law Enforcement
Variable, 1-3 credits (**Internship**)
The internship provides students with 135 hours of on-the-job experience in Natural Resources Law Enforcement. With input from the internship coordinator, the site supervisor organizes a schedule for the student, which allows a variety of tasks to be performed. Upon completion, the student will have had the opportunity to apply the knowledge learned in the program and to gain a perspective of the various aspects of natural resources management.

FORT 2202 Natural Resources Internship-Forest Resources
Variable, 1-3 credits (**Internship**)
The internship utilizes 135 hours of on-the-job experience in Natural Resources to provide assessment of a student's technical skill attainment. With input from the internship coordinator, the site supervisor organizes a schedule for the student, which allows a variety of tasks to be performed. Upon completion, the student will have had the opportunity to apply the knowledge learned in the program and to gain a perspective of the various aspects of natural resource management.

FORT 2203 Natural Resources Internship-Wildland Fire
Variable, 1-3 credits (**Internship**)
The internship provides students with 135 hours of on-the-job experience in Wildland Firefighting. With input from the internship coordinator, the site supervisor organizes a schedule for the student, which allows a variety of tasks to be performed. Upon completion, the student will have had the opportunity to apply the knowledge learned in the program and to gain a perspective of the various aspects of fire management.

FORT 2300 Intermediate Incident Command System (ICS-300)
1 credit (**Lecture**)
This is Federal Emergency Management Agency (FEMA) course ICS-300. The Incident Command System course develops a standardized, on-scene, all-risk, incident management concept for incident management personnel.
Course subjects include implementing ICS on Type 3 incidents (moderately complex), using ICS for routine events or moderately complex emergency incidents, defining techniques allowing personnel from a variety of agencies to meld rapidly into a common management structure, determining logistical and administrative support to ensure that operational staff can meet incident objectives, and methods to be cost effective by avoiding duplication of efforts.

FORT 2400 Advanced ICS for Command and General Staff
1 credit (**Lecture**)
This is Federal Emergency Management Agency (FEMA) course ICS-400. This course builds on the Incident Command System (ICS) course ICS-100, 200 and 300 developing a standardized, on-scene, all-risk, incident management concept for incident management personnel.

Course subjects include implementing ICS for Type 1 and 2 incidents (extremely complex), fundamental organization for a Command and General Staff, managing major and/or complex incident/events, utilization of Area Command and Multiagency Coordination, and delegation and transfer of incident command. Prerequisite(s): FORT 2300

General Studies

GENS 1170 Introduction to Computer Applications
1 credit (**Lab**)
Introduction to Computer Applications is a hands-on course covering basic information about the use of computer software as a productivity tool. Students are given hands-on training in online learning management systems, Windows, word processing, and spreadsheet software applications, using the most up-to-date software.

GENS 1171 Computer Applications: Word Processing
1 credit (**Lecture**)
This course will focus on building techniques suitable for creating standard forms of documents and communications by using common word processors while utilizing the full capabilities of the software, whether PC-based or web-based.

GENS 1172 Computer Applications: Spreadsheets
1 credit (**Lecture**)
This course focuses on data and information management via spreadsheets. Students will learn to create and use spreadsheets in a manner that will facilitate applied problem solving and analysis. Emphasis is on effective utilization of the software capabilities to help students from various disciplines with accurate, efficient, and flexible applied problem solving using spreadsheets, charts, and graphs. Prerequisite(s): MATH 0100

Geography

GEOG 1200 Global Positioning Systems (GPS)
1 credit (**Lecture**)
This course is designed to provide an introductory experience using global positioning systems (GPS) technology for data collection. Students will gain experience using handheld GPS units, field data collection and mapping.

GEOG 1201 Map Use, Analysis and Interpretation
3 credits (**Lecture**)
Students learn the principles governing mapping systems and how to research, interpret and utilize maps. Students analyze and interpret both thematic and topographic maps to discern physical, cultural, economic, political and environmental patterns. Mapping capabilities of geospatial technologies (GPS, GIS, Remote Sensing) are introduced.

GEOG 1204 Principles of Geographic Information Science
3 credits (**Lecture**)
This course examines principles, capabilities and limitations of GIS. Students independently apply GIS software to analyze selected natural resources, forestry, environmental, social, economic and/or physical issues and complete a self-directed spatial analysis project. Applications and ethical implications of using GIS software are discussed.

GEOG 1215 Physical Geography
3 credits (**Lecture**)
Physical Geography addresses interactions between our air, water, land and living environments. We'll explain how landscapes form and change over time, and how humans interact with their physical surroundings. We'll learn how to interpret maps and satellite images as we study the physical landscapes which both support and challenge our lives. Understanding the range of human responses (political, legal, social, economic, etc.) to changing physical environments is explored in context of ethics and civic responsibility. Overall, we will strive to develop an appreciation for the earth's varied physical geography and how that environment influences human lives.
MnTC Goal Area(s): 3, 9

GEOG 1220 World Regional Geography
3 credits (**Lecture**)
Students learn and apply geographic skills in the analysis of selected world regions. The course examines the diversity of cultures, physical patterns, environmental issues and political/economic challenges facing such areas. Emphasis is on analyzing issues at the regional scale and their importance in global context.
MnTC Goal Area(s): 5, 8

GEOG 1225 Human Geography
3 credits (**Lecture**)
Geographic analysis of the population mosaic. Foster an appreciation for human diversity while examining ethnicity, language, religion, population, economics, politics, health and inequality from a geographic perspective. Students learn to interpret cultural landscapes developed over time from the interrelationships between people and their natural environment
MnTC Goal Area(s): 5, 7

GEOG 1315 Weather and Climate
4 credits (**Lecture/Lab**)
Weather and Climate is the study of the atmosphere and its relationship to humans as it benefits and challenges our lives. Topics covered include atmospheric composition, ozone depletion, temperature controls, global wind systems, precipitation patterns, air masses, severe weather, global climates, climate data and climate modeling.
MnTC Goal Area(s): 3, 10

GEOG 1320 Oceanography
3 credits (**Lecture**)
This is an introductory course and will involve investigations in physical (tides, currents, waves), geologic (ocean formation/physiography, plate tectonics), biological (plant/animal life and ecosystems) and chemical (composition, water properties) aspects of the world's oceans. Emphasis is on the development of scientific literacy in the context of interdisciplinary studies of the ocean environment. Relevance of oceanography to issues of human social significance and sustainability is addressed.
MnTC Goal Area(s): 3, 10

GEOG 1325 Natural Disasters
3 credits (**Lecture**)
Investigate the science of natural hazards-learn how and why natural hazards occur where they do. A range of topics will be addressed, including earthquakes, volcanic activity, wild fire, tornadoes, hurricanes, floods, tsunami, landslides, and drought. Patterns of natural hazard occurrence and their effect on human institutions is a cornerstone of this course. How government agencies, private business, interest groups plan for, mitigate and recover from such events is analyzed. Understanding the range of human responses (i.e. political, legal, social, economic, etc.) is explored in context of ethics and civic responsibility.
MnTC Goal Area(s): 3, 9

GEOG 2104 Modeling Techniques in Geographic Information Science
3 credits (**Lecture**)
Students apply modeling techniques to address cross discipline scenarios using vector/raster data structures. Self-directed projects are completed involving advanced geoprocessing, surface modeling, networks, geocoding or equivalent. External models are used in conjunction with GIS software. Sensitivity analyses are conducted and modeling alternatives critically analyzed. Prerequisite(s): GEOG 1204

GEOG 2107 Remote Sensing and Image Interpretation
3 credits (**Lecture**)
Students learn the principles of remote sensing and digital image processing to provide background for utilizing remotely sensed imagery with GIS software. Methods of image acquisition, photogrammetry, classification, interpretation and accuracy assessment are addressed. Imagery from a variety of passive and active sensors is analyzed. Prerequisite(s): GEOG 1204

GEOG 2113 GIS Applications
1 credit (**Practicum**)
This course is designed to provide students with the opportunity to initiate, plan, manage, implement and critique a GIS project as a capstone experience. Topics will be chosen and directed by students in consultation with the instructor

GEOG 2201 Internship: GIS
Variable, 1-4 credits (**Internship**)
Utilization of geographic con4cepts and tools in an on-the-job setting. Alternatively, students identify a geographic project, generate a problem statement, develop a project plan and timeline, and define output products. Students are required to meet on a regular basis with their instructor. Prerequisite(s): Consent of instructor.

GEOG 2206 Cartography
3 credits (**Lecture**)
This course focuses on concepts and techniques in Cartography, and the design and preparation of maps using GIS software. Ethics, statistical analysis, data measurement levels, classification, conceptual/cartographic generalization, symbolization/visualization are addressed through the construction of a variety of quantitative and qualitative thematic maps. Prerequisite(s): GEOG 1204

Geology

GEOL 1215 Physical Geology
4 credits (**Lecture/Lab**)
Physical geology is an introduction to the basic processes that influence the Earths crust. Topics covered include plate tectonics, rocks and minerals, glacial systems, volcanism, earthquakes, geologic landscapes and the dynamic processes that produce those landscapes.

Graphic Design Media

GRAP 1226 Introduction to Media
2 credits (**Lecture/Lab**)
This course provides students an overview of the Graphic/Design/Media industry. Through this course, students will discover and explore the job opportunities in the graphic communications industry. In addition, students will be introduced to all types of media and will gain a greater understanding of the role graphic/media plays in society.

GRAP 1227 Layout and Imposition
3 credits (**Lecture/Lab**)
This course will allow students to work on projects that meet their needs and special interests in developing basic layouts. Students will become familiar with basic layout techniques and learn the importance of pagination and imposition in the print and design industry.

GRAP 1228 Color Exploration
3 credits (**Lecture/Lab**)
In this course students will study basic color theory/and how colors interact with one another. Students will look at the mediums of digital photography, video and print, and how color affects differently each one of these outputs. Students will work with various output devices and gain a better understanding of color and the value it has on products in our industry.

GRAP 1235 Print Fundamentals for Graphic Design
3 credits (**Lecture/Lab**)
Students in this course will be introduced to imaging on paper, other substrates, and digital printing methods from an output ready file. As students develop a knowledge of these processes, they will also comprehend concepts of imaging systems, process control, densitometry, inks, toners, and substrates.

GRAP 1238 Video Editing and Lighting
4 credits (**Lecture/Lab**)
Students in this course will develop skills in the production of digital videos, from pre-production through production, including storyboards and lighting set up. Through lectures lessons and hands on experiences, students will be initiated into the world of video editing.

GRAP 1245 Estimating for Media
2 credits (**Lecture**)
Students in this course will explore the fundamentals of estimating a job in the printing industry. Students will learn the importance of understanding the cost of any design or media project, including graphic design, video and production process.

GRAP 1248 Video Production
3 credits (**Lecture/Lab**)
The focus of this course is video production. Throughout the course, students will use video production hardware and software to explore how a production comes together. Working independently and with others, students will produce their own videos as they master skills in identifying and resolving quality issues before a video can go live.

GRAP 1256 Quality Control in Media
2 credits (**Lecture/Lab**)
Students in this course will explore the importance of team building and working together in groups to solve quality control issues in media. In addition, students will be introduced to quality control procedures in a small/medium or large company and important concepts such as Deming, Lean Manufacturing, and ISO 9000 principles.

GRAP 1257 Motion Graphics
3 credits (**Lecture/Lab**)
In this course students will learn the fundamentals of motion graphics and quickly move into compositing and keying. The course will also cover animation, motion graphic design, visual effects, and be introduced to the world of 3D.

GRAP 1266 Visual Communications
1 credit (**Lecture**)
This uniquely structured course will prepare all students for entry into the Graphic Design Media program. A general overview of the graphics field will be provided. Throughout the semester, students will be introduced to basic computer operation, photography, and editing software for both photography and video. Students will become familiar with these techniques so as to produce a project that integrates their newly developed skills. This course is open to Graphic Design Media students and non-majors.

GRAP 1267 Creative Copywriting
2 credits (**Lecture**)
Students in this course will learn basic copywriting skills in the graphics profession as they pertain to the creative process. Students will learn how to tell stories to engage audiences across a variety of mediums including radio, television, print and digital.

GRAP 1268 Photography
2 credits (**Lecture/Lab**)
This hands-on course is designed to familiarize students with the industry standard Digital Single Lens Reflex (DSLR) camera. Coursework will cover operating automatic and manual-adjustment of the DSLR camera functions, such as controlling shutter speed, depth of field, ISO, and white balance through various indoor, outdoor, and natural lighting conditions. The key to this course will be gaining an understanding of the DSLR's controls and adjustments. Students will be able to use their images to enhance their 2D and 3D products.

GRAP 1278 Leadership and Emerging Trends in Graphics
2 credits (**Lecture**)
In this course the student will gain a deeper understanding of the ever-changing world of graphics. The pace of change in this business is continually increasing. This course will focus on the changing environment of the graphics business and provide the student some strategies for ongoing skill development. The student will complete a project for the graphics program or the college.

GRAP 2245 Mobile App Development
3 credits (**Lecture/Lab**)
Students will learn how to use Adobe XD to design, prototype and share mobile apps, websites, presentations and more. Throughout this course, students will learn how to create a project, add graphics, images, and text and organize content in XD. Students will also find out how to preview, share, comment publish design specs and export.

GRAP 2252 Adobe InDesign
3 credits (**Lecture/Lab**)
Adobe InDesign is a powerful design program used by graphic designers around the world. In this course, students will be introduced to the functionality of the program and learn the most important features of Adobe InDesign. Upon completion of the course, students will demonstrate their knowledge of how to use all panels, import and flow text through a document and identify the appropriate use of graphics and colors for a variety of output settings including print and digital.

GRAP 2253 Elements of Design and Typography
2 credits (**Lecture/Lab**)
Students will learn to define and apply the principals of design through a variety of exercises dedicated to identifying and studying basic tangible and intangible design principles and elements. Topics of line, shape and form will compliment lessons covering typography, imagery, color, and effective design management. This course is intended to teach visual fundamentals and examine the physiological and visual processes that are the basics for visual communications.

GRAP 2254 Page Layout
3 credits (**Lecture/Lab**)
This course allows the student to apply knowledge gained in GRAP 2252 Adobe InDesign to create a variety of design pieces including, but not limited to, identity system, poster, brochure, magazine spread, book cover and an intro to package design. Students will learn essential layout and design procedures in designing for a variety of different flat and folded printed pieces. Prerequisite(s): GRAP 1267, GRAP 2252, GRAP 2253

GRAP 2261 Adobe Illustrator
3 credits (**Lecture/Lab**)
Turn out professional-looking graphics for print and web with Adobe Illustrator. Through practical exercises, become fluent in the premier program for line art, logos and vector graphics, as well as learn to develop techniques to keep work clean and professional. Students will become familiar with the Illustrator workspace and learn to illustrate with the unique set of drawing tools offered in Adobe Illustrator.

GRAP 2264 Advanced Design and Layout
3 credits (**Lecture/Lab**)
This course covers advanced layout and design techniques using Adobe InDesign. This course will focus on designing multiple page documents, using critical thinking skills to examine and evaluate existing designs, create a corporate brand and product packaging. It will also address any Print[ED] standards that have not been met in other courses. Prerequisite(s): GRAP 1267, GRAP 2252, GRAP 2254

GRAP 2271 Adobe Photoshop
2 credits (**Lecture/Lab**)
This course covers the introductory features of Adobe Photoshop, the premier software for creating and manipulating bitmap graphics. Students will learn how to use basic Photoshop tools to prepare images for both print and digital applications. Students will develop their own personal workflows to create and make changes to digital bitmap images. Students will be introduced to basic Photoshop tools and layers, selections, masks and channels, color correction, and advanced composition.

GRAP 2272 Introduction to Web Development
4 credits (**Lecture/Lab**)
In this course, students will be introduced to a variety of methods to create webpages that incorporate graphics and text. Students will be introduced to basic HTML5 and CSS as well as basic principles governing website development. Students will have the experience of working within Adobe Dreamweaver and the WordPress development environment. Prerequisite(s): GRAP 1267, GRAP 2271

GRAP 2274 Industry Portfolio Capstone Project
2 credits (**Lecture/Lab**)
This course concentrates on one of two student-selected areas (with instructor recommendation). Track A: Students who select this track will complete portfolio building, preparing finished projects, and perfecting skills for the job market. Track B. Students who select this track will perform on the job tasks in a (SOE) Supervised Occupational Experience at the site selected in conjunction with the student, the employer, and the college.

GRAP 2275 Special Projects
2 credits (**Lab**)
This course is designed to let the student develop individual interests. The student will do a photography, video, design, or other personal project and seek out a job shadow experience. The course will give the student the tools to communicate with customers internally and externally.

GRAP 2285 Animate
2 credits (**Lecture/Lab**)
This course will utilize Adobe Animate to create basic and advanced animations. Students will learn the many skills to create interesting graphics and rich movies that include sound, animation and interactivity. In addition, students will learn how to publish their own animated projects.

Heating and Cooling Technician

HCT 1501 Introduction to Electricity
4 credits (**Lecture/Lab**)
Introduction to electricity covers fundamental electrical theory as well as different types of electrical circuits, electrical symbols and schematic diagrams a HVAC Mechanic encounters when troubleshooting equipment in the field. Electrical safety is emphasized. HVAC component identification / function and best practices for circuit wiring are also covered.

HCT 1505 Refrigeration Theory
3 credits (**Lecture/Lab**)
In refrigeration theory the student will learn the relationship between temperature & pressure, heat transfer, sensible and latent heat, and fundamental refrigeration theory. Students will study the mechanical refrigeration cycle and learn the function of major system components. Students will demonstrate proficiency in the use of trade-specific tools & equipment needed to install, maintain and troubleshoot refrigeration systems.

HCT 1520 Refrigerant Certification
2 credits (**Lecture**)
Refrigerant certification covers the information required to successfully pass section 608 of the Clean Air Act (1990). This course also covers information regarding the recovery, recycling, and reclamation of refrigerants, as well as new laws governing the use of refrigerants. Students are given the opportunity to take an EPA refrigerant certification exam after completion of this course.

HCT 1525 Tools and Equipment
3 credits (**Lecture/Lab**)
Tools and Equipment will instill construction trade safety procedures and familiarize students with the proper use, maintenance and adjustment of hand and power tools. Students will learn different types of hardware, how to utilize raw construction material and sheet metal layout / fabrication. Mechanical reasoning concepts are also incorporated.

HCT 1530 Air Conditioning/Heat Pump Systems
5 credits (**Lecture/Lab**)
Air Conditioning and Heat Pump Systems covers the installation and operating characteristic of residential air conditioning systems and heat pump systems. Electrical and mechanical components of air conditioning / heat pump equipment will be tested and analyzed. Prerequisite(s): HCT 1501, HCT 1505, HCT 1525, HCT 1550

HCT 1535 Gas Heating Systems
5 credits (**Lecture/Lab**)
In Gas Heating Technology students learn to troubleshoot, repair, and maintain forced air gas-fired heating equipment. Combustion theory, fuel gas characteristics, gas furnace types and their associated operational / safety components associated are covered in this course. Prerequisite(s): HCT 1501, HCT 1525

HCT 1541 Oil Heating Systems
3 credits (**Lecture/Lab**)
Oil Heating Systems trains students in the mechanical, electrical and combustion operating principles of oil-fired heating equipment. Component identification & function, combustion theory & analysis, electrical schematic interpretation, electrical and combustion troubleshooting and repair / maintenance of fuel oil burners will be covered. Prerequisite(s): HCT 1501, HCT 1525

HCT 1546 Radiant Heating Systems
2 credits (**Lecture/Lab**)
Radiant Heating Systems instructs students in hydronic heating system theory, design and operation. Students perform mechanical & electrical troubleshooting and demonstrate maintenance procedures on radiant heating systems. Prerequisite(s): HCT 1501, HCT 1525, HCT 1535, HCT 1541

HCT 1550 Applied Refrigeration Technology
4 credits (**Lecture/Lab**)
Applied Refrigeration Technology covers refrigerants, refrigeration system components, construction & controls and proper methods of recovery, evacuation and charging sealed systems. Electrical schematic interpretation, controls & components diagnostics and skill development for sealed system repair will be emphasized. Prerequisite(s): HCT 1501, HCT 1505, HCT 1525

HCT 1555 Indoor Air Quality
1 credit (**Lab**)
Indoor Air Quality is designed to teach students about how air-borne pathogens, pollutants and contaminants affect people and how exposure can be reduced through filtration, ventilation and proper HVAC system design & maintenance. Prerequisite(s): HCT 1501, HCT 1525

Medical Coding and Scribing

HINS 1120 Introduction to Health Information Privacy and Security
1 credit (**Lecture**)
Introduction to Health Information Privacy and Security will introduce students to the Health Insurance Portability and Accountability Act (HIPAA), Health Information Technology for Economic and Clinical Health (HITECH) Act, and the American Recovery and Reinvestment Act (ARRA) and their requirements for health information privacy and security. The course will use real-world examples to explain the privacy and security rules and will enforce students' understanding of the compliance process.

HINS 1144 Pharmacology for Healthcare Admin
1 credit (**Lecture**)
Pharmacology for Healthcare Administration is designed for health information and administrative professionals. The course will cover drug terminology, pharmacology names,

drug classifications, and uses of medication. Prerequisite(s): ALHE 1620

HINS 1150 Introduction to Diagnosis and Procedure Coding
3 credits (**Lecture**)
Introduction to Diagnosis and Procedure Coding will introduce students to the basic medical coding principles and conventions of ICD-10-CM/PCS, CPT, and HCPCS coding. Students will learn the application of coding principles using examples and hands-on exercises. The course will require students to apply their knowledge of medical terminology and human biology. Prerequisite(s): ALHE 1620

HINS 1152 Medical Insurance and Billing
2 credits (**Lecture**)
Medical Insurance & Billing focuses on the revenue cycle and how the rules and guidelines of medical insurance affect patient billing and the healthcare facility. The course will cover the importance of medical practice in billing both patients and payers as well as how to manage both patient records and the billing/collections process. This course will also emphasize applying the rules of the Health Insurance Portability and Accountability Act (HIPAA) and Health Information Technology for Economic and Clinical Health Act (HITECH) to ensure compliance, maximum reimbursement, and the electronic exchange of information.

HINS 1154 Introduction to Health Data Analysis
3 credits (**Lecture**)
This introductory course provides students with a foundational knowledge of healthcare data analysis. This course will cover how to manage, analyze, and present data as well as how to identify problems and create recommendations from the data that can be used by healthcare organizations to make effective decisions.

HINS 1163 Medical Office Procedures
2 credits (**Lecture**)
Medical Office Procedures covers specific administrative responsibilities in the medical practice. The course covers the basics of office communication, scheduling, managing health information, insurance, and patient billing. Through simulations, students will be exposed to clinic scenarios, including patient interaction, third-party payer interaction, and provider interaction.

HINS 1615 Document Fundamentals of Editing and Scribing
3 credits (**Lecture/Lab**)
Document Fundamentals of Editing and Scribing presents documentation standards as applied to both manual and electronic health care records. Medical document editing techniques are emphasized while reviewing medical communication guidelines, proofreading, and formatting rules. This course introduces medical scribing as a career along with scribing techniques. Prerequisite(s): ALHE 1620

HINS 2140 Advanced Medical Coding
4 credits (**Lecture**)
Advanced Medical Coding reinforces coding concepts, including the coding rules for International Classification of Diseases, 10th Revision, Clinical Modification (ICD-10-CM) coding systems; Current Procedural Terminology (CPT); and Healthcare Common Procedure Coding (HCPCS) Level II. This course will explain advanced coding concepts and use case scenarios to challenge student understanding and application of coding systems. Prerequisite(s): ALHE 1620, HINS 1150

HINS 2144 Legal Aspects of Healthcare
2 credits (**Lecture**)
Legal Aspects of Healthcare is designed to breakdown the complexity of healthcare law and legal issues. The course will provide individuals with the fundamentals of laws, regulations, and ethics surrounding the delivery of healthcare and the management and protection of health information.

HINS 2148 Healthcare Management and Organization
3 credits (**Lecture**)
Healthcare Management and Organization will provide an introductory understanding of healthcare management and organization: its major functions, roles and responsibilities. The course will cover performance improvements, technologies, cost and revenue management, ethics, law, fraud and abuse, and skills for working in teams.

HINS 2172 Reimbursement Methodology
2 credits (**Lecture**)
Reimbursement Methodology provides additional training as it relates to medical billing and health insurance. Topics include payment classification groups, fee schedules, exclusions lists, and wage indexes for accurate reimbursement. The course

will explore the methods of government-sponsored and commercial insurance payment systems along with the various types of healthcare cost-sharing and their effects on providers and consumers. Prerequisite(s): HINS 1152

Health

HLTH 1100 Wellness
2 credits (**Lecture**)
This course examines concepts associated with wellness. Topics include fitness, cardiovascular endurance, body composition, flexibility, muscular strength, muscular endurance, nutrition, stress management and disease prevention. The theme of taking responsibility for one's own wellness is reinforced throughout the course.

HLTH 1110 Stress Management
3 credits (**Lecture**)
This course will examine holistic approaches to managing personal stress. Through the study of principles, theories and skills, students will identify individual life stressors and cognitive skills for stress management. Students will practice and learn a variety of stress management techniques for effective and comprehensive stress reduction.

HLTH 1120 Personal Well-being
2 credits (**Lecture**)
This course explores the six (6) dimensions of personal well-being of health physical, social, intellectual, emotional, spiritual, and environmental. This course examines concepts of the mindfulness theme and research on the benefits of mindfulness practices and tools. (Cross-listed course; students can enroll only in EMSV 1120 or HLTH 1120.)

HLTH 1500 Nutrition
3 credits (**Lecture**)
Nutrition is the study of the basic principles of nutrition and their relationship to human health. Topics include introduction to nutrients, dietary standards, digestion and absorption, weight management, proper diet planning, food insecurity and global hunger.

HLTH 1515 Tobacco, Alcohol, and Drug Education
2 credits (**Lecture/Lab**)
This course is a review of basic historical, economic, and biological facts related to tobacco, alcohol, and drug use, including recreational drugs, over-the-counter drugs, and medical drugs. This class examines individual, family, community, national and international factors which create and support patterns of recreational chemical use. Discussion regarding responsible use is designed to help clarify cultural value systems and how they relate to personal decision-making skills. Drug education concepts are integrated throughout the course materials and include educational concepts relating to dependency, relationships, parenting, and professional expectations.

HLTH 1520 Applied Nutrition
2 credits (**Lecture**)
Applied Nutrition is the study of the science of the six nutrient classes, including digestion through metabolism, and application of nutrition knowledge for health and life cycle care, including weight control and common chronic conditions requiring nutrition therapy.

HLTH 1550 Chemical Awareness Education
3 credits (**Lecture**)
This course provides information about the use and abuse of chemicals. Students will learn about drug identification, physical and psychological effects on the individual, family and society, and chemical abuse prevention. This class provides opportunity for candid and open discussions on social, legal, political and philosophical questions associated with the use of various drugs. Students will learn strategies for being responsible for their own health.

History

HIST 1150 American Indian History
3 credits (**Lecture**)
Surveys the history of American Indians in North America from pre-Columbian times to the present. Topics include pre-Columbian history and cultural adaptations; cultural clashes in colonial America; U.S. expansion on the frontier; the Indian wars (1783-1890); reservation life; assimilation and adaptation; cultural revival in the 20th century; current political, legal, economic, and social issues.
MnTC Goal Area(s): 5, 7

HIST 1211 American History, to 1877
3 credits (**Lecture**)
Students will study the development of American political, social, and economic institutions and practices. This course surveys the period of American development from pre-European arrival through Reconstruction. Topics include Native American cultures, European colonization, the American Revolution, the early national period, the War of 1812, the Civil War, Reconstruction, and American presidents and their respective policies.
MnTC Goal Area(s): 5, 7

HIST 1212 American History, 1877-Present
3 credits (**Lecture**)
American History from 1877 to the present examines the development of American political, social, and economic institutions and practices. Survey topics include industrialization, Gilded Age politics, urbanization, America as a world power, the Progressive Era, World War I, the "Roaring Twenties," the Great Depression, World War II, the Baby Boom, Vietnam War, and social, economic, and political developments during the late 20th and early 21st centuries.
MnTC Goal Area(s): 5, 7

HIST 1221 World History, Prehistory to 1500
3 credits (**Lecture**)
World History: Prehistory to 1500 surveys the history of world civilizations from prehistoric societies up to 1500. Principal topics include the development of the political, social, and economic structures of individual world civilizations, and the cultural exchanges between different societies in the pre-modern world. Specific topics include ancient Mesopotamia and Asia, Africa including Ancient Egypt, China, India, Greece and Rome, Early Europe, and the Americas.
MnTC Goal Area(s): 5, 8

HIST 1222 World History, 1500 to Present
3 credits (**Lecture**)
World History: 1500 to Present surveys civilizations from approximately 1500 to the present. Included topics: the acceleration of global contact, the Islamic world powers (1300-1800), the expansion of European power (1500-1750), the global role of Africa (1400-1800), developments in East Asian cultures (1400-1800), government revolutions (mid-1700s-early 1800s), the Industrial Revolution, developments in nineteenth-century European philosophy, the spread of imperialism (1800-1914), World War I, the Great Depression, World War II, the Cold War, liberalization (1960s-2000s), and the contemporary world.
MnTC Goal Area(s): 5, 8

HIST 1235 European History Ancient to 1500
3 credits (**Lecture**)
This course surveys European history from ancient times to the Renaissance. The events of this era are examined from political, economic, military, and social perspectives.
MnTC Goal Area(s): 5, 8

HIST 1236 European History, 1500 to Present
3 credits (**Lecture**)
This course presents an overview of European history from 1500 to the present, with an emphasis on political, social, and cultural developments. Topics include the Reformation, Europe advances, the Enlightenment and the age of science, absolutism and the rise of nation-states, the French Revolution and Napoleonic era, the Industrial Revolution, national revolutions, emergence of nation states, late nineteenth century imperialism, World War I, the Great Depression, World War II and its aftermath, the Cold War, and post-Cold War Europe.
MnTC Goal Area(s): 5, 8

HIST 1240 Minnesota History
3 credits (**Lecture**)
This course surveys the political, economic, and social growth of Minnesota from the era of contact between indigenous peoples and Europeans to the present. Students will learn about Minnesota's physical features, American Indians in Minnesota, the influx of Europeans into Minnesota, how Minnesota's political boundaries were formed, ethnic groups and immigration in Minnesota, and Minnesota economics and politics.
MnTC Goal Area(s): 5

HIST 1335 History of World War II
3 credits (**Lecture**)
This course surveys World War II, focusing on its origins, background, major military operations and events, conclusion of the conflict, and the advent of the Cold War. Included in the course is the study of the rise of dictators; diplomacy in the 1930's and 1940's; the major land, air, and sea battles; the great leaders; the "Home Front"; and the East-West divergence after 1945.
MnTC Goal Area(s): 5, 8

HIST 1340 Vietnam War
3 credits (**Lecture**)
This course surveys the United States' involvement in Vietnam, including Vietnam's early history, French colonial era, the Diem regime, the United States' combat commitment, the home front in North Vietnam, South Vietnam, and the United States; the war's expansion into Laos and Cambodia; peace negotiations; the United States' withdrawal; South Vietnam's fall; and the war's aftermath.
MnTC Goal Area(s): 5, 8

HIST 2135 The Holocaust
3 credits (**Lecture**)
Surveys the history of genocide in the 20th and 21st centuries and explains its historical origins. Focuses on examples of genocide (mass extermination of people based on ethnic origins, religious orientation, or national background) from ancient times to the present, focusing primarily on the Nazi Holocaust (1933-1945). Additional examples include genocide in the ancient world, North and South America, Australia, Africa, Asia, and Europe.
MnTC Goal Area(s): 5, 8

Human Services

HSER 1231 Introduction to Human Services
4 credits (**Lecture**)
This is a course designed to investigate the nature and scope of public service careers in a contemporary society. The course also examines the organizational structure of public service agencies and the effect that agency organization has on policy-making, planning, funding and relationships with other agencies. This course includes a 20-hour, outside of class, mini-internship.

HSER 1232 Helping Process
3 credits (**Lecture**)
This course is presented as a general concept which is useful in all professions and occupations whose task is to help people deal with their relationships to other people, solve problems which inhibit capacity for healthy growth and development, and cope with the many social and environmental concerns which affect and control daily life. The primary focus is on interpersonal and planning skills which help people to be more effective as practitioners within the human services. Prerequisite(s): HSER 1231

HSER 1233 Interviewing
2 credits (**Lecture**)
This course provides an analysis of the principles of interviewing; how to observe and communicate effectively, obtain information, give and interpret information, sense the impact of the situation on both the interviewer and the person being interviewed. This course is intended to develop a skill in establishing an interpersonal relationship. Prerequisite(s): HSER 1231

HSER 2220 Human Services Internship
Variable, 2 or 4 credits (**Internship**)
This course encompasses fieldwork experience in a Human Service agency. The emphasis is an ongoing practical experience in using the techniques and knowledge gained in the classroom. The level of work progresses from the simple to the more complex and is under the direct supervision of agency professionals and the field coordinator. A weekly seminar to discuss the field experience is also required. A total of four credits is required. Four credits may be taken in one semester or two credits may be taken in each of two semesters. Prerequisite(s): HSER 1231, HSER 1232, HSER 1233

HSER 2234 Crisis Intervention
3 credits (**Lecture**)
This course is designed for the Human Services or Chemical Dependency career-oriented student. Students will learn to differentiate between crisis intervention strategies and normative intervention techniques. Theoretical perspectives of crisis intervention will be examined with the student encouraged to design their own hypothesis. Students will gain required knowledge and skills through lecture-discussion, structured experiential learning exercises and videotaping of "Pseudo" intervention situations. Prerequisite(s): HSER 1231, HSER 1232, HSER 1233

Humanities

HUM 1215 Human Creativity and Culture
4 credits (**Lecture**)
Human Creativity and Culture is a broad overview of the human experience, through the "reflective modes" of human history, philosophy and religion and the "expressive modes" of the visual, performing and literary arts. This course introduces the student to the many ways individuals and societies throughout the ages and around the world have engaged in the pursuit of

understanding and expressing the human condition.
MnTC Goal Area(s): 6, 8

HUM 1235 War and Propaganda
3 credits (**Lecture**)
Examines the use of film during World War II era, and drawing upon German, English and U.S. film, illustrates the use of the medium as a most effective way of disseminating propaganda. Students are exposed to the opposing points of view held by World War II participants and learn techniques used by filmmakers to sway opinions.
MnTC Goal Area(s): 6, 9

HUM 1245 World Religions
3 credits (**Lecture**)
World Religions is an introduction to the origins, beliefs, and practices of the major religions of the world. This course covers the distinguishing characteristics of major religions, their historical development, and their influence on the world today. Through this course, students will reflect upon their own experiences with religion as well as gain a deeper understanding of and appreciation for the beliefs and traditions of others.
MnTC Goal Area(s): 6, 8

HUM 1325 Cultural Immersion
3 credits (**Lecture**)
This course is a unique hands-on cultural immersion, service learning opportunity with the intent to build understanding and create positive social change through informed action. Students will reflect on diversity and the human condition from a sociological, historical, philosophical and artistic point of view while living and working with a regional Native American community. We currently are partnered with the Red Cliff Band of Lake Superior Chippewa near Bayfield, Wisconsin, and the class will include a trip to Madeline Island.
MnTC Goal Area(s): 6, 9

HUM 1515 International Study Experience
Variable, 2, 3 or 4 credits (**Lecture/Lab**)
This course prepares students for global travel, and then includes an international travel experience. Preparation for the trip includes studying the language, geography, and culture of the target destination, and may include participation in making arrangements for the travel experience itself. Students will increase knowledge of international perspectives and cultures through a direct experience of those places.
MnTC Goal Area(s): 6, 8

Indigenous Studies

INST 1020 Introduction to Indigenous Studies
3 credits (**Lecture**)
This course provides an overview of Indigenous societies by using multidisciplinary tools and terminology to help the student understand the dynamics of Indigenous cultures from the American Indian perspective.
MnTC Goal Area(s): 5, 8

INST 1065 Survey of Indigenous Art
3 credits (**Lecture**)
This course will survey traditional and contemporary Indigenous Art from regions of North America to provide students with an understanding of the dynamics, history, and spiritual/religious significance and how it is reflected in tribal art.
MnTC Goal Area(s): 6, 7

INST 1140 Indigenous Philosophy
3 credits (**Lecture**)
This course is designed to provide students with an understanding and awareness of the native philosophical world views and examination of how these concepts compare and relate to those put forth by western people.
MnTC Goal Area(s): 6, 10

Industrial Mechanical Technology

IMT 1231 Industrial Accident Prevention 1
1 credit (**Lecture**)
The main purpose of this course is to introduce the student to industrial accident prevention/safety. The students will learn how to make safety a part of their daily life.

IMT 1232 Industrial Accident Prevention 2
1 credit (**Lecture**)
The main purpose of this course is to introduce the student to the practice of writing and implementing a safe working environment for all personnel. It will develop a students awareness to potential accident situations and help the student learn to avoid them. Prerequisite(s): IMT 1231

IMT 1235 Basic Hydraulics Symbols and Components
2 credits (**Lecture**)
This course covers the basic hydraulic and pneumatic symbols used in industry. The student will learn how these symbols are used and why they are depicted such as they are. The student will learn basic hydraulic schematic construction and hydraulic principles. The student will also learn the math which is needed in hydraulics.

IMT 1237 Elements of Mechanics - Equipment Operations
2 credits (**Lecture/Lab**)
The main purpose of this course is to introduce the student to simple machines, how they operate, and how they are used in combination to become compound machines that are used in industry. The student will also learn the math and measuring skills required when dealing with the elements of the mechanics and learn some of the equipment repair procedures as in found in industry. (This portion of the course is dependent upon equipment availability).

IMT 1238 Rigging
2 credits (**Lecture/Lab**)
The main purpose of this course is to introduce the student to the importance of proper rigging and lifting of a load with an overhead hoist or forklift. The student will learn to use proper rigging and hand signals to do the lift safely.

IMT 1241 Basic Blueprint Reading and Sketching 1
3 credits (**Lecture/Lab**)
The main purpose of this course is to introduce the student to blueprints and sketches. The student will learn how and why blueprints are developed as well as their use in industry. The student will also learn math and measuring required to do blueprint reading.

IMT 1242 Basic Blueprint Reading and Sketching 2
2 credits (**Lecture/Lab**)
The main purpose of this course is to introduce the student to blueprints and sketches. The student will learn how and why blueprints are developed as well as their use in industry. The student will also learn math and measuring required to do blueprint reading. Prerequisite(s): IMT 1241

IMT 1245 Lubrication and Bearings
2 credits (**Lecture/Lab**)
The main purpose of this course is to introduce the student to both lubrication and bearings. The lubrication portion will take the student from the beginning source of a lubricant right up to the selection and design of an automatic lubrication system set-up and operation. The bearing portion will allow the student to identify almost any type of bearing or seal and to know what functions he or she can expect from them as well as proper mounting, operation and inspection as is found in a variety of industries.

IMT 1247 Hydraulic Basics
3 credits (**Lecture/Lab**)
This course covers the basic use of hydraulic components used in industry. The student will learn how these components are used in a variety of applications. The student will also learn the math, which is needed in this type of application.

IMT 1251 Basic Maintenance Welding and Cutting 1
3 credits (**Lecture/Lab**)
The main purpose of this course is to introduce the student to welding and flame cutting. The student will learn the basics of arc weld and flame cutting with oxy-acetylene as used in industry.

IMT 1252 Basic Maintenance Welding and Cutting 2
3 credits (**Lecture/Lab**)
The main purpose of this course is to allow the student to become acquainted with some of the different types and positions of welding as used in industry. The student will also learn the math and nomenclature used with arc welding. Prerequisite(s): IMT 1251

IMT 1256 Drive Components and Troubleshooting
3 credits (**Lecture/Lab**)
The main purpose is to introduce the student to drive components and equipment operation, and learn the how and why of checking equipment before, during and after operating. The student will also learn about the set-up and maintenance of many of the drive components which are used in industry. The student will learn the math and blueprint reading and sketching to perform basic troubleshooting.

IMT 1257 Measuring Tools and Layout
1 credit (**Lab**)
The main purpose of this course is to introduce the student to measuring with a variety of instruments used in industry and to familiarize the student with layout tools and practices used in industry. The student will also learn the math used with layout and precision measuring.

IMT 2216 Electrical Safety
2 credits (**Lecture/Lab**)
This course provides a general knowledge of safety in industrial electrical systems and tools. The curriculum encompasses electrical safety and fundamentals of electricity as it pertains to the maintenance profession.

IMT 2225 Pumps
2 credits (**Lecture/Lab**)
This course describes the types of pumps and explains their operation and maintenance. It also explains about the packing, sealing, and lubrication, all of which are essential to good pump operation.

IMT 2231 Safety and Equipment Maintenance 1
3 credits (**Lab**)
The main purpose of this course will be to identify and operate different types of lab equipment, in a safe and proper manner. Prerequisite(s): IMT 1231, IMT 1232

IMT 2232 Safety and Equipment Maintenance 2
4 credits (**Lab**)
The main purpose of this course will be to explain proper safety procedures in the lab and on all the equipment the students will be using. This will ensure the students will operate all of lab equipment in a safe and proper manner. Prerequisite(s): IMT 1231, IMT 1232, IMT 2231

IMT 2242 Advanced Blueprint Reading
3 credits (**Lecture/Lab**)
This course will acquaint the student with advanced drawing of equipment and machinery form and as used in industry. Prerequisite(s): IMT 1241, IMT 1242

IMT 2251 Advanced Maintenance Welding and Cutting
3 credits (**Lecture/Lab**)
This course applies advanced skills in oxy-acetylene cutting and arc welding using E7018 and E6010 welding rod as used by maintenance person in the industry. Prerequisite(s): IMT 1251, IMT 1252

IMT 2261 Hydraulics and Schematics
3 credits (**Lecture/Lab**)
This course covers the fundamentals of schematic diagrams. It is designed to provide the student with a strong foundation for advanced work. The student will learn piping diagrams and fluid power diagrams. The student will study fundamental hydraulic principles. Prerequisite(s): IMT 1235, IMT 1247

IMT 2262 Pneumatics and Hydraulic Troubleshooting
3 credits (**Lecture/Lab**)
This course is intended to provide the basis for the study course using models that are designed for "hands-on" learning with an actual working hydraulic system. The main purpose of this course will be to learn how to recognize the elements of a hydraulic system and how to blend your knowledge of the individual components into a comprehensive knowledge of the entire system and to be able to troubleshoot the systems.

IMT 2265 Alignment and Introduction to Conveyor Systems
2 credits (**Lecture/Lab**)
This course describes the proper procedures for alignment on shafts, couplings, and conveyors. It also will identify the components of a conveyor system and how to perform effective maintenance on them. Prerequisite(s): IMT 1256, IMT 1257

Industrial Safety

ITSF 1225 OSHA 30 Hour Construction
2 credits (**Lecture**)
An Authorized OSHA 30 Hour Construction course with a completion card issued by OT/ (Outreach Technical Institute) Great Lakes located at the University of Cincinnati. This course is considered a supervisory level course that reviews OSHA standards under CFR 30 Patt 1925 as well as general safety and health provisions in several areas of the construction Industry. Upon completion, students are more knowledgeable about workplace hazards and their rights in the workplace. The issued card is a permanent lifetime card within Minnesota that is required by construction company supervisors working with state and federal contracts.

ITSF 1486 MSHA New Miner
1 credit (**Lecture**)
This course is a requirement for all newly hired mining employees. The content of this course is designed to familiarize the participants with the safety and health aspects of surface metal/non-metal mining occupations.

IT Network / Security

ITNS 1505 IT Essentials 1
4 credits (**Lecture/Lab**)
IT Essentials I is an introduction to IT support, networking and computer repair. This class is the first of two that prepares the student for the COMPMTIA A+ certification and IT support.

ITNS 1510 IT Essentials 2
4 credits (**Lecture/Lab**)
IT Essentials 2 is an extension of IT Essentials 1. With emphasis on support of portable computing devices, phones and customer service. This class is the second of two that prepares the student for the COMPMTIA A+ certification and IT support. Prerequisite(s): ITNS 1505

ITNS 1520 Introduction to Web Master
3 credits (**Lecture/Lab**)
Introduction to web master teaches students how to build functional and appealing Internet websites using readily available commercial software to design and construct web pages. Considers various website strategies and layouts that enable web users. Create web pages that integrate multimedia applications to present content in an attractive and user-friendly manner. Learn about measure of performance and how to test your website for functionality. Designed for students with a wide variety of backgrounds and interests, employing a hands-on approach.

ITNS 1601 Tech Writing Applications
2 credits (**Lecture**)
Tech Writing Applications covers writing documents needed in technical research, outlines, descriptions, tables, and various reports in the electronics and microcomputer industries. This includes different technical environments, and writing styles, and oral reports.

ITNS 1650 Introduction to Cloud Computing
2 credits (**Lecture/Lab**)
Cloud Computing teaches students the fundamentals of cloud technology and prepares students for the Amazon Web Services (AWS) Certified Cloud Practitioner Exam. AWS is widely recognized as a standard for cloud design, implementation, operations, and best practices. Designed for students with a wide variety of backgrounds and interests, employing a hands-on approach.

ITNS 2010 Linux Installation and Administration
3 credits (**Lecture/Lab**)
Linux Installation and Administration covers the basic methods used to install, configure, maintain, administer and troubleshoot the Linux operating system. Hands-on projects and exercises will reinforce installation and administration procedures. This course is designed to prepare students for Exams 1 and 2 of the SAIR/GNU Linux Certification-Level 1.

ITNS 2019 Windows OS
2 credits (**Lecture/Lab**)
Windows OS provides a consistent interface for all programs in the Microsoft Desktop Operating System. Topics include understanding operating systems, command line operations, troubleshooting tools, batch programs, and networking and Internet connecting.

ITNS 2020 Linux Networking and Security
3 credits (**Lecture/Lab**)
Linux Networking and Security covers the basic methods to configure, maintain and troubleshoot the Linux operating system to provide network connectivity and protect against security and privacy compromises. Hands-on projects and exercises will reinforce the importance of networking and security issues. This course is designed to prepare students for Exams 3 and 4 of the SAIR/GNU Linux certifications-Level 1. Prerequisite(s): ITNS 2010

ITNS 2095 SQL (Oracle) Programming
5 credits (**Lecture/Lab**)
In this course the student will learn basic database concepts. The student will learn how a database management system (DBMS) can be used to create, modify, and store data. Of particular importance is the design process. The design process includes creating an entity-relationship model (E-R model) and normalizing data through various stages. In turn the student will create and modify a database, learning how to manipulate data in the Oracle DB environment. The student will also install the Oracle system on a Linux server, maintain the Oracle Database

System and learn to make backups of all databases.

ITNS 2100 Computer Systems Internship
2 credits (**Internship**)
Computer Systems Internships provides hands-on experience on various components of client/server computer environment. Students may install software applications, operating systems, troubleshoot software/hardware problems, install, or repair network infrastructure, and assist computer users.

ITNS 2145 Microsoft MTA Server
4 credits (**Lecture/Lab**)
Windows Server provides coverage of the Microsoft Windows Server operating system. Hands-on projects and case projects reinforce the lessons on planning, installing, and managing Microsoft's flagship network operating system - skills that are in high demand in today's business environment. Microsoft-approved material is used designed to prepare individuals for Windows Server.

ITNS 2536 PC Systems 1 (Peripherals)
2 credits (**Lab**)
PC Systems 1 covers typical microcomputer systems and related peripherals, such as mother boards, drives and monitors. Topics include student repair and diagnostics of PC Systems and related peripherals. Included are industry standards, trends installation procedures, and maintenance procedures. PC Systems 1 is a work like atmosphere from which the students learn to work in a real time environment.

ITNS 2537 PC Systems 2 (Peripherals)
2 credits (**Lab**)
PC Systems 2 covers typical microcomputer systems and related peripherals, such as mother boards, drives and monitors. Topics include student repair and diagnostics of PC Systems and related peripherals. Included are industry standards, trends installation procedures, and maintenance procedures. PC Systems 2 is a work like atmosphere from which the students learn to work in a real time environment.

ITNS 2560 Wireless Network Administration
3 credits (**Lecture/Lab**)
The Wireless Network Administration training course offers detailed instruction on the foundation concepts and technologies of wireless data networking. Students will be trained in Site Survey, Hardware Installation, LAN Security, Antenna Design and Troubleshooting. Upon completion of the Wireless Network Administration course, students will be prepared to pass the CWNA Certification Exam (Exam #PW0-100) at Prometric or Vue testing centers.

ITNS 2580 IT Project Management
3 credits (**Lecture/Lab**)
The objective of this course is to prepare Information Technology students and employees with project management skills needed to develop and implement an IT project plan. This course will explain how to successfully manage an IT project and will also prepare students for CompTIA Project+ certification. Students use MS Project 2013 and will learn techniques to help them deliver IT projects on time, on budget and within the original project scope.

Law Enforcement

LAW 0900 Law Enforcement Program Preparation
3 credits (**Lecture**)
Law Enforcement Program Preparation focuses on reading of case law, statutes and program specific textbook material to acquire the skills necessary for effective college reading. These skills are achieved through both discussion and written analysis. Vocabulary expansion is achieved through learning context clues and individual practice. Regular practice to improve reading and comprehension skills is provided. Prerequisite(s): Enrollment in Learning Community.

LAW 1512 Minnesota Traffic Code
2 credits (**Lecture**)
Minnesota Traffic Code is an introduction to the elements of traffic offenses. These elements are analyzed and applied to hypothetical situations. Included are definitions and terms. This course covers instruction in Minnesota automobile insurance law (Chapter 65B), motor vehicle registration law (Chapter 168), traffic law (Chapter 169), and driver's license law (Chapter 171).

LAW 1520 Minnesota Criminal and Traffic Statutes
4 credits (**Lecture**)
Minnesota Criminal Code covers a study of MN Chapter 609 of the Minnesota State Statutes, as well as selected statutes used more frequently by law enforcement officers. Traffic Law is an

introduction to the elements of traffic offenses. These elements are analyzed and applied to hypothetical situations. Included are definitions and terms. This course covers instruction in Minnesota automobile insurance law (Chapter 65B), motor vehicle registration law (Chapter 168), traffic law (Chapter 169), and driver's license law (Chapter 171). These statutes are analyzed and applied to hypothetical situations. Included are definitions and terms.

LAW 1528 Police and Community
3 credits (**Lecture**)
Police and the Community provides a practical overview of key issues, questions and concepts related to police interaction with communities. Topic areas include ethics, leadership, diversity, problem-solving and communication. Prerequisite(s): LAW 1510

LAW 1538 Juvenile Justice and Delinquency
3 credits (**Lecture**)
Juvenile Justice and Delinquency emphasizes the origin, development, organization, functions, and jurisdiction of the Juvenile Justice System in America, with emphasis on the MN Juvenile Justice System. Topic areas include processes and detention of juveniles; constitutional protections extended to juveniles; case disposition, juvenile statutes and court procedures relative to juvenile offenders, laws and procedures regarding child abuse, child neglect, juvenile records and juvenile court process.

LAW 1544 Police Report Writing
3 credits (**Lecture/Lab**)
Police Report Writing is a study of the importance of taking effective complete notes, then transcribing the information into clear, complete, concise, police reports. This includes preserving a chain of evidence through accurate reports. The common types of report forms currently in use are included. Writing complete and accurate police reports will be required. Prerequisite(s): ENGL 1231

LAW 1549 Police and Human Behavior
4 credits (**Lecture**)
Police and Human Behavior provides a practical overview of the interaction between police and the communities they serve. Topic areas include victimization, hate/bias motivated crimes, domestic abuse, people with disabilities and persons in crisis. Prerequisite(s): LAW 1510

LAW 1550 Street Survival
2 credits (**Lab**)
This course is designed for the new law enforcement cadet and is designed to enhance their physical fitness level with physical conditioning utilizing a rigorous exercise program combined with a martial arts style conditioning including sparring. The class will be taught in a disciplined martial arts atmosphere and will be structured to teach the cadet the skills they need to survive a street encounter using hand and foot striking techniques. The cadet will learn how to block and strike with their hands and feet through sparring exercises. The cadet should expect to be hit and to hit back in the exercises however, special equipment will be required. This course must have a doctor's sign-off for physical activity. This course is a prerequisite for the defensive tactics program. RESTRICTED TO LAW ENFORCEMENT STUDENTS ONLY. This course must have a doctor's signoff for physical activity. This course is a prerequisite for the defensive tactics program.

LAW 1595 Criminal and Civil Procedure
4 credits (**Lecture**)
Criminal and Civil Procedure provides a framework for criminal procedure including individual rights, the criminal court system, arrest, probable cause, admissions, confessions, identification procedures, and evidence. This course includes the study of the Bill of Rights, search and seizure, the exclusionary rule. The focus is to provide the entry level peace officer with a practical working knowledge of the constitutional issues that relate to the collection, recovery, and preservation of evidence in criminal cases. In addition, students will become familiar with the basics of law enforcement's role in civil issues.

LAW 2421 Traffic Enforcement
3 credits (**Lecture/Lab**)
Traffic Enforcement covers instruction and practical experience in radar operation, accident investigation, radio procedures, and defensive/evasive driving. Prerequisite(s): LAW 1520

LAW 2440 Firearms
3 credits (**Lecture/Lab**)
Firearms covers the use of deadly force, firearms safety, care and cleaning of service weapons, and firearms shooting principles. The course focuses on students' decision-making ability and

firearms shooting ability. Prerequisite(s): LAW 1520, LAW 1544, LAW 2511

LAW 2452 Interviewing Techniques
3 credits (**Lecture/Lab**)
Interviewing Techniques covers proper procedures for interviewing and interrogation of victims, witnesses, and suspects. This course explores interviewing burglary victims, robbery victims, sexual assault victims, and child victims as well as victims of other types of crime. Taking statements from victims, witnesses, and suspects will be included. Written reports will be expected on all projects. Prerequisite(s): LAW 1520, LAW 1544, LAW 1595

LAW 2460 Standardized Field Sobriety Testing
1 credit (**Lecture/Lab**)
Standardized Field Sobriety Testing covers instruction in DWI traffic enforcement, field sobriety testing, horizontal gaze nystagmus, and divided attention testing.

LAW 2511 Defensive Tactics and Physical Preparation
3 credits (**Lab**)
Defensive Tactics includes basic techniques on how to best defend against certain common types of attack and the reasonable force necessary to overcome the resistance being offered. Analyses of physical confrontations and principles are demonstrated with practical exercises. This course aids in reducing the likelihood of injury to the peace officer, minimizing the use of excessive force, and creating a positive self image with physical and mental conditioning. Prerequisite(s): LAW 1550

LAW 2531 Basic Firearms
1 credit (**Lab**)
Basic Firearms includes basic fundamentals of handgun shooting. Nomenclature of firearms, use of force, and statutes regulating use of force. (Requires enrollment in the Law Enforcement program and instructor permission.)

LAW 2534 Drug and Gang Investigation
3 credits (**Lecture/Lab**)
Drug and Gang Investigation follows a lecture and discussion format. Both licit and illicit substances and implications for their use and abuse are presented. Drug abuse prevention, enforcement, and drug identification are explored. The social and health consequences of these drugs are discussed followed by an in-depth review of the drugs most commonly abused in our schools and neighborhoods. An overview of the international and domestic drug trafficking problem is offered providing an understanding of the origins of illicit drugs. Finally, drug-related crime is discussed in the context of predatory, political, and criminal behavior related to the drug trade. Prerequisite(s): LAW 1520

LAW 2536 Police Operations
4 credits (**Lecture/Lab**)
Police Operations covers the types and methods of patrol and factors involved in one's perception and observation of others. Factors, duties related to patrol, and basic communication systems are included. Proper patrol techniques relative to pedestrian approaches and field interrogations as well as handling inebriates and crisis situations are explored. This course also provides an opportunity to experience training for night conditions. Traditional law enforcement training has found to limit night training for various reasons. Considerations should be given to provide training not only during daylight but in night conditions also. Training that reflects actual work conditions assists in identifying problem areas that require special attention of officers to conduct their duties both effectively and safely.

This course also covers the knowledge and skills to preserve the peace and tranquility of the community and to protect the lives and property of the people who live in and visit that community. The focus of this course is on patrol functions and patrol techniques relative to beat patrol. Practical exercises are used to demonstrate safe and effective tactics. Officer survival, crime in progress, felony in progress, person searches, vehicle stops, building searches, disturbance, handcuffing, hostages and barricaded suspects, and field problems are demonstrated with examples and lecture. Prerequisite(s): LAW 1520, LAW 1544, LAW 1595, LAW 2511

LAW 2540 POST Prep
1 credit (**Lecture**)
POST Prep covers a review of the Minnesota Professional Peace Officer Education Program objectives. The purpose of this course is to prepare the student to take the peace officer licensing exam. (Must be enrolled in final semester of accredited PPOE program including the clinical skills component, or have completed an accredited PPOE program including clinical skills component.)

LAW 2550 Field Training Experience
2 credits (**Lab**)
Field Training Experience will provide practical training by the Hibbing Police Department Field Training Officers. Students will ride along with full time officers. Students will be expected to complete the daily task of a police officer. Prerequisite(s): Completion of 32 first-year credits or equivalent of same.

LAW 2595 Criminal Investigation
3 credits (**Lecture/Lab**)
Criminal Investigation is a study of the responsibilities and duties of the first officer on the scene conducting a preliminary investigation. This course also includes techniques to investigate the crimes of theft, forgery, auto theft, burglary, robbery, assaults, sexual assaults, arson, bombs, explosives, vice, and death. Prerequisite(s): LAW1544; Police Report Writing (may enroll concurrently) or Instructor Approval

LAW 2596 Crime Scene Processing
2 credits (**Lab**)
Crime Scene Processing is a study of the responsibilities and duties of the first officer on the scene conducting a preliminary investigation of a crime scene. Included are the recognition, preservation, and recovery of physical evidence, crime scene photography, sketching, and the recovery of latent fingerprints. Students will learn skills needed to "book" prisoners such as taking rolled fingerprints. May take prerequisites concurrently. Prerequisite(s): LAW 1520, LAW 1544, LAW 1595

LAW 2597 Spontaneous Knife Defense
1 credit (**Lab**)
Spontaneous Knife Defense includes understanding the different forms of knife attacks and how to defend against those attacks. This course aids in reducing the likelihood of serious injury to the officer while creating a positive self-image with physical and mental conditioning.

Law Enforcement Skills

SKL 2661 Patrol Practicals
3 credits (**Lecture/Lab**)
Patrol Practicals covers the types and methods of patrol and factors involved in one's perception and observation of others. Factors and duties relative to patrol and basic communication systems are covered. Proper patrol techniques relative to pedestrian approaches and field interrogations are explored. Handling inebriates and crisis situations are included. This course includes knowledge and skills to preserve the peace and tranquility of the community and to protect the lives and property of the people who live in and visit that community. This course focuses on patrol functions and patrol techniques relative to beat patrol. Practical exercises are used to demonstrate safe and effective tactics. Officer survival, crime in progress, felony in progress, person searches, vehicle stops, building searches, disturbance, handcuffing, hostages, barricaded suspects, and field problems are demonstrated with examples and lecture. Prerequisite(s): LAW 1520 Minnesota Criminal and Traffic Statutes or Skills Director Approval, SKL 2667: Defensive Tactics, SKL 2666: Traffic Enforcement; LAW 1595: Criminal and Civil Procedure; LAW 1544: Police Report Writing, SKL 2664: Firearms and LAW 2595 Criminal Investigations.

SKL 2664 Firearms
3 credits (**Lecture/Lab**)
Firearms covers the use of deadly force, firearms safety, care and cleaning of service weapons, and firearms shooting principles. The course focuses on students' decision-making ability and firearms shooting ability. Prerequisite(s): LAW 1520 Minnesota Criminal and Traffic Statutes or Skills Director Approval; LAW 1544: Police Report Writing, and SKL 2667: Defensive Tactics

SKL 2666 Traffic Enforcement
2 credits (**Lecture/Lab**)
Traffic Enforcement covers instruction and practical experience in radar operation and DUI detection, testing, and processing. Accident investigation and evasive driving are also components. Students demonstrate their ability in simulated situations through the use of appropriate methods and by preparing concise, accurate reports. Elements of traffic offenses are analyzed and applied to hypothetical situations. Definitions and terms are included. Students learn the basic theory and use of radar and current trends of violations and arrest. Accident investigations focus on basic on-scene investigations of traffic accidents. Evasive driving focuses on driving maneuvers. Prerequisite(s): LAW 1520 Minnesota Criminal and Traffic Statutes; or with Skills Director Approval.

SKL 2667 Defensive Tactics
2 credits (**Lecture/Lab**)
Defensive Tactics includes basic techniques on how to best defend against certain common types of attack and reasonable force necessary to overcome the resistance being offered. Analyses of physical confrontations and principles are demonstrated with practical exercises. This course aids in reducing the likelihood of injury to the peace officer, minimizing the use of excessive force, and creating a positive self image with physical and mental conditioning.

SKL 2668 Crime Scene Processing & Investigation
2 credits (**Lecture/Lab**)
Crime Scene Processing and Investigation covers a study of responsibilities and duties of officers conducting a preliminary investigation of a crime scene including recognition, preservation, recovery of physical evidence, crime scene photography, sketching and recovery of latent fingerprints. The course focuses on lab activities, developing skills relative to crime scene processing, evidence preservation. This course also covers proper procedures for interviewing and interrogation of victims, witnesses, and suspects. Prerequisite(s): LAW 1595: Criminal and Civil Procedure; LAW 1544: Police Report Writing; LAW 2995: Criminal Investigation.

Mathematics

MATH 0100 Pre Algebra
2 credits (**Lecture**)
This course prepares students to take Introductory Algebra(MATH 0200). Topics include solving arithmetic problems involving integers, fractions, and decimals, and using the basic operations of addition, subtraction, multiplication, and division.

MATH 0200 Introductory Algebra
4 credits (**Lecture**)
This course prepares students to take Intermediate Algebra(MATH 0300), Liberal Arts Mathematics(MATH 1200) or Statistics(MATH 1215). Topics include properties of real numbers; simplifying algebraic expressions; solving equations and inequalities; graphing linear equations; solving applications; and polynomial operations. Prerequisite(s): MATH 0100

MATH 0300 Intermediate Algebra
4 credits (**Lecture**)
This course is a continuation of Introductory algebra(MATH 0200) and prepares students to take College Algebra(MATH 1220) or Precalculus(MATH 1300). Topics include factoring; linear and quadratic functions; exponents; complex numbers; polynomial, radical, and rational expressions; solutions of linear, quadratic, rational, absolute value, exponential, radical equations; and inequalities. Prerequisite(s): MATH 0200

MATH 1100 Math for Elementary Education
3 credits (**Lecture**)
This is a beginning course introducing mathematics topics for elementary educators. This course meets or helps to meet the Board of Teaching (BOT) topics in arithmetic competencies. The topics will include foundations of arithmetic operations (addition, subtraction, multiplication, and division) with whole numbers, number patterns and number theory (fractions, decimals and integers), number systems, Base 10 and other bases, measurement, and NCTM Principles. The course will have a balance between what to teach (content and concepts), and how to teach (processes and communication). Prerequisite(s): MATH 0200

MATH 1120 Technical Math
2 credits (**Lecture**)
This course uses a problem-solving approach to teach technical mathematical applications using geometric and algebraic methods.

MATH 1130 Applied Technical Math
2 credits (**Lecture**)
This course involves an integrated approach to higher-order problem solving strategies using algebra, geometry, and trigonometry.

MATH 1200 Liberal Arts Math
3 credits (**Lecture**)
Liberal Arts Math is a comprehensive Mathematics course for non-STEM majors. The course consists of an introduction to Mathematical systems and their applications to the real world. Prerequisite(s): MATH 0200
MnTC Goal Area(s): 4

MATH 1215 Statistics
4 credits (**Lecture**)
This course will include the study of descriptive statistics, probability, normal and binomial distributions, hypothesis testing, chi-squared,

estimation and sample sizes, correlation and regression, and analysis of variance. Prerequisite(s): MATH 0200
MnTC Goal Area(s): 4

MATH 1220 College Algebra
3 credits (**Lecture**)
College Algebra emphasizes the concepts of functions and solving equations. The course focuses on linear, quadratic, polynomial, rational, radical, exponential, logarithmic and inverse functions and their graphs. Prerequisite(s): MATH 0300
MnTC Goal Area(s): 4

MATH 1225 Trigonometry
2 credits (**Lecture**)
This course consists of right-angle trigonometry, Unit Circle trigonometry, laws of sines and cosines, applications, trigonometric identities, equations, and graphing, and inverse trigonometric functions. Prerequisite(s): MATH 0300
MnTC Goal Area(s): 4

MATH 1300 Precalculus
5 credits (**Lecture**)
Precalculus begins with the concepts of functions and solving algebraic equations. The course covers polynomials, rational, radical, exponential, logarithmic, and inverse functions and their graphs. The Trigonometric portion of the course consists of right-angle trigonometry, laws of sine and cosine, applications, trigonometric identities, and graphing. Prerequisite(s): MATH 0300
MnTC Goal Area(s): 4

MATH 1311 Calculus 1
5 credits (**Lecture**)
This course examines limits, continuity, fundamentals of differentiation and integration of functions of one variable, and applications of differentiation and integration. Prerequisite(s): MATH 1220, MATH 1225, MATH 1300
MnTC Goal Area(s): 4

MATH 1312 Calculus 2
4 credits (**Lecture**)
This course is a continuation of the study of Calculus, including differentiation and integration of the transcendental functions: logarithmic, exponential, inverse trigonometric, hyperbolic, and inverse hyperbolic. This course covers techniques of integration, infinite series, conic sections, parametric curves and polar coordinates. Prerequisite(s): MATH 1311
MnTC Goal Area(s): 4

MATH 2313 Calculus 3
4 credits (**Lecture**)
This course covers vectors and analytic geometry in space; vector-valued functions and motion in space; calculus of functions of several variables; multiple integration and applications; vector analysis including line integrals, surface integrals, Green's Theorem, and Stokes Theorem. Prerequisite(s): MATH 1312
MnTC Goal Area(s): 4

MATH 2321 Differential Equations and Linear Algebra
4 credits (**Lecture**)
This course covers ordinary differential equations with emphasis on solution techniques and applications. It includes first-order equations, linear equations of higher-order, Laplace Transforms, and systems of differential equations. In the linear algebra component, it includes matrices, systems of linear algebraic equations, determinants, Eigenvalues and Eigenvectors, and Vector Spaces. Prerequisite(s): MATH 1312
MnTC Goal Area(s): 4

Medical Laboratory Technician

MLT 1412 Hematology 1
3 credits (**Lecture/Lab**)
This course introduces students to fundamental concepts in hematology including red blood cell development, normal physiology of red blood cells, and red blood cell disorders. The laboratory component complements the lecture and includes microscopic examination of blood and bone marrow slides and common laboratory testing by both manual and automated methods. Phlebotomy skills are introduced and are integrated throughout the course.

MLT 1423 Laboratory Techniques
4 credits (**Lecture/Lab**)
Laboratory Techniques is an introductory course covering the basic principles, procedures, and policies conducted in the hospital laboratory. Students will be introduced to the methodology and entry level techniques used in each department as well as mathematical calculations required in each. Students will explore options within the Medical Technician field as well as

behavioral and professional aspects of the career.

MLT 1424 Medical Microbiology 1
4 credits (**Lecture/Lab**)
Medical Microbiology 1 is the study of a wide variety of bacterial microorganisms frequently isolated in the clinical laboratory. Emphasis of the course is safety, staining, isolation, and identification of bacteria.

MLT 1425 Clinical Chemistry 1
2 credits (**Lecture**)
Clinical Chemistry 1 covers detailed theory and representative laboratory analysis of carbohydrates, lipids and lipoproteins, proteins, clinical enzymology and metabolic analytes including ammonia, bilirubin, blood urea nitrogen, creatinine, and uric acid. Basic quality control concepts are introduced within the context of instrumentation and quality control.

MLT 1432 Hematology 2
3 credits (**Lecture/Lab**)
This course covers peripheral blood and bone marrow abnormalities of white blood cells relating to malignancies such as leukemia, lymphoma, and multiple myeloma. The role of the laboratory in diagnosis, classification and assessment of treatment outcomes will be stressed. This course also introduces students to the principles and disorders of hemostasis and thrombosis and reviews hematology instrumentation and analysis of instrumental data. Laboratory time is devoted to microscopic examination of blood and bone marrow slides and performing common laboratory tests by both manual and automated methods. Prerequisite(s): MLT 1412

MLT 1445 Immunology
3 credits (**Lecture/Lab**)
Immunology covers the basic theory of cellular and humoral immunity with emphasis on antigen-antibody reactions in specific disease. Diagnostic principles and procedures involving the various laboratory techniques with disease correlations are emphasized.

MLT 2424 Medical Microbiology 2
4 credits (**Lecture/Lab**)
Medical Microbiology 2 is an advanced course which introduces clinically significant fungi, mycobacterium, parasites, viral agents, and less common bacterial organisms by organ system of the body. This course also covers specimen collection, specimen processing, and automated microbiology systems. Prerequisite(s): MLT 1424

MLT 2435 Urinalysis and Body Fluids Analysis
2 credits (**Lecture/Lab**)
Urinalysis and Body Fluid Analysis is designed to introduce the student to the importance of urinalysis and body fluids in the medical laboratory. Emphasis is on routine analysis including physical, chemical, and microscopic examination of urine specimens and related tests on other body fluids. Manual and semi-automated laboratory procedures are performed in the student laboratory.

MLT 2445 Clinical Chemistry 2
2 credits (**Lecture**)
Clinical Chemistry 2 covers detailed theory and representative laboratory analyses of the respiratory system and acid/base balance assessment, hepatic function and its measurements, renal function and its measurements, endocrine function, therapeutic drug monitoring and toxicology and basic nutrition. Prerequisite(s): MLT 1425

MLT 2466 Blood Bank
4 credits (**Lecture/Lab**)
Blood Bank introduces students to the theory and lab analyses of blood group antigens and antibodies of the ABO, Rh, and other major blood group systems. Introduction to blood banking practice includes anti-human globulin theory, and procedures including antibody detection and identification, compatibility testing, donor selection and testing, component processing and storage as well as hemolytic disease of the newborn, Rh immune globulin workup, and quality control. Prerequisite(s): MLT 1445

MLT 2510 MLT Seminar
2 credits (**Lecture**)
MLT Seminar provides students with an opportunity to apply their technical knowledge to laboratory case studies and to review major areas of the MLT curriculum with an emphasis on critical thinking skills. Students will have access to practice examinations in preparation for a comprehensive final. These review exams will cover the areas of: Immunohematology, Hematology, Coagulation, Clinical Chemistry, Microbiology, Urinalysis, Immunology, and Laboratory Operations. The examination questions will be developed from course test banks.

MLT 2590 Clinical Practicum
10 credits (**Internship**)
Clinical Practicum is a continuation of the cooperative learning experience provided by the Hibbing campus and affiliated clinical facilities. It consists of supervised application of learned theory and practice and acquisition of new skills in a clinical setting. Prerequisite(s): Completion of all MLT program courses with a letter grade of "C" or above.

Music

MUSC 1200 Music Appreciation
3 credits (**Lecture**)
Music Appreciation introduces the student to basic music concepts and listening skills. Concepts include basic music elements, music theory, musical forms, and musical styles and characteristics, including parallel historical, social, and cultural climate. The course is designed to broaden understanding, listening awareness, and sensitivity to a variety of musical styles.
MnTC Goal Area(s): 6

MUSC 1210 American Popular Music
3 credits (**Lecture**)
American Popular Music covers the diversity of American popular music through the study of musical styles that constitute popular music in America. It will explore the influence of diverse cultures on American popular music, including blues, jazz, rock-n-roll, country, folk, gospel, hip-hop, and other genres. The course is designed to develop listening skills and broaden an understanding of the historical development of musical styles, including an awareness of the dynamics of race and ethnicity in American culture through popular music.
MnTC Goal Area(s): 6

MUSC 1220 Rock n Roll A Short History
3 credits (**Lecture**)
This course will provide an overview of the history of rock music and the cultural diversity that gave rise to it, beginning with its roots in blues, R&B, and country to its ascendancy. The impact that rock music has had on the political and social scene, and on world music in the 20th century to the present, will also be explored.
MnTC Goal Area(s): 6, 7

MUSC 1230 World Music
3 credits (**Lecture**)
World Music exposes students to music from various parts of the world and examines the many genres of music and how they function in the global community from the past to the present. The course will focus on the elements and principles of music (pitch, melody, rhythm, texture, timbre, voice and instruments, performance practices) in a global context so that students will acquire the necessary tools for listening and understanding the impact of music on the peoples of the world and on our roles as citizens in a changing global environment.
MnTC Goal Area(s): 6, 8

MUSC 1300 Applied Music Lessons
1 credit (**Private Lesson (30 min)**)
These individual lessons are designed for students at the beginning or elementary level of vocal or instrumental instruction who have little or no experience. This course includes basic music theory and performance practices, including exploring various genres through experience with a variety of repertoire. This course may be repeated for a maximum of four (4) credits.
MnTC Goal Area(s): 6

MUSC 1515 Music Theory Fundamentals
3 credits (**Lecture**)
Music Theory Fundamentals is designed to give students a basic background in music theory. The course covers basic concepts of musical elements (Western and non-Western) and notation, including various scale patterns, key signatures, rhythm, chords, composition, ear training, and simple instrument playing. Includes an exploration of how music has changed through time and how music genres reflect their cultural backdrop. Prior experience with musical instrument playing or note reading is helpful, but not required.
MnTC Goal Area(s): 6

MUSC 2300 Advanced Applied Music Lessons
1 credit (**Private Lesson (30 min)**)
These individual lessons are designed for students at the intermediate or advanced level of vocal or instrumental instruction and who have some experience in technical proficiency. This course includes music theory, and various genres, styles and performance practices appropriate to the genre and time period and includes some sort of public performance.
MnTC Goal Area(s): 6

Natural Resources Technology

NRT 1211 Forest Field Skills
3 credits (**Lecture/Lab**)
This course introduces students to basic field techniques, measurements, and terminology encountered in natural resource management. The development of skill in basic surveying/orienteering and safe, efficient use of field equipment is emphasized.

NRT 1212 General Forestry
2 credits (**Lecture/Lab**)
This course is a study of basic principles of forest resource management, including the history of forestry in the United States and an overview of present forestry practices. Lab exercises introduce the basic skills, tools, and concepts of forest management. Prerequisite(s): NRT 1211

NRT 1214 Natural Resource Careers
1 credit (**Lecture**)
Students are introduced to career opportunities and the necessary procedures for obtaining employment in natural resources. Topics include the summer field experience, job applications, interviews, and specific employment opportunities. Job search techniques will emphasize web-based applications, announcements, and resumes. This course also examines the personal characteristics and work habits required for successful job performance. (Cross-listed course; students can enroll only in FORT 1214 or NRT 1214.) Prerequisite(s): BIOL 1255, NRT 1211, NSCI 1265

NRT 1221 Fire Training and Mechanical Skills 1
1 credit (**Lab**)
Fire Training and Mechanical Skills 1 is the Wildland Firefighting component in a series of skills courses. Students will be introduced to wildland fire statistics, terminology and practices within the United States, and will receive 32 hours of classroom/lab training as required by the National Interagency Fire Qualification System. This includes S-130 Basic Firefighter Training, S-190 Introduction to Fire Behavior, and L-180 Human Factors on the Fireline. The National Incident Management System (NIMS) training, IS-100 Incident Command, will be required as an online assignment outside of classroom time. Many units are designed to be taught in either the classroom or the field, depending upon weather conditions. Prerequisite(s): NRT 1211

NRT 1222 Fire Training and Mechanical Skills 2
1 credit (**Lab**)
Fire Training and Mechanical Skills 2 is the Wildfire Power Saws component in a series of skills courses. Students will be introduced to the function, maintenance and use of internal combustion engine powered chain saws, and their tactical wildland fire application. Field exercises support entry level training for firefighters with little or no previous experience in operating a chain saw, providing hands-on cutting experience in surroundings similar to fireline situations. Students will receive a Bloodborne Pathogens training session which is required prior to the use of chainsaws and prior to awarding the S-212 Wildfire Power Saws certificate. Students will also be required to complete the Minnesota DNR ATV online training course and MN Snowmobile Safety as supplemental assignments related to travel to and from an incident or fuels reduction project. Prerequisite(s): NRT 1221

NRT 1223 Fire Training and Mechanical Skills 3
1 credit (**Lab**)
Fire Training and Mechanical Skills 3 is the Portable Pumps and Water Use component in a series of skills courses. Students will complete S-211 Portable Pumps and Water Use, covering three areas of skill: supply, delivery, and application of water. Students will demonstrate their knowledge of correct water use, basic hydraulics, and equipment care. The field exercise requires set up, operation, and maintenance of pump equipment. The State of Minnesota Online Boat Safety Certificate is required as a supplemental mechanical skill in aspects of navigation and travel to incidents. Prerequisite(s): NRT 1222, WILD 1271

NRT 1226 Principles of Wildlife Management
3 credits (**Lecture/Lab**)
This course covers the concepts and techniques used in the management of wildlife populations. Major course topics include population dynamics, habitat, predation, harvest, and wildlife legislation and policy. Identification of wildlife and the development of skill in basic wildlife research techniques are emphasized. Prerequisite(s): NRT 1211, WILD 1265

NRT 1265 Natural Resource Issues and Policies
3 credits (**Lecture**)
This course provides an understanding of past and present natural resource management

legislation, policy, values and issues impacted by the social and resource demands of society. Students will examine traditional and current economic, ethical, scientific and ecological principles and apply them to current issues of renewable resource management locally, nationally, and globally.(Cross-listed course; students can enroll only in NSCI1265 or NRT 1265.)
MnTC Goal Area(s): 10

NRT 1445 Mammal Tracking
1 credit (**Lecture**)
This course uses field-based projects to familiarize the student with the common mammals of northern Minnesota and the identification and interpretation of their tracks. It covers basic mammal life histories, habitat use and predator prey interactions.

NRT 1446 Field Biology
1 credit (**Lecture/Lab**)
This is a field-oriented course covering a broad range of data collection techniques in ecology, forestry and wildlife. Plant and wildlife sign identification are included as well as an introduction to basic map and compass skills.

NRT 1465 Introduction to Wolf and Deer Ecology
1 credit (**Lecture**)
This course covers the basic principles of wolf and deer ecology and includes lectures on life history, predator-prey interactions, social structures and communication. Wolf and deer research techniques will be introduced. (Cross-listed course; students can enroll only in BIOL 1465 or NRT 1465.)

NRT 2220 Natural Resource Technology-Forestry and Wildlife Internship
Variable, 1-6 credits (**Internship**)
This course provides structure to a work experience with an agency or company related to this career field. This internship will offer the opportunity for the student to further develop on-the-job experience related to this field of study and enhance future career options. Students will be expected to complete 80 hours of on-the-site work for each credit taken. The instructor/coordinator will oversee associated academic coursework. This course may be repeated once during a student's academic coursework. (Minimum 2.0 GPA required for registration.) Prerequisite(s): FORT 1214, NRT 1214, NRT 1225

NRT 2221 Land Surveying Internship
Variable, 1-6 credits (**Internship**)
This course provides structure to a work experience with an agency or company related to this career field. This internship will offer the opportunity for the student to further develop on-the-job experience related to this field of study and enhance future career options. Students will be expected to complete 80 hours of on-the-site work for each credit taken. This course may be repeated twice during a student's academic coursework. (Minimum 2.0 GPA required for registration.) Prerequisite(s): FORT 1214, NRT 1214, NRT 1225

NRT 2236 Land Surveying
3 credits (**Lecture/Lab**)
This is an introductory course in plane surveying that reviews the standard techniques and procedures necessary to survey forest land within the rectangular land survey system. Students are provided with the history of the rectangular land survey system and the opportunity to develop skills in locating boundaries and corners within the system. An application of Geographic Information System (GIS) principles and the basic operations of GPS and AutoCAD software as used in natural resource management applications are included. Prerequisite(s): NRT 1211, NRT 2315

NRT 2238 Natural Resource Measurements and Remote Sensing
4 credits (**Lecture/Lab**)
This course engages students in classroom and field study of the basic terminology, principles, equipment, and skills required for land, wildlife and timber measurements, as well as field exercises utilizing commonly used natural resource measurements tools. The application of formulas, tables, tally sheets, and final reports is emphasized. This course is designed to prepare the student for more specific and detailed exercises in Forest Measurements (NRT-2251) and Wildlife Measurements (NRT-2252). Introduced are the basic concepts of statistics, as typically applied to natural resource measurements. The course covers the basic terminology, techniques, and skills necessary for the interpretation of aerial imagery used in natural resource management, utilizing physical aerial photos and also digital imagery. Prerequisite(s): NRT 1212, NRT 1226, NRT 2220

NRT 2241 Forest Ecology and Silviculture
3 credits (**Lecture/Lab**)
Introducing terminology, concepts, and techniques involved in silviculture, the theory of controlling the establishment, composition, and growth of forest stands, emphasis is on management for timber/ forest products. Other landowner objectives such as wildlife, recreation, and aesthetics are included. The principles, equipment, and techniques used in modern forest harvesting in the Lake States, an examination of forest harvesting from the social, economic, and silvicultural standpoint, and field trips to managed forest stands and active forest harvesting operations are all included. Prerequisite(s): NRT 1212

NRT 2242 Silviculture II
4 credits (**Lecture/Lab**)
This course includes the principles and technical procedures used in the production and maintenance of forest stands for a variety of objectives. This course is a more thorough and detailed treatment of the subject material covered in Forest Ecology and Silviculture, NRT 2241. Forest management for the protection from insects and diseases and control strategies for specific forest health hazards are covered. Actual field applications of silvicultural techniques are included, along with field trips identifying stand management activities. Prerequisite(s): NRT 2238, NRT 2241, NRT 2248, NRT 2315, WSHD 2258

NRT 2248 Forest Products
1 credit (**Lab**)
Examine the forest products industry from social, political, historical, economic, and forest management perspectives. The basic principles of wood technology are tied to the major product categories. This course outlines specific forest product categories, their manufacturing processes, final product, and markets/ consumers. Timber sale and forest harvesting principles are included, as the first step in the forest product cycle. The silvicultural implications of forest management for different products are strongly emphasized. At least one field trip to representative forest product mill sites will be included. Prerequisite(s): NRT 1212, NRT 2220

NRT 2251 Forest Measurements
2 credits (**Lecture/Lab**)
This course is the field application of measurement techniques for forest management and research. Primary emphasis is on practical measurement scenarios commonly encountered by the field forestry technician. Application of techniques is achieved through class field exercises and projects. Prerequisite(s): NRT 2238, NRT 2241, NRT 2248, NRT 2315

NRT 2252 Wildlife Measurements
2 credits (**Lecture/Lab**)
This course presents the field application of measurement techniques for wildlife research and management. Experience and understanding of wildlife data collection is gained through class field exercises and participation in research and management projects with government agencies. Prerequisite(s): NRT 1212, NRT 1226, NRT 2238

NRT 2256 Surveying and Mapping Techniques in Natural Resources
2 credits (**Lecture/Lab**)
This course is a field study of land survey systems, including training in land navigation and corner location. It incorporates the utilization of GPS technologies to perform traditional natural resource surveying functions. Students will develop an understanding of the most current mapping and data retrieval systems through expanding their skills with GIS and CAD software to focus on spatial analysis, topographic surveys, boundary locations and map compilation. A capstone management project, using GPS and GIS technologies, is included. Prerequisite(s): NRT 2236, NRT 2241, NRT 2315

NRT 2257 Wildland Fire Control and Management
2 credits (**Lab**)
Introducing the student to common forest firefighter concepts and practices used throughout the United States, this course provides an opportunity to examine and discuss suppression equipment and techniques currently being used by U.S. Forest Service, National Park Service, and DNR in northern Minnesota. Topics will include an introduction to U.S. wildfire statistics including fire causes and the impact of forest wildfires. Management techniques and equipment for fire control are examined and skill development in fire control for both wildfires and prescribed fires will be assessed. As a lab based course, the student will be an active participant in fuel reduction projects and if logistically feasible, local agency prescribed burn efforts, where safety will be a primary focus. Prerequisite(s): NRT 1222, NRT 2236, NRT 2241

NRT 2315 Introduction to Geographic Information Systems
2 credits (**Lecture/Lab**)
This course is an introductory, lab-oriented course in GIS concepts, terminology, hardware, and current industry-standard software. This course allows students to develop an understanding of the most current mapping and data retrieval systems through an introduction to GIS software, spatial analysis, and map compilation. Lab exercises will demonstrate GIS technologies as a tool in natural resource management and several other professional fields. Prerequisite(s): NRT 1211, WQAL 1656, WSHD 1656

NRT 2710 Independent Study - Natural Resources
Variable, 1-3 credits (**Independent Study**)
This course is an opportunity to complete an independent project under faculty supervision. Registration is by petition, and requires instructor and provost approval.

Natural Science

NSCI 1131 Principles of Wildlife Management and Ecology
3 credits (**Lecture/Lab**)
Introduction to population factors, ecological processes, and techniques used to manage wildlife. Wildlife groups including big and small game, endangered waterfowl, and non-game also discussed. Recitation/lab sessions focus on specific topics such as law enforcement, population sampling techniques, fish identification and current management issues.

NSCI 1138 Natural Resources Law Enforcement
2 credits (**Lecture**)
Provides an understanding of the role enforcement plays in the overall management of natural resources and introduces students to Minnesota Statutes and Rules. Provides examples of techniques used to enforce resource laws as well as introduction to identification of both native and invasive species.

NSCI 1210 Physical Science
4 credits (**Lecture/Lab**)
This is a one semester course that will cover four areas of physical science. The chemistry portion will cover the periodic table, naming compounds and chemical reactions including those contributing to climate change. The physics portion will cover one-dimensional motion, Newton's Laws, conservation of energy and momentum, thermodynamics, electricity and magnetism, and alternative energy sources. The atmospheric science portion will cover Earth's atmosphere and its dynamics, weather patterns, and climate. The geology portion will cover surface processes, plate tectonics, rock types, and mineral resources. Laboratory is included. Prerequisite(s): MATH 0200
MnTC Goal Area(s): 3, 10

NSCI 1215 Earth Science
4 credits (**Lecture/Lab**)
An introductory investigation of dynamic and interacting physical systems and processes not limited to the major sub-disciplines of earth science including astronomy, geology, geography, geomorphology, hydrology, meteorology, oceanography, marine and terrestrial ecosystems. Cycles of matter and energy, resource use, human adaptations and sustainability are examined. The scientific method is presented as a process by which these complex systems can be studied and understood.
MnTC Goal Area(s): 3, 10

NSCI 1220 Environmental Science
3 credits (**Lecture**)
Students will be introduced to the fundamentals of environmental science by exploring basic ecological principles, human population, energy and natural resources, major environmental concerns, and environmental sustainability. Students will examine the environmental consequences of selected lifestyle choices and investigate local environmental issues. Students may earn credit for only one of the two Environmental Science courses (this course or NSCI 1221 Environmental Science with Laboratory).
MnTC Goal Area(s): 3, 10

NSCI 1221 Environmental Science with Laboratory
4 credits (**Lecture/Lab**)
Students will be introduced to the fundamentals of environmental science by exploring basic ecological principles, human population, energy and natural resources, major environmental concerns, and environmental sustainability. Students will examine the environmental consequences of selected lifestyle choices and investigate local environmental issues. The

laboratory component of the course will engage students in the scientific method and introduce them to a variety of techniques to monitor and assess environmental impact. Students may earn credit for only one of the two Environmental Science courses (this course or NSCI 1220 Environmental Science).
MnTC Goal Area(s): 3, 10

NSCI 1225 Meteorology
3 credits (**Lecture**)
The weather elements are studied in detail to determine how they produce our weather. A climatological approach is used to develop an understanding of the weather elements and their distribution over the continents.
MnTC Goal Area(s): 3

NSCI 1230 Introduction to Astronomy
3 credits (**Lecture**)
This is a concept-based astronomy course that covers our Solar System, our galaxy and our universe. Students will learn about phenomena on Earth caused by the Moon and the Sun, the motion of astronomical objects, how astronomers use light to study the universe, the different objects in the Solar System, stellar evolution, galaxies, and cosmology. Students may earn credit for only one of the two Astronomy courses (this course or NSCI 1231 Astronomy).
MnTC Goal Area(s): 3

NSCI 1231 Astronomy
4 credits (**Lecture/Lab**)
Foster an appreciation for the nature of our place in the universe as we investigate the science of modern astronomy. A wide variety of topics are explored, not limited to Earth-Moon-Sun Relationships, Planetary, Stellar, Galactic and Cosmological astronomy. Some laboratory sessions will be scheduled as evening activities. Concepts are addressed within the context of the scientific method. Students may earn credit for only one of the two Astronomy courses (this course or NSCI 1230 Introduction to Astronomy).
Prerequisite(s): MATH 0200
MnTC Goal Area(s): 3, 10

NSCI 1265 Natural Resource Issues and Policies
3 credits (**Lecture**)
This course provides an understanding of past and present natural resource management legislation, policy, values and issues impacted by the social and resource demands of society. Students will examine traditional and current economic, ethical, scientific and ecological principles and apply them to current issues of renewable resource management locally, nationally, and globally.(Cross-listed course; students can enroll only in NSCI1265 or NRT 1265.)
MnTC Goal Area(s): 10

NSCI 1305 Science and Society
3 credits (**Lecture**)
Science and Society is an interdisciplinary course that allows students to investigate current and historical issues in a variety of scientific fields through the lenses of ethics and impacts on society. Students will learn how to research topics using a variety of sources, analyze and validate information, distinguish between scientific evidence and pseudoscientific claims, and use evidence to support arguments. The process of scientific investigation, potential sources of bias and error, and the meaning of scientific consensus will be discussed, along with the roles and responsibilities of the media and government in both oversight and direction of research and of communicating scientific information to the public
MnTC Goal Area(s): 3, 9

NSCI 1310 Forensic Science
4 credits (**Lecture/Lab**)
Forensic Science is the application of basic principles and laboratory methods in chemistry, biology, and physics, to solving problems related to criminal justice and civil issues. This course emphasizes the scientific basis behind forensic applications such as identification of unknown substances, blood type and DNA comparisons, analysis of trace evidence, and environmental forensics, as well as crime scene analysis and proper collection of evidence.
MnTC Goal Area(s): 3

NSCI 2137 Fisheries and Aquatic Science
2 credits (**Lecture/Lab**)
This course will introduce students to the broad topic of fisheries and aquatic science. The course will include an overview of specific issues surrounding the management of fish and fisheries and students will learn taxonomic features of freshwater fish. Students will understand basic water chemistry and processes in managing water impoundments. Boat and water safety is also addressed in this course.

Nursing Assistant / Home Health Aide

NAHA 1100 Intro to Nursing Assistant/Home Health Aide
4 credits (**Lecture/Lab**)
This course covers the Introductory Theory and Skills of Nursing. The Units include maintaining a safe and clean environment, communicating information, meeting basic human needs, obtaining/measuring Vital Signs, understanding mental health and social service needs, and caring for clients with special needs, equipment or procedures. The course teaches the student to be able to perform these skills in a healthcare facility or home setting. Instruction is provided through lectures (in person and/or web based), videos, assignments, and Instructor demonstration. The students are given practice time in the lab and subsequently must give return demonstrations of skills learned. The students will experience supervised practical training and application of the skills learned by participating in client care in the skills lab and/or at the clinical site.

Nursing, Practical

PRNU 1125 Medical Math
1 credit (**Lecture**)
This course is designed to prepare students for safe medication administration in the areas of dosage calculation, medication label interpretation and syringe measurement.

PRNU 1204 Pharmacology 1
2 credits (**Lecture**)
This course presents basic principles of pharmaceuticals. Included in this course is information on pharmacokinetics, pharmacodynamics, accurate dosage calculations, common adverse/side effects, and contraindications to drug use with pharmacological interventions for management. Emphasis is placed on dosage calculation, drug classifications and nursing care related to the safe administration of medications to patients across the lifespan.

PRNU 1205 Health Needs for All Ages 1
4 credits (**Lecture**)
This course will develop the student's basic understanding of various health conditions, physiologic functions, developmental considerations, societal and nursing care needs of clients through out the life span. This course emphasizes the following: disease processes, diagnostic tests, pharmacology, medical/surgical treatments, nursing interventions, nutritional considerations and emotional needs. This includes specific pediatric, adult and geriatric concepts and information. The body systems included are integumentary, musculoskeletal, diabetes, neuro/sensory and the male and female reproductive systems.

PRNU 1208 Maternal/Child Health Nursing
2 credits (**Lecture**)
This course will develop the student's basic understanding of develop the student's ability to understand the care of the antepartum, intrapartum, and postpartum patient, the newborn, as well as assessment milestones of the well child. This course will specifically develop the student's understanding of various conditions affecting the status of prenatal care, labor and delivery of mother and care of the newborn. The course will also integrate the student learner outcomes, cultural implications and the emotional needs of patients important for providing safe, quality patient centered care.

PRNU 1210 Nursing Skills 1
3 credits (**Lecture/Lab**)
This course provides basic concepts, skills, and elements of nursing practice, which provides a foundation of knowledge by which the nurse is guided in giving care. Principles of nursing process, caring communication, ethical and legal issues, medical terminology and documentation, data collecting, client evaluation, sterile technique, wound healing, elimination, surgical care, various clinical procedures, and medication administration will be covered. Various skills essential to safe practices of nursing will be emphasized, demonstrated and tested.

PRNU 1212 Sim Lab: Nursing Basics
1 credit (**Lab**)
Simulation focuses on focused assessments and collecting data, implementing skills learned in the lab setting, documenting findings, prioritization, nursing judgment, communication skills, and reinforcing teaching plans for patients with common problems. Performance on the technical skills learned in Skills I will be formally evaluated. These skills will include vital signs, head-to-toe assessment, sterile technique, catheterization, and medication administration in the simulation lab.

PRNU 1213 Clinical 1
4 credits (**Lab**)
Clinical 1 provides the student an opportunity to apply nursing judgment using the nursing process to implement safe, patient/relationship centered care in selected settings. The clinical student focuses on focused assessments and collecting data, implementing skills learned in the lab setting, documenting findings and reinforcing teaching plans for patients with common problems. The student develops communication and customer service skills working with individual patients and team members.
This clinical experience occurs in a variety of settings: initially in long term care, transitional care, and the simulation lab. The last part of the course the students progress to primarily acute care facilities and ambulatory care, working with patients (including maternal/child/pediatric) across the health and age continuum. This may include a variety of additional settings such as home care, imaging, PT, RT.

PRNU 2204 Pharmacology 2
2 credits (**Lecture**)
This course presents additional basic principles of pharmaceuticals beyond Pharmacology 1. Included in this course is information on pharmacokinetics, pharmacodynamics, accurate dosage calculations, common adverse/side effects, contraindications to drug use, and fluid and electrolyte disturbances with pharmacological interventions for management. Emphasis is placed on select drug classifications and nursing care related to the safe administration of medications to patients across the lifespan. Prerequisite(s): PRNU 1204, PRNU 1205, PRNU 1208, PRNU 1210, PRNU 1212, PRNU 1213

PRNU 2205 Health Needs for All Ages 2
4 credits (**Lecture**)
This course will advance the student's understanding of various health/illness concepts and nursing care for patients of all ages. This course will expand the student's understanding of health conditions, emphasizing common medical/surgical problems that may require management in an acute care facility and with patients experiencing co-morbid diseases or emerging complications. Emphasis is placed on care of patients with endocrine, gastrointestinal - accessory organ, oncology, blood - lymphatic, cardiovascular, and respiratory system disorders. Each unit covers the following: disease process, diagnostic tests, pharmacology, medical/surgical treatments, nutrition, health/illness concepts and nursing interventions with focus on adult, geriatric and pediatric concerns. The course also integrates the student learner outcomes, cultural implications and the emotional needs of patients, important for providing safe, quality patient centered care. Prerequisite(s): PRNU 1204, PRNU 1205, PRNU 1208, PRNU 1210, PRNU 1212, PRNU 1213

PRNU 2207 Psychosocial Aspects of Nursing
2 credits (**Lecture**)
Psychosocial nursing care focuses on care of patients with psychiatric and behavioral disorders. Emphasis is placed on common psychiatric and behavioral disorders as well as promoting and maintaining the mental health of individuals. Prerequisite(s): PRNU 1204, PRNU 1205, PRNU 1208, PRNU 1210, PRNU 1212, PRNU 1213

PRNU 2208 Pediatric Intensive
1 credit (**Lab**)
Pediatric simulation focuses on focused assessments and collecting data, implementing skills learned in the lab setting, documenting findings, prioritization, nursing judgment, communication skills, and reinforcing teaching plans for pediatric patients. Lab-based learning includes pediatric head-to-toe assessment, pediatric concerns, and deviations in pediatric health in the simulation lab. Prerequisite(s): PRNU 1204, PRNU 1205, PRNU 1208, PRNU 1210, PRNU 1212, PRNU 1213

PRNU 2209 Role Transition
1 credit (**Lecture**)
This course will develop the student's basic understanding of legal, moral, ethical, cultural diversity and spiritual issues related to the scope of practice, licensure and employment. The content is intended to provide concepts needed to enable a smooth role transition from practical nursing student to Licensed Practical Nurse. The course will also integrate the student learner outcomes, cultural implications and the emotional needs of patients important for providing safe, quality patient centered care. Prerequisite(s): PRNU 1204, PRNU 1205, PRNU 1208, PRNU 1210, PRNU 1211, PRNU 1212, PRNU 1213

PRNU 2210 Nursing Skills 2
1 credit (**Lab**)
This course builds on the knowledge gained in Nursing Skills 1 and provides the concepts, skills, and elements of nursing practice that will guide

the nursing student in more advanced care of patients. Emphasis is placed on the knowledge of skills, equipment and care of patients with conditions of the musculoskeletal, respiratory, and gastrointestinal systems. IV therapy skills, equipment, theory and dosage calculation will be emphasized. Prerequisite(s): PRNU 1204, PRNU 1205, PRNU 1208, PRNU 1210, PRNU 1211, PRNU 1212, PRNU 1213

PRNU 2211 Clinical 2
4 credits (**Lab**)
Clinical 2 provides the student an opportunity to apply nursing judgment using evidence-based care, critical thinking and clinical judgment to implement safe, patient centered care to individual patients across the lifespan (including maternal/child/pediatric).

The clinical student reflects on the value of patient centered care, teamwork and collaboration, informatics, quality improvement, safety, managing care of the individual patient, and nursing judgment/evidence-based care.
This clinical experience occurs in a variety of settings: primarily acute care and ambulatory care, however may include a variety of additional sites such as home care, imaging, PT, RT, and schools with patients across the health and age continuum. The simulation lab will be utilized as well. Prerequisite(s): PRNU 1204, PRNU 1205, PRNU 1208, PRNU 1210, PRNU 1212, PRNU 1213

PRNU 2221 Integrated Practicum
2 credits (**Lab**)
This course facilitates the transition of the student to the role of a practical nurse in the clinical setting. Concepts related to management, teamwork and quality improvement through self-reflection on performance are emphasized as well as career development that may enhance career progression. Standards of practice and the importance of practicing according to state regulations and statutes for the scope of practice for the LPN are further emphasized and analyzed. This clinical course experience may allow students to care for multi-patient assignments and occurs in primarily the acute care and long-term care setting with individual patients across the life span; and includes simulation lab experience. A variety of additional sites such as hospice, home care, ambulatory care and assisted living may be used. The students will also attend and participate in a required live board review as part of the integrated practicum course. Prerequisite(s): PRNU 1204, PRNU 1205, PRNU 1208, PRNU 1210, PRNU 1211, PRNU 1212, PRNU 1213

Nursing, Associate Degree

NURS 0950 Essential Mathematics for Nurses
1 credit (**Lecture**)
This course covers mathematics for clinical calculations which includes: arithmetic review, drug measure systems, and reading medication labels. Ratio-proportion will be used to teach dosage calculations. This course is intended for students who have been admitted to the Nursing Program.

NURS 1250 Foundations of Nursing
8 credits (**Lecture/Lab**)
Foundations of Nursing presents a blend of fundamental nursing concepts that enable students to apply knowledge in nursing practice. The nursing process is the foundation of the course. Utilizing a wholistic approach, students focus on assessment techniques, communication skills, and nursing interventions in assisting the client to manage health stressors across the lifespan. Students build clinical expertise through demonstration, implementation, and evaluation of nursing skills in a variety of healthcare settings.

NURS 1350 Care of the Client Affected by Chronic Stressors
8 credits (**Lecture/Lab**)
Care of the Client Affected by Chronic Stressors presents common chronic stressors across the lifespan with a focus on primary, secondary, and tertiary prevention. Emphasis is placed on recognizing the interrelationship between chronic stressors and the nursing process as a means of planning and providing wholistic client care. Students demonstrate clinical competence while applying theory to practice in a variety of clinical settings. Prerequisite(s): NURS 1250

NURS 1750 Nursing Bridge
5 credits (**Lecture/Lab**)
The Nursing Bridge course builds on the foundation of knowledge acquired during previous nursing education. It is designed to facilitate the transition of the practical nurse to a level consistent with that of the student being prepared to write the NCLEX- RN. Utilizing a wholistic approach, students focus on developing expertise in the steps of the nursing process.

Nursing care of select chronic stressors will be presented through case study methodologies. Students demonstrate clinical competence while applying theory to practice in the clinical setting.

NURS 1755 Clinical Simulation in Nursing
1 credit (**Lecture/Lab**)
This elective course provides opportunities for hands-on experiential learning. Students will increase knowledge and further develop skills introduced in previous nursing courses. Simulation will integrate critical thinking and nursing skills essential for professional nursing practice utilized in the acute care clinical environment. This course will increase student competence and confidence. There will be in-class simulation preparation and no exams or quizzes. Prerequisite(s): NURS 0950, NURS 1250

NURS 2050 Care of Women and Children
4 credits (**Lecture/Lab**)
Care of Women and Children presents principles and concepts of maternal child nursing. Focuses include care of women of childbearing age, neonatal nursing, pediatric topics, and women's healthcare. Emphasis is placed on recognizing the interrelationship between stressors and the nursing process as a means of planning and providing wholistic client care. Students demonstrate clinical competence while applying theory to practice in a variety of clinical settings. Prerequisite(s): NURS 1350, NURS 1750

NURS 2150 Care of the Client Affected by Acute Stressors
5 credits (**Lecture/Lab**)
Care of the Client Affected by Acute Stressors presents acute stressors across the lifespan with a focus on primary, secondary, and tertiary prevention. Emphasis is placed on recognizing the interrelationship between acute stressors and the nursing process as a means of planning and providing holistic client care. Students demonstrate clinical competence while applying theory to practice in a variety of clinical settings. Prerequisite(s): NURS 1350, NURS 1750

NURS 2250 Care of the Client Affected by Complex Stressors
6 credits (**Lecture/Lab**)
Care of the Client Affected by Complex Stressors presents complex stressors across the lifespan with a focus on primary, secondary and tertiary prevention. Emphasis is placed on recognizing the interrelationship between complex stressors and the nursing process as a means of planning and providing wholistic client care. Students demonstrate clinical competence while applying theory to practice in a variety of clinical settings. Prerequisite(s): NURS 2150

NURS 2350 Foundations of Leadership
1 credit (**Lecture/Lab**)
Foundations of Leadership presents a framework for applying entry level leadership and management concepts to nursing practice. Students demonstrate clinical competence while applying beginning leadership skills in various clinical settings. Prerequisite(s): NURS 2150

NURS 2900 Transition To Practice Essentials
1 credit (**Lecture/Lab**)
Transition to Practice Essentials provides the second year nursing student opportunities to gain knowledge and skills necessary to successfully transition from student to registered nurse. The relationship between nursing education and current nursing practice is explored. Trends and issues in nursing will be integrated into the course. Self-selected job shadow of a registered nurse provides students a chance to examine the nurses role in delivering quality and cost-effective, patient-centered care in a clinical setting of interest.

NURS 2902 Cultural Diversity in Health Care: Community & Global Connections
2 credits (**Lecture/Lab**)
Cultural Diversity in Health Care is designed to provide the second year nursing students and/or practicing RNs an opportunity to develop skills working with culturally diverse individuals/groups and to attain cultural competence in the classroom and globally through a travel abroad clinical experience. The principles of best practice in relationship to work with vulnerable and marginalized communities including compassion, curiosity, courage, collaboration, creativity, capacity building, and competence will be explored. Prerequisite(s): Current enrollment in the Nursing Program and approval by nursing faculty. Nursing graduates and other healthcare professionals will be considered as space allows.

Outdoor Leadership

OUTL 1122 Backpacking
1 credit (**Lecture/Lab**)
This is a beginning course stressing technique and equipment related to overnight backpacking

trips. Safety and basic first aid, equipment selection and use, map and compass and route finding will be covered. Leave No Trace camping methods will be discussed. The course will feature a weekend wilderness camping trip. (Cross-listed course; students can enroll only in PHED 1122 or OUTL 1122.)

OUTL 1128 Canoeing
1 credit (**Lecture/Lab**)
This course covers basic canoe strokes, canoeing safety, care and use of equipment. Paddling skills are developed during canoe outings. The focus will be on students being able to plan and prepare for multi-day canoe trips in the Boundary Waters Canoe Area. (Cross-listed course; students can enroll only in PHED 1128 or OUTL 1128.)

OUTL 1134 Dogsledding
1 credit (**Lecture/Lab**)
This is an introductory course designed to give the student the skills and knowledge necessary for assisting in the care and operation of a dog team. The course includes lecture and field work in dogsledding history, equipment, and technique. Leadership, decision-making, teaching progressions and risk management will be covered as well as managing personal and group safety relating to dogsledding. Dogsledding trip included. (Cross-listed course; students can enroll only in PHED 1134 or OUTL 1134.)

OUTL 1143 Introduction to Mountain Biking
2 credits (**Lecture/Lab**)
This introductory course in mountain biking will teach students beginning to intermediate mountain bike riding technique, bicycle fit and sizing, safety, and trail etiquette. An emphasis will be placed on cross-country riding for fitness, strength and personal conditioning. Additionally, students will learn the history and culture of mountain biking, pathways to becoming a mountain bike coach/trip leader, the genesis of purpose-built trails and mountain bike parks in the region, cycling advocacy groups, and trail design and maintenance on public, private and reclaimed lands. (Student can earn credit in only one course, either OUTL 1143 or PHED 1143.)

OUTL 1146 Rock Climbing
1 credit (**Lecture/Lab**)
This beginning course in rock climbing stresses the proper use of safety equipment, knots, belaying systems, and techniques needed for ascending and descending cliffs. The focus is on top-rope climbing, site assessment, natural anchors, and group management. Weekend climbing sessions are required. (Cross-listed course; students can enroll only in PHED 1146 or OUTL 1146.)

OUTL 1148 Sea Kayaking
1 credit (**Lecture/Lab**)
This introductory course will cover flat water kayaking skills (strokes, maneuvers, etc.) and will include topics ranging in proper gear and equipment and use, personal preparedness for kayaking, group management on the water, teaching progressions related to kayaking and various weather and water conditions. Students are expected to participate in classroom and open water field trips as planned. It is recommended that a student have at least an intermediate swimming ability. (Cross-listed course; students can enroll only in PHED 1148 or OUTL 1148.)

OUTL 1152 Winter Camping
1 credit (**Lecture/Lab**)
This course is intended to familiarize the student with winter conditions and to provide the knowledge and experience necessary to safely enjoy camping in cold environments. Topics include shelter construction, equipment selection and use, cold injuries, campsite selection and minimum impact. A lab activity will encompass an overnight camping trip into/near the Boundary Waters Canoe Area Wilderness (BWCAW). (Cross-listed course; students can enroll only in PHED 1152 or OUTL 1152.)

OUTL 1210 Backpack Expedition
2 credits (**Lecture/Lab**)
This course familiarizes students with beginner to intermediate backpacking techniques and wilderness camping. Safety, trip planning, navigation, equipment selection, food preparation, Leave No Trace camping techniques, and group dynamics will be covered. This course meets a few times at the beginning of the semester and is taught in the field on an extended wilderness trip.

OUTL 1230 Canoe Expedition
2 credits (**Lecture/Lab**)
This course familiarizes students with beginner to intermediate canoeing techniques and wilderness camping. Safety, equipment selection, food preparation, Leave No Trace camping techniques, and trip planning will be

covered. This course meets a few times at the beginning of the semester and is taught in the field on an extended wilderness trip.

OUTL 1245 Leave No Trace Trainer Certification
1 credit (**Lecture/Lab**)
Successful completion of this course provides students with the professional certification at the Trainer level for Leave No Trace. This course teaches students the seven principles of Leave No Trace and techniques for disseminating these low impact skills in various back country and front country settings. LNT Trainer courses are designed for educators, guides, agency employees and other outdoor professionals. Successful graduates of the Trainer Course gain the skills to teach Leave No Trace techniques. Successful students will become certified Trainers in LNT and be able to offer training and courses to others through the LNT Center for Back Country Ethics.

OUTL 1251 Outdoor Pursuits 1
3 credits (**Lecture/Lab**)
This course outlines the knowledge, skills, techniques and instructional methods related to safe, educationally effective, and environmentally sustainable travel in the backcountry. The emphasis is placed on skills and educational delivery methods suited to three-season activities including land and water based travel. This course includes a field component.

OUTL 1252 Outdoor Pursuits 2
3 credits (**Lecture/Lab**)
This course outlines the knowledge, skills, techniques and instructional methods related to safe, educationally effective, and environmentally sustainable travel in the backcountry. The emphasis is placed on skills and educational delivery methods suited to winter season activities including skiing, snowshoeing, dog sledding, and winter camping. This course includes a field component. Prerequisite(s): OUTL 1251

OUTL 1255 Introduction to Outdoor Recreation Therapy
3 credits (**Lecture**)
This introductory level course in Outdoor Recreation Therapy is designed to give students foundational knowledge in the field of Therapeutic Recreation Services. Students will identify and examine unique recreation programs that offer opportunities to people with cognitive, physical, emotional, and developmental limitations. General therapeutic recreation practices including assessment, planning, implementation, and evaluation will be covered as they pertain to community, outdoor, and backcountry settings. Prerequisite(s): OUTL 1251, PREC 1241

OUTL 2210 Theory and Practice of Teaching Paddlesports
3 credits (**Lecture/Lab**)
This course will provide students with the knowledge and skills to teach beginning to intermediate paddlesports. Paddlesports incorporated into the course will include canoeing (flat and possibly moving water), coastal kayaking, and SUP (Stand Up Paddle-boarding). Each student will be assessed on their paddling ability in each discipline covered and will receive an American Canoe Association Skills Assessment card for whichever level they achieve. Prerequisite(s): OUTL 1230, OUTL 1251

OUTL 2220 Outdoor Leadership Internship
Variable, 1 or 2 credits (**Internship**)
This is a supervised field experience course whereby the student participates and/or works in a program related to the field of Outdoor Leadership. The student must complete 80 hours of work/participation for each credit in which they are enrolled. This internship is supervised in agreement between the instructor/program coordinator and supervisor at the program where the internship is to be completed. This course may be repeated once during a students academic coursework. (Minimum 2.0 GPA required for registration.) Prerequisite(s): OUTL 1210, OUTL 1230, OUTL 1251

OUTL 2225 International Internship
2 credits (**Internship**)
The international internship provides students with the opportunity to work directly with an outdoor education service provider in an international context. Although designed for the professional development of Outdoor Leadership students, others with an interest in the topic are encouraged to apply. By partnering with an established outdoor education program abroad, students and faculty will travel together as a group to the partner program's country and site, and, under supervision of that program, deliver outdoor and adventure education programming to that program's students. Emphasis is placed on practicing and honing outdoor leadership skills. Students will attend required weekly pre-

trip meetings throughout the semester before departing on a trip abroad of up to 21 days. This course also includes a student-led international expedition component whereby the group will plan and lead a cultural immersion and international experience in addition to working with the partner program. Students must be in good academic standing, have a valid passport, and be able to meet any border control, homeland security, and VISA requirements for any and all countries visited and egressed. Prerequisite(s): OUTL 1251

OUTL 2250 Outdoor Leadership Capstone
3 credits (**Lecture**)
This course examines the history, theoretical models, various program philosophies, instructional design, leadership techniques, legal issues, and safety management principles associated with the conduct of outdoor pursuits and adventure education programs. An emphasis is put on experiential learning theory and practice and how experiential learning is incorporated into programming for various population segments of society. Prerequisite(s): OUTL 1251, PREC 1241

OUTL 2255 Adaptive Techniques for Outdoor Pursuits
3 credits (**Lecture/Lab**)
This course focuses on the adaptive technology, equipment, and techniques required for providing outdoor recreational activities to people experiencing various disabilities. Recreation participant needs, limitations, and possibilities will be examined as well as the techniques required to adapt gear and equipment to special needs. The course will also examine various adaptive outdoor programs, legislation, and current practices. The lab portion will consist of engaging with adaptive recreation service providers, practicing adaptive techniques, and modifying equipment. Prerequisite(s): OUTL 1255

Paramedic

EMTP 1120 Paramedicine 1
3 credits (**Lecture**)
At the completion of this course, the paramedicine student will understand the roles and responsibilities of a paramedic within an EMS system, apply the basic concepts of development, path physiology and pharmacology to assessment and management of emergency patients, and communicate effectively with patients. Additionally the paramedicine student will be able to take proper history and perform comprehensive physical exam on any patient, communicate the findings to others, integrate path physiological principles and assessment findings to formulate a field impression and understand how to implement the treatment plan for the trauma patient and safely manage the scene of an emergency.

EMTP 1121 Paramedicine Skills 1
3 credits (**Lab**)
After completing this course, the paramedic student will be able to apply the basic concepts of development, path physiology and pharmacology to assessment and management of emergency patients, to be able to properly administer medications, and communicate effectively with patients, will be able to establish and or maintain a patent airway, oxygenate, and ventilate a patient, will be able to integrate path physiological principles and assessment findings to formulate a field impression and implement the treatment plan for the trauma patient, and communicate the findings to others, will be able to safely manage the scene of an emergency. Prerequisite(s): EMTP 1120

EMTP 1225 Pharmacology
2 credits (**Lecture**)
This course is an introduction to pharmacological interventions commonly used in the prehospital environment. It covers pharmacokinetics and pharmacodynamics of medications, administration routes, techniques and dosage calculations. Major categories of medications such as antiarrhythmics, analgesics, catecholamines, etc. will be introduced along with specific medications in each group. Prerequisite(s): EMTP 1120

EMTP 1235 Drug Dosage Calculations for the Paramedic
2 credits (**Lecture**)
This course addresses the need for emergency care providers to be able to learn the areas that pose consistent challenges to both students and practicing emergency healthcare providers. The following three areas are discussed and practiced throughout the course in order to meet the needs in the field of emergency medicine administration. Mathematics and fractions review, systems of measurement and drug dosage calculations.

EMTP 1245 Prehospital Advanced Life Support Orientation
1 credit (**Lab**)
This course will provide the student with an orientation to the role of the Advanced Life Support Provider, prehospital operations, and fundamental principles and skills involved in patient care. This will allow the student to observe Advanced Life Support and participate at a Basic Life Support level in providing prehospital patient care. Students will have an opportunity to acclimate to the Advanced Life Support setting while developing the psychomotor, cognitive and affective skills needed to prepare for their clinical experiences in the second semester.

EMTP 1250 Paramedicine 2
3 credits (**Lecture**)
At the completion of this course, the paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with respiratory problems and/or cardiovascular disease. Prerequisite(s): EMTP 1120, EMTP 1121

EMTP 1251 Paramedicine Skills 2
3 credits (**Lab**)
Skills covered include the basic and advanced skills required to properly manage respiratory and cardiac patients in the Prehospital environment. These skills include, but are not limited to, respiratory assessment, cardiac assessment, defibrillation, cardioversion, medication administration, cardiac rhythm interpretation and 12 lead monitoring. Prerequisite(s): EMTP 1120, EMTP 1121

EMTP 1320 Paramedicine 3
4 credits (**Lecture**)
At the completion of this course, the paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the pediatric, geriatric patients, and special situations.

EMTP 1320 Paramedicine 3
4 credits (**Lecture**)
At the completion of this course, the paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the pediatric, geriatric patients, and special situations.

EMTP 1325 Paramedicine 4
3 credits (**Lecture**)
This course will introduce the paramedic student into the operations and management of an Advanced Life Support Ambulance service. It will additionally discuss certain types of Rescue Operations which will be necessary for successful patient outcomes in the prehospital environment. Prerequisite(s): EMTP 1320

EMTP 1400 Advanced Cardiac Life Support (ACLS) Provider
1 credit (**Lecture**)
This course will result in the certification of Advanced Cardiac Life Support Provider from the American Heart Association. It covers all of the aspects of treating cardiac patients at the advanced level to include basic and advanced airway control, cardiac rhythm interpretation, medication administration, and post resuscitation management.

EMTP 1450 Pediatric Advanced Life Support (PALS) Provider
1 credit (**Lecture**)
This course follows the course standards of the American Heart Association for PALS. The course leads to certification as a PALS provider upon successful completion.

EMTP 1500 Advanced Medical Life Support (AMLS) Provider
1 credit (**Lecture**)
This course follows the course standards of the American Heart Association for PALS and NRP. The course leads to the awarding of certificates of successful completion.

EMTP 1550 Pre-hospital Trauma Life Support (PHTLS) Provider
1 credit (**Lecture**)
Students will order and interpret lab data appropriate to the clinical situation. Prerequisite(s): EMTP 1250, EMTP 1251

EMTP 1600 Neonatal Resuscitation Program (NRP) Provider
1 credit (**Lecture**)
This course will result in the certification from the American Heart association for NRP. The course leads to awarding of a certificate upon successful completion of the class.

EMTP 1650 Introduction to Prehospital Advanced Life Support
1 credit (**Lab**)
This course will provide the student with an introduction to the role of the Advanced Life Support Provider, prehospital operations, and fundamental principles and skills involved in patient care. This will allow the student to observe and participate at a Basic Life Support level in giving prehospital patient care. This introduction allows students to experience and develop the psychomotor, cognitive and affective skills needed to become an entry level paramedic.

EMTP 1700 Paramedic Clinical 1
1 credit (**Internship**)
This course provides the student a comprehensive hospital experience that provides the student an opportunity to apply didactic knowledge and obtain competence in skills learned in the classroom/lab setting while in a controlled clinical setting. Prerequisite(s): EMTP 1120, EMTP 1121, EMTP 1225

EMTP 1710 Paramedic Clinical 2
4 credits (**Internship**)
The course provides a comprehensive hospital experience that allows the student to apply program skills and knowledge with actual patients in a controlled clinical setting. This course covers clinical areas but not limited to include medical, cardiac, surgical, intensive care units, emergency department, and telemetry. The student will be exposed to areas such as respiratory, PAR, anesthesia, which vary year to year. Prerequisite(s): EMTP 1120, EMTP 1121, EMTP 1225, EMTP 1235, EMTP 1650

EMTP 1720 Paramedic Clinical 3
6 credits (**Internship**)
This course is a comprehensive hospital experience that allows the student to apply skills and knowledge gained in a controlled clinical setting. This course covers clinical areas to include (but may not be limited to) medical, cardiac, surgical, and intensive care units, emergency department, and telemetry. This course will include clinical rotations through labor and delivery, pediatrics, geriatrics, and other areas. The students will be exposed to areas such as respiratory, PAR, anesthesia, which vary year to year. Prerequisite(s): EMTP 1120, EMTP 1121, EMTP 1225, EMTP 1235, EMTP 1650

EMTP 1750 Paramedic Internship
6 credits (**Internship**)
This course covers the application of advanced level skills and knowledge in the evaluation and care of the prehospital patient. The paramedic student will be involved in providing patient care as a team member and as a team leader under the direct supervision of a staff paramedic along with all the typical follow-up procedures prior to and after a response.

EMTP 1800 ALS Ambulance Clinical
4 credits (**Internship**)
This course is designed to build upon the experience and skills the paramedic student has acquired to this time in an Advanced Life Support ambulance service. The student will enhance their knowledge and skills with the operations, procedures and care provided by the paramedic in the field. The student will be involved with BLS and ALS patient care and treatment provided under the supervision of a staff paramedic. Prerequisite(s): EMTP 1120, EMTP 1121, EMTP 1225, EMTP 1250, EMTP 1251

EMTP 2010 Hazardous Materials
1 credit (**Lecture**)
This course covers hazardous materials scene management for EMS personnel. Topics include identifying hazardous materials, scene safety, scene management, decontamination and scene access among others.

Parks and Recreation

PREC 1241 Introduction to Recreation, Parks, and Tourism
3 credits (**Lecture**)
An introduction to recreation in modern life this course covers the concepts, history and philosophy of recreation, leisure and tourism. Examination of the use, resources, issues and providers of outdoor recreation and exploration of careers and professional preparation, are included.

PREC 1252 Environmental Interpretation / Education
3 credits (**Lecture/Lab**)
In this introduction to the principles and practices used in environmental interpretation and education, students will apply communication psychology, interpretive principles and use varied media to interpret natural resource, outdoor recreation and environmental subjects. Students

will prepare talks, design interpretive displays, and conduct environmental education activities. Prerequisite(s): PREC 1241

PREC 1255 Search Management Systems
2 credits (**Lecture/Lab**)
This course will prepare agency personnel, wilderness leaders and emergency response volunteers to plan and implement a search for missing persons presumed lost. Through use of workbook exercises, case studies, outdoor skills practice and scenarios, students will learn incident management principles, search assumptions, resources, objectives and strategies to use in real life situations.

PREC 1435 Wilderness Survival
2 credits (**Lecture/Lab**)
This course introduces students to the basic decision-making and primitive field skills necessary for personal survival when confronted with unexpected, adverse and remote outdoor circumstances. Students will be able to prioritize human psychological and physiological needs under various environmental circumstances, and perform the decision-making and tasks necessary for survival.

PREC 2220 Wilderness and Park Management Internship
Variable, 1-6 credits (**Internship**)
This course provides structure to a work experience with an agency or company related to this career field. This internship will offer the opportunity to learn from on-the-job experience in outdoor recreation and resource protection while evaluating skills for career preparation. Students will be expected to complete 80 hours of on-the-site work for each credit taken. This course may be taken twice during a students academic coursework. (Minimum 2.0 GPA required for registration.) Prerequisite(s): BIOL 1255, NRT 1211, PREC 1252, WILD 1271

PREC 2256 Recreation Programming
3 credits (**Lecture**)
This course explores the purpose and planning of recreation activities and events, including the essentials and design concepts of program planning. Setting objectives, organizational activities and evaluation of programs will be covered. Emphasis is placed on student involvement in planning and conducting programs for diverse populations in a variety of physical settings. Prerequisite(s): OUTL 1251, PREC 1241, WILD 1265

PREC 2710 Independent Study - Parks & Recreation
Variable, 1-3 credits (**Independent Study**)
This course is an opportunity to complete an independent project under faculty supervision.

Personal Development

PDEV 1083 Service Learning Experience
Variable, 1-3 credits (**Internship**)
The Service-Learning Experience will examine concepts of experiential education, community service that meets community defined needs, and the responsibilities of being an engaged citizen. Students will explore and develop personal viewpoints on best practices in a field of interests through academic engagement experiences, assigned readings, critical thinking during reflection, meetings, journaling and reflection, and through a direct service experience. Students will select their own semester-long community service site/project, and if needed, receive assistance in securing a site. Students are expected complete 25 hours direct service per credit and approximately 15 hours of reading and writing per credit. Weekly hours are based on the number of credit hours and the term the student registers.

PDEV 1085 Intro to Personal Finance
1 credit (**Lecture**)
This course introduces students to basic money management skills. Learning activities and class discussions provide students with opportunities to apply course content to their personal lives. Through personal reflection and analysis, students will feel empowered to make financial decisions which support their educational, career, and personal goals. Prerequisite(s): Must be a member of TRIO Student Support Services

PDEV 1100 First Year Experience
3 credits (**Lecture**)
This is a 3 credit elective course, part of a fall Learning Community. This course will focus on practical information and strategies that will help you succeed as a college student. After a brief orientation to the culture of the college, the course will address various topics that are essential to preparing you for future studies, including note taking, reading strategies, test taking, time management, memory, and

communicating with fellow students and faculty members. Coursework will also include career decision making, as students will explore several occupational directions that fit your unique set of interests. In addition, the course will address information literacy competence, to help students understand how to locate, evaluate, and use research appropriately in a college setting.

PDEV 1105 College Life
1 credit (**Lecture**)
College Life is designed to promote academic and personal success in college. Students will identify factors that impact student success and will learn effective strategies to advance academic success and personal growth.

PDEV 1110 College Success Strategies
2 credits (**Lecture**)
In this course, students will be exposed to a variety of study skills and learn how to apply these skills to their college coursework. Students will also examine the attitudes, behaviors, and choices they make to determine their own best plan for success in college and beyond.

PDEV 1115 College Study Skills
3 credits (**Lecture**)
This course offers strategies for successful learning and problem solving in college and beyond. The course stresses how to determine one's own optimal learning style and how to utilize that style to be more engaged and a productive learner in the college setting. Topics such as test taking, note taking, time management, problem solving and decision making will be studied in depth. The course emphasizes taking control of one's own education and educational directions.

PDEV 1120 Career Exploration
1 credit (**Lecture**)
Students will explore their interests, personality, values, and skills and learn how these relate college majors and career options. Student will also research options and begin making decisions about careers and majors.

PDEV 1130 Employment Strategies
1 credit (**Lecture**)
In this course, students will develop strategies necessary for effective employment planning. Students will identify their own interests, skills, and values and analyze how those fit with their own career goals/objectives and the world of work. Students will be able to identify resources for employment opportunities, learn how to create job application correspondence (resumes, cover letters, reference page, and thank-you letters), and prepare for and participate in the job interview process. Additionally, students will gain an awareness of workplace expectations and workplace diversity.

PDEV 1155 Peer Leadership
1 credit (**Lecture**)
This course teaches skills in developing peer programs focusing on social educational topics pertinent to college students today.

Philosophy

PHIL 1200 Introduction to Philosophy
3 credits (**Lecture**)
This course is an introduction to philosophical inquiry. The student will gain an introduction to the major ideas, arguments, and philosophers in various categories of philosophical thinking, such as epistemology, ontology, ethics, logic, metaphysics, political and social philosophy, human nature, and aesthetics. From this foundation of basic ideas, the course guides students to examine their personal views by emphasizing the importance of critical thinking and analysis while respecting differing opinions.
MnTC Goal Area(s): 2, 6

PHIL 1205 Foundations of Philosophy
3 credits (**Lecture**)
This survey course in classical, Medieval, and modern philosophical thinking examines some ways in which historically humans have questioned reality, religious traditions, and knowledge, and how they have acted on those philosophical perspectives. The course offers topical backgrounds of philosophy while providing the tools to make reasonable, rational, and logical assessments of issues, especially issues related to ethical decisions.
MnTC Goal Area(s): 6

PHIL 1210 Critical Thinking
3 credits (**Lecture**)
This course is intended to provide students the opportunity to develop better critical thinking skills. These skills will assist students in thinking critically within society. Students will be introduced to inductive and deductive arguments and will learn about argument forms, parts of arguments, how to distinguish good arguments from poor arguments. Special attention will be paid to informal fallacies and common reasoning

errors. The course will present many examples of both classical and everyday arguments for students to assess as they develop their critical thinking skills.
MnTC Goal Area(s): 2, 6

PHIL 1215 Human Nature
3 credits (**Lecture**)
This course is intended to provide students the opportunity to explore classic questions about human nature and the answers that different cultures and thinkers have come to throughout history. Students will read works from the traditions of Confucianism, Upanishadic Hinduism, the Christian theological tradition, and Muslim tradition, as well as classic works in the Western philosophical and scientific tradition. Evaluation of examples from modern brain science and psychology will allow students to learn about how the brain shapes our ideas of ourselves and the world around us. Finally, the course will examine issues such as the impact of technology and the informational revolution on human living and the prospect of human development in the future. This course is intended for all students.
MnTC Goal Area(s): 6, 8

PHIL 1220 Environmental Philosophy
3 credits (**Lecture**)
This course applies a variety of ethical and philosophical theories to contemporary issues regarding the environment and how humans interact with the environment. A variety of ecological issues will be discussed from a variety of philosophical perspectives, and human responsibility and potential solutions will be analyzed. The influence of ethical and philosophical theories on aspects of these problems and their solutions will also be examined.
MnTC Goal Area(s): 6, 10

PHIL 1225 Philosophy of Religion
3 credits (**Lecture**)
This course will focus on the relationship of reason and religious belief. Topics and issues that may be explored include: religious experience, theistic arguments for the existence of God, the problem of evil, religious language, religious pluralism, the relationship of religion to science, the relationship between religion and morality, feminist concerns within religion, as well as a comparison of Western theism and Eastern religions. No previous knowledge/experience of philosophy is required. MnTC Goal Area(s): 6, 8

PHIL 1230 Ethics
3 credits (**Lecture**)
Ethics, utilizing the foundation of moral thinking dating back to ancient classical cultures, examines the thinking of the great philosophers throughout history and applies these concepts to contemporary problems facing today's citizens. Current moral issues are examined using the traditional concepts of good, right, duty, and responsibility. Using ethical theories such as Utilitarianism, virtue ethics, deontological ethics, and the thinking of philosophers such as Mencius, Rawls, Kant, Aristotle, Bentham, Floridi, and others, the student will develop a perspective for dealing with today's moral dilemmas. Students apply critical thinking skills to the development of their own value-based view of the world.
MnTC Goal Area(s): 6, 9

PHIL 1315 Logic
3 credits (**Lecture**)
This course is an introduction to a central part of Philosophy: the philosophical study of reasoning. Studies include the function and uses of language, the distinction between deductive and inductive arguments, methods for symbolizing and evaluating the validity of deductive arguments, and the detection of informal fallacies. Students will gain practical skills used in the evaluation of inductive and deductive arguments, which are applicable at all levels of reasoning.
MnTC Goal Area(s): 2, 4

Physical Education

PHED 1100 Wellness
2 credits (**Lecture**)
This course examines concepts associated with wellness. Topics include fitness, cardiovascular endurance, body composition, flexibility, muscular strength, muscular endurance, nutrition, stress management and disease prevention. The theme of taking responsibility for one's own wellness is reinforced throughout the course.

PHED 1101 Student Athletic Seminar
1 credit (**Lecture**)
This course is designed to provide strategies for college student athlete success. It will provide students with resources that will assist in their academic, athletic, financial and personal goals. Topics include academic expectations, social

behavioral expectations, leadership, college and community resources.

PHED 1110 Stress Management
3 credits (**Lecture**)
This course will examine holistic approaches to managing personal stress. Through the study of principles, theories and skills, students will identify individual life stressors and cognitive skills for stress management. Students will practice and learn a variety of stress management techniques for effective and comprehensive stress reduction.

PHED 1120 Archery
1 credit (**Lab**)
This is a beginning class of indoor archery target shooting using recurve bows of light to medium weight. This course also includes basic skills and techniques of archery such as bracing the bow, drawing and holding the bow properly. Safety and care of equipment is also covered.

PHED 1122 Backpacking
1 credit (**Lecture/Lab**)
This is a beginning course stressing technique and equipment related to overnight backpacking trips. Safety and basic first aid, equipment selection and use, map and compass and route finding will be covered. Leave No Trace camping methods will be discussed. The course will feature a weekend wilderness camping trip. (Cross-listed course; students can enroll only in PHED 1122 or OUTL 1122.)

PHED 1124 Bowling
1 credit (**Lab**)
Bowling emphasizes the basic bowling fundamentals of approach, stance, delivery, scoring, and converting splits. Classes will be held at a local bowling center or online.

PHED 1126 Bowling/Curling
1 credit (**Lab**)
Students will learn the fundamentals, terminology, scoring, rules, and etiquette of bowling and curling while participating recreationally.

PHED 1128 Canoeing
1 credit (**Lecture/Lab**)
This course covers basic canoe strokes, canoeing safety, care and use of equipment. Paddling skills are developed during canoe outings. The focus will be on students being able to plan and prepare for multi-day canoe trips in the Boundary Waters Canoe Area. (Cross-listed course; students can enroll only in PHED 1128 or OUTL 1128.)

PHED 1130 Conditioning for Athletics
1 credit (**Lab**)
This course allows for students to engage in physical fitness conditioning for interscholastic sports. Students are required to participate actively in an athletic conditioning program which is sport specific that will increase strength as well as aerobic capacity through a variety of activities. The student will build an understanding of sport specific training principles using various training methods. Overall, the course will help develop and prepare students to compete in interscholastic sports.

PHED 1132 Cross/Core Fusion
1 credit (**Lab**)
This course will use a combination of high intensity interval training, ballet barre, yoga sculpt and tabata style workouts as a way to improve cardiovascular endurance, muscle strength and endurance and flexibility.

PHED 1134 Dogsledding
1 credit (**Lecture/Lab**)
This is an introductory course designed to give the student the skills and knowledge necessary for assisting in the care and operation of a dog team. The course includes lecture and field work in dogsledding history, equipment, and technique. Leadership, decision-making, teaching progressions and risk management will be covered as well as managing personal and group safety relating to dogsledding. Dogsledding trip included. (Cross-listed course; students can enroll only in PHED 1134 or OUTL 1134.)

PHED 1136 Fitness and Conditioning
1 credit (**Lab**)
This course will introduce students to the basics of fitness and conditioning. Major components include agility, speed training, flexibility, plyometrics, aerobic training, and core strength development.

PHED 1138 Fitness Walking
1 credit (**Lab**)
Fitness Walking emphasizes walking as a lifetime fitness-enhancing activity. Topics covered include aerobic conditioning, target heart rates, selection of clothing and footwear, stretching exercises, planning personal programs,

motivational factors, nutrition and fitness, and keeping a walking logbook.

PHED 1140 Methods of Strength and Conditioning
1 credit (**Lab**)
This course will provide students with the knowledge of strength and conditioning programs current in today's practices. Students will have the opportunity to explore different approaches to improve overall fitness and health and apply this knowledge in the development of strength and conditioning programs. This course is a part of the coaching certificate.

PHED 1142 Mind & Body Fitness
1 credit (**Lab**)
Mind Body Fitness is a fitness class focusing on muscular strength, muscular endurance, flexibility and balance through mind body fitness activities. Students will participate in different styles of yoga, Pilates, mental focus and relaxation techniques. Students will learn basic health and fitness concepts as well as recognize behaviors that lead to a healthy lifestyle and prevent illness and disease.

PHED 1143 Introduction to Mountain Biking
2 credits (**Lecture/Lab**)
This introductory course in mountain biking will teach students beginning to intermediate mountain bike riding technique, bicycle fit and sizing, safety, and trail etiquette. An emphasis will be placed on cross-country riding for fitness, strength and personal conditioning. Additionally, students will learn the history and culture of mountain biking, pathways to becoming a mountain bike coach/trip leader, the genesis of purpose-built trails and mountain bike parks in the region, cycling advocacy groups, and trail design and maintenance on public, private and reclaimed lands. (Student can earn credit in only one course, either OUTL 1143 or PHED 1143.)

PHED 1144 Outdoor Adventure
1 credit (**Lab**)
Course Description: Students will experience and participate in outdoor recreational activities. That include camping, canoeing, ropes course, snowshoeing, and cross country skiing. This course involves some field trips and overnight stays

PHED 1146 Rock Climbing
1 credit (**Lecture/Lab**)
This beginning course in rock climbing stresses the proper use of safety equipment, knots, belaying systems, and techniques needed for ascending and descending cliffs. The focus is on top-rope climbing, site assessment, natural anchors, and group management. Weekend climbing sessions are required. (Cross-listed course; students can enroll only in PHED 1146 or OUTL 1146.)

PHED 1148 Sea Kayaking
1 credit (**Lecture/Lab**)
This introductory course will cover flat water kayaking skills (strokes, maneuvers, etc.) and will include topics ranging in proper gear and equipment and use, personal preparedness for kayaking, group management on the water, teaching progressions related to kayaking and various weather and water conditions. Students are expected to participate in classroom and open water field trips as planned. It is recommended that a student have at least an intermediate swimming ability. (Cross-listed course; students can enroll only in PHED 1148 or OUTL 1148.)

PHED 1150 Weight Training
1 credit (**Lab**)
Weight Training emphasizes the proper lifting techniques for free weights and variable resistance machines. Students will learn how to design and implement a personal weight-training program.

PHED 1152 Winter Camping
1 credit (**Lecture/Lab**)
This course is intended to familiarize the student with winter conditions and to provide the knowledge and experience necessary to safely enjoy camping in cold environments. Topics include shelter construction, equipment selection and use, cold injuries, campsite selection and minimum impact. A lab activity will encompass an overnight camping trip into/near the Boundary Waters Canoe Area Wilderness (BWCAW). (Cross-listed course; students can enroll only in PHED 1152 or OUTL 1152.)

PHED 1154 Yoga
1 credit (**Lab**)
Yoga will help individuals become more mindful while exercising, primarily by emphasizing controlled breathing during movement and by focusing on what the body is doing. The exercises

will focus on developing strength, flexibility and stability in the core musculature of the body and to build a foundation from which to rebalance and realign the body.

PHED 1160 Hunting Methods and Techniques
2 credits (**Lecture/Lab**)
This course is an introduction to all aspects of hunting from primitive techniques to new and more modern styles of hunting. All students will get hands on experience in the field as well as in the classroom. Students will be encouraged to possess a Minnesota small game license or Minnesota firearms safety certificate to take this class.

PHED 1400 Introduction to Physical Education
3 credits (**Lecture**)
This course will present an introduction to the history and philosophies of physical education. A critical examination of the history, people, events, programs and philosophical positions that have led to the current status of physical education, fitness and sport in the United States.

PHED 1410 Introduction to Exercise Science
2 credits (**Lecture**)
This course is designed to take a broad-based look at the field of Exercise Science. Students will explore not only the historical and philosophical foundations of the field of exercise science, but also look into career exploration that surrounds this field of study. The course will introduce students to all aspects of Exercise Science and what students can do within this broad field of study.

PHED 1415 Sports Physiology
2 credits (**Lecture**)
Sports Physiology introduces students to issues that relate to training, conditioning, and participation in sports. Many aspects of fitness and its relationship to health and performance will be discussed.

PHED 1420 Psychology of Sport and Physical Activity
3 credits (**Lecture**)
This course will focus on the psychological issues of sport and physical activity. Research, principles and issues will be presented. Further study will involve the effects physical activity has on performance enhancement, communication, attitudes, and motivation.

PHED 1425 Social and Ethical Aspects of Sport and Physical Activity
3 credits (**Lecture**)
This course will focus on the sociological and ethical aspects of sport and physical activity. This class will investigate the American value system of competition and sport. The social influences will be examined in the following areas: children, religion, interscholastic and intercollegiate sport, politics, race and gender issues.

PHED 1500 Theory of Coaching
2 credits (**Lecture**)
Theory of Coaching is an introduction to the coaching profession. Topics covered include: coaching philosophy, management strategies, budgeting, facilities, practice planning and preparation for professional career. This course is required for the coaching certificate.

PHED 1515 Care and Prevention of Athletic Injuries
2 credits (**Lecture**)
The study of techniques to prevent injuries from occurring or worsening during recreational activities and athletic contests. This includes knowledge and practical application. This course is required for the coaching certificate.

PHED 1520 Anatomy for Sports
2 credits (**Lecture**)
Anatomy for Sports is an introduction to human anatomy. An emphasis is placed on the musculoskeletal system and an understanding of its relationship to human movement.

PHED 1650 Physical Fitness, Wellness, and Nutrition
1 credit (**Lab**)
This course is a broad overview of physical fitness and wellness. Topics covered include body composition, the components of wellness, diet, physical fitness and weight training. This course serves to prepare students for the Physical Efficiency Battery (PEB) fitness test required during the law enforcement skills academy.

PHED 1655 Physical Education for Law Enforcement
2 credits (**Lab**)
Physical Education for Law Enforcement provides a conditioning program that emphasizes the importance of proper fitness for a police officer. The conditioning program includes running, a body drag and carry, various timed

exercises, obstacle courses, physical exercises, and aerobic activities. Enrollment must be concurrent with the Law Enforcement Program

PHED 1810 Competitive Men's Baseball
1 credit (**Activity**)
This course is a credit-based course for participation in intercollegiate men's baseball. Students practice daily and compete in the Minnesota College Athletic Conference and the National Junior College Athletic Association. Students interested in participating need instructors approval.

PHED 1820 Competitive Men's Basketball
1 credit (**Activity**)
This course is a credit-based course for participation in intercollegiate men's basketball. Students practice daily and compete in the Minnesota College Athletic Conference and the National Junior College Athletic Association. Students interested in participating need instructors approval.

PHED 1830 Competitive Women's Basketball
1 credit (**Activity**)
This course is a credit-based course for participation in intercollegiate women's basketball. Students practice daily and compete in the Minnesota College Athletic Conference and the National Junior College Athletic Association. Students interested in participating need instructors approval.

PHED 1840 Competitive Men's Football
1 credit (**Activity**)
This course is a credit-based course for participation in intercollegiate men's football. Students practice daily and compete in the Minnesota College Athletic Conference and the National Junior College Athletic Association. Students interested in participating need instructors approval.

PHED 1850 Competitive Women's Softball
1 credit (**Activity**)
This course is a credit-based course for participation in intercollegiate women's softball. Students practice daily and compete in the Minnesota College Athletic Conference and the National Junior College Athletic Association. Students interested in participating need instructors approval.

PHED 1860 Competitive Volleyball
1 credit (**Activity**)
This course is a credit-based course for participation in intercollegiate volleyball. Students practice daily and compete in the Minnesota College Athletic Conference and the National Junior College Athletic Association. Students interested in participating need instructors approval.

PHED 1870 Competitive Men's Wrestling
1 credit (**Activity**)
This course is a credit-based course for participation in intercollegiate men's wrestling. Students practice daily and compete in the Minnesota College Athletic Conference and the National Junior College Athletic Association. Students interested in participating need instructors approval.

PHED 1880 Competitive Trap Shooting
1 credit (**Activity**)
This course is a credit-based course for participation in intercollegiate trap shooting. Students practice daily and compete in the Minnesota College Athletic Conference and the National Junior College Athletic Association. Students interested in participating need instructors approval.

PHED 1910 Varsity Mens Baseball
0 credits (**Activity**)
This course is a zero credit course for participation in intercollegiate men's baseball. Students practice daily and compete in the Minnesota College Athletic Conference and the National Junior College Athletic Association. Students interested in participating need instructors approval.

PHED 1920 Varsity Mens Basketball
0 credits (**Activity**)
This course is a zero credit course for participation in intercollegiate men's basketball. Students practice daily and compete in the Minnesota College Athletic Conference and the National Junior College Athletic Association. Students interested in participating need instructors approval.

PHED 1930 Varsity Womens Basketball
0 credits (**Activity**)
This course is a zero credit course for participation in intercollegiate women's basketball. Students practice daily and compete in the Minnesota College Athletic Conference and

the National Junior College Athletic Association. Students interested in participating need instructors approval.

PHED 1940 Varsity Mens Football
0 credits (**Activity**)
This course is a zero credit course for participation in intercollegiate men's football. Students practice daily and compete in the Minnesota College Athletic Conference and the National Junior College Athletic Association. Students interested in participating need instructors approval.

PHED 1950 Varsity Womens Softball
0 credits (**Activity**)
This course is a zero credit course for participation in intercollegiate women's softball. Students practice daily and compete in the Minnesota College Athletic Conference and the National Junior College Athletic Association. Students interested in participating need instructors approval.

PHED 1960 Varsity Volleyball
0 credits (**Activity**)
This course is a zero credit course for participation in intercollegiate volleyball. Students practice daily and compete in the Minnesota College Athletic Conference and the National Junior College Athletic Association. Students interested in participating need instructors approval.

PHED 1970 Varsity Mens Wrestling
0 credits (**Activity**)
This course is a zero credit course for participation in intercollegiate men's wrestling. Students practice daily and compete in the Minnesota College Athletic Conference and the National Junior College Athletic Association. Students interested in participating need instructors approval.

PHED 1980 Varsity Trap Shooting
0 credits (**Activity**)
This course is a zero credit course for participation in intercollegiate trap shooting. Students practice daily and compete in the Minnesota College Athletic Conference and the National Junior College Athletic Association. Students interested in participating need instructors approval.

PHED 2203 Coaching Practicum - Baseball
1 credit (**Internship**)
This course is designed to provide students the opportunity to gain knowledge and experience through coaching in the sport of baseball. This course is required for the coaching certificate.

PHED 2206 Coaching Practicum - Basketball
1 credit (**Internship**)
This course is designed to provide students the opportunity to gain knowledge and experience through coaching in the sport of basketball. This course is required for the coaching certificate.

PHED 2209 Coaching Practicum - Cheerleading
1 credit (**Internship**)
This course is designed to provide students the opportunity to gain knowledge and experience through coaching in the sport of cheerleading. This course is required for the coaching certificate.

PHED 2215 Coaching Practicum - Cross Country Skiing
1 credit (**Internship**)
This course is designed to provide students the opportunity to gain knowledge and experience through coaching in the sport of cross country skiing. This course is required for the coaching certificate.

PHED 2218 Coaching Practicum - Cross Country
1 credit (**Internship**)
This course is designed to provide students the opportunity to gain knowledge and experience through coaching in the sport of cross country. This course is required for the coaching certificate.

PHED 2221 Coaching Practicum - Dance
1 credit (**Internship**)
This course is designed to provide students the opportunity to gain knowledge and experience through coaching in the sport of dance. This course is required for the coaching certificate.

PHED 2230 Coaching Practicum - Figure Skating
1 credit (**Internship**)
This course is designed to provide students the opportunity to gain knowledge and experience through coaching in the sport of figure skating. This course is required for the coaching certificate.

PHED 2236 Coaching Practicum - Football
1 credit (**Internship**)
This course is designed to provide students the opportunity to gain knowledge and experience through coaching in the sport of football. This course is required for the coaching certificate.

PHED 2242 Coaching Practicum - Gymnastics
1 credit (**Internship**)
This course is designed to provide students the opportunity to gain knowledge and experience through coaching in the sport of gymnastics. This course is required for the coaching certificate.

PHED 2245 Coaching Practicum - Hockey
1 credit (**Internship**)
This course is designed to provide students the opportunity to gain knowledge and experience through coaching in the sport of hockey. This course is required for the coaching certificate.

PHED 2248 Coaching Practicum - Lacrosse
1 credit (**Internship**)
This course is designed to provide students the opportunity to gain knowledge and experience through coaching in the sport of lacrosse. This course is required for the coaching certificate.

PHED 2254 Coaching Practicum - Soccer
1 credit (**Internship**)
This course is designed to provide students the opportunity to gain knowledge and experience through coaching in the sport of soccer. This course is required for the coaching certificate.

PHED 2257 Coaching Practicum - Softball
1 credit (**Internship**)
This course is designed to provide students the opportunity to gain knowledge and experience through coaching in the sport of softball. This course is required for the coaching certificate.

PHED 2263 Coaching Practicum - Swimming
1 credit (**Internship**)
This course is designed to provide students the opportunity to gain knowledge and experience through coaching in the sport of swimming. This course is required for the coaching certificate.

PHED 2266 Coaching Practicum - Track and Field
1 credit (**Internship**)
This course is designed to provide students the opportunity to gain knowledge and experience through coaching in the sport of track and field. This course is required for the coaching certificate.

PHED 2275 Coaching Practicum - Volleyball
1 credit (**Internship**)
This course is designed to provide students the opportunity to gain knowledge and experience through coaching in the sport of volleyball. This course is required for the coaching certificate.

PHED 2278 Coaching Practicum - Wrestling
1 credit (**Internship**)
This course is designed to provide students the opportunity to gain knowledge and experience through coaching in the sport of wrestling. This course is required for the coaching certificate.

PHED 2505 Sports Officiating: Baseball and Softball
1 credit (**Lecture**)
This course will introduce the rules and develop the skills needed for baseball and softball officiating. Officiating mechanics and rules interpretation for baseball and softball will help prepare students for officiating youth, intramural, junior varsity or varsity competition. Lecture materials combined with on the field training will assist aspiring officials in acquiring the necessary skills to become qualified officials. Individuals interested in becoming a certified official are aided in obtaining their certification.

PHED 2506 Sports Officiating - Basketball
1 credit (**Lecture**)
This course will introduce the rules and develop the skills needed for basketball officiating. Officiating mechanics and rules interpretation for basketball will help prepare students for officiating youth, intramural, junior varsity or varsity competition. Lecture materials combined with on the court training will assist aspiring officials in acquiring the necessary skills to become qualified officials. Individuals interested in becoming a certified official are aided in obtaining their certification.

PHED 2507 Sports Officiating: Football
1 credit (**Lecture**)
This course will introduce the rules and develop the skills needed for football officiating. Officiating mechanics and rules interpretation for football will help prepare students for officiating youth, intramural, junior varsity or varsity competition. Lecture materials combined with on the field training will assist aspiring officials in acquiring the necessary skills to become qualified officials.

Individuals interested in becoming a certified official are aided in obtaining their certification.

PHED 2509 Sports Officiating: Volleyball
1 credit (**Lecture**)
This course will introduce the rules and develop the skills needed for volleyball officiating. Officiating mechanics and rules interpretation for volleyball will help prepare students for officiating youth, intramural, junior varsity or varsity competition. Lecture materials combined with on the court training will assist aspiring officials in acquiring the necessary skills to become qualified officials. Individuals interested in becoming a certified official are aided in obtaining their certification.

Physics

PHYS 1010 Introduction to Physics
4 credits (**Lecture/Lab**)
This is a one semester course that will cover motion in one dimension, Newton's Laws, work and energy, linear momentum, rotational motion, fluids, waves and sound, thermodynamics, and electricity and magnetism. Laboratory is included. Prerequisite(s): MATH 0300
MnTC Goal Area(s): 3

PHYS 1211 College Physics 1
4 credits (**Lecture/Lab**)
This is the first course of a two semester course sequence that will cover motion in one and two dimensions, Newton's Laws, circular motion, work and energy, linear momentum, rotational motion, static equilibrium, elasticity, fluids, waves and sound. This course is intended for students pursuing construction management, pre-pharmacy, or biological science or medical field degrees. Laboratory is included. A previous or concurrent course in Trigonometry would be beneficial. Prerequisite(s): MATH 1220
MnTC Goal Area(s): 3

PHYS 1212 College Physics 2
4 credits (**Lecture/Lab**)
This is the second course of a two-semester course sequence that will cover thermodynamics, electricity and magnetism, optics and the wave nature of light. This course is intended for students pursuing pre-pharmacy, or biological science or medical field degrees. Laboratory is included. Prerequisite(s): PHYS 1211
MnTC Goal Area(s): 3

PHYS 2261 General Physics 1
4 credits (**Lecture/Lab**)
The course focuses on the study of mechanics of particles and rigid bodies including kinematics, kinetics, conservation laws, linear momentum, and angular momentum. In addition, the topics of fluid mechanics and thermodynamics are introduced. Laboratory is included. This calculus-based physics course is intended for students pursuing degrees in engineering, physics, or chemistry. Laboratory is included. Prerequisite(s): MATH 1311
MnTC Goal Area(s): 3

PHYS 2262 General Physics 2
4 credits (**Lecture/Lab**)
The course focuses on the study of electricity and magnetism. Optics and electromagnetic waves are introduced. This calculus-based physics course is intended for students pursuing degrees in engineering, physics, or chemistry. Laboratory is included. Prerequisite(s): PHYS 2261
MnTC Goal Area(s): 3

PHYS 2263 General Physics 3
4 credits (**Lecture/Lab**)
Covers fluid mechanics, thermodynamics, mechanical and sound waves, geometrical optics, physical optics, and modern physics. This calculus-based physics course is intended for students pursuing degrees in engineering, physics, or chemistry. Laboratory is included. Prerequisite(s): PHYS 2261
MnTC Goal Area(s): 3

Political Science

POLS 1215 American Government and Politics
3 credits (**Lecture**)
American Government and Politics is a study of politics and government in America, including democratic theories, civil liberties and civil rights, political participation, and the structure and function of national government.
MnTC Goal Area(s): 5, 9

POLS 1320 State and Local Government
3 credits (**Lecture**)
This course is a study of the structure, functions, procedures, and problems of American state and local governments, with emphasis placed on Minnesota government. Topics include state constitutions, governors, government finances, and state legislatures. MnTC Goal Area(s): 5, 9

Psychology

PSYC 1100 Introduction to Human Services and Community Resources
3 credits (**Lecture**)
In completing this course students will gain knowledge regarding the history of helping, theoretical perspectives and models of helping, roles and functions of human service workers, prevention, ethics, and current issues/controversies in the field of human services. Students will also gain knowledge and skills regarding human service systems and agencies, with an emphasis on local resources.

PSYC 1105 Psychology of Adjustment
2 credits (**Lecture**)
Psychology of Adjustment focuses upon applications of psychological principles to human development and adjustment. Emphasis is on self-concept and healthy adjustment versus maladjustment as applied to casual, work, and intimate relationships. The importance of effective communication, problem-solving skills, and maximizing human potential is also stressed.

PSYC 1215 General Psychology
3 credits (**Lecture**)
General Psychology provides an introduction to the field of psychology through an overview of: the history of psychology; research methods; major theoretical perspectives; biological bases of mental processes and behavior; sensation and perception; learning and conditioning; memory; language; thought and intelligence; motivation and emotion; human development; social bases of behavior; personality; psychological testing; psychological disorders; and the treatment of psychological disorders. Critical thinking, an understanding of/appreciation for diversity and myriad sociocultural and environmental factors that influence mental processes and behavior, as well as application of concepts/theories to better understand oneself and others in diverse settings are emphasized. Prerequisite(s): ENGL 0200, READ 0100
MnTC Goal Area(s): 5, 7

PSYC 1220 Lifespan Development
3 credits (**Lecture**)
This course is a scientific and theoretical examination of physical, cognitive, emotional, and social development, which occurs across the life span: infancy, early to late childhood, adolescence, early to late adulthood, and death and dying.
MnTC Goal Area(s): 5, 7

PSYC 1315 Drugs, Alcohol and Behavior
3 credits (**Lecture**)
This course provides an overview of mood-altering substances and the pharmacological, psychological, behavioral and social factors associated with substance use, and substance use disorders.
MnTC Goal Area(s): 5

PSYC 1325 Psychology of Sustainability
3 credits (**Lecture**)
Psychology of Sustainability is a course that explores use of psychological insights, techniques, and research to understand and promote a healthy relationship between humans and the natural environment. This course serves as an introduction to addressing environmental problems using psychology, and to the psychological study of sustainable human behavior. In this course, we will use psychological principles, theories, concepts, and methods to examine the reciprocal relationship between human beings and the natural world. We will discuss the complex nature of environmental problems and explore the psychological and social underpinnings of a range of sustainable and non-sustainable behaviors. Prerequisite(s): ENGL 0200, READ 0100
MnTC Goal Area(s): 5, 10

PSYC 2100 Basic Interviewing and Helping Skills
3 credits (**Lecture**)
This course provides an overview of basic interviewing and counseling skills, with an emphasis on applying and practicing skills in the classroom setting. By completing this course students will gain a better understanding of: the impact of their values, interpersonal style, strengths and challenge areas on the helping process, verbal and nonverbal communication skills, interviewing strategies, crisis intervention; empowerment strategies, individual and group counseling techniques; contemporary issues in the helping profession; characteristics of effective helpers; and professional boundaries, responsibilities and ethics related to the helping process.

PSYC 2191 Psychology/Human Services A.S. Degree Practicum
Variable, 3, 4, or 5 credits (**Practicum**)
This course provides the opportunity for students to apply the knowledge and practical skills gained from classroom instruction in a supervised human service setting &/or research endeavor. 120

hours for 3 credits (40 hours for each additional credit). Prerequisite(s): PSYC 1100

PSYC 2200 Introduction to Co-Occurring Disorders
4 credits (**Lecture**)
Significant numbers of individuals with substance use disorders have one or more mental disorders. This introductory course is designed to help students become familiar with the most common mental disorders, the interrelationship between mental disorders and substance abuse as well as the various counseling methods and treatment approaches for the client with a co-occurring disorder. This course addresses the topics of ethics, diversity and social responsibility brought to light by the issues generated by co-occurring disorders.
MnTC Goal Area(s): 5

PSYC 2215 Human Sexuality
3 credits (**Lecture**)
This course provides on overview of the various perspectives, research methods, concepts, and critical issues in the study of sexuality. Areas covered include: Sexual attitudes, ideals and behaviors of past and present; cultural differences and similarities in sexuality; global/social issues related to sexuality; research methods used in the study of sexuality; male and female sexual anatomy and physiology; gender issues; sexual arousal and response; love and communication in intimate relationships; sexual orientations; contraception and conception; sexuality across the life-span; sexually transmitted diseases; sexual difficulties and solutions; atypical sexual behavior; sexual coercion; pornography; and prostitution/sex work.
MnTC Goal Area(s): 5, 8

PSYC 2216 Abnormal Psychology
3 credits (**Lecture**)
This course provides an overview of historical and contemporary descriptions and models regarding deviance, mental illness and symptoms associated with major areas of mental illness and the prevention, diagnosis and treatment of psychological disorders in diverse populations. Prerequisite(s): PSYC 1215
MnTC Goal Area(s): 5, 7

PSYC 2217 Learning and Cognition
3 credits (**Lecture**)
This course provides an overview of historical and contemporary theories of learning and cognition, with an emphasis on "real-world" application of the theories and related concepts. Areas covered include: the scientific method and research in learning and cognition; classical and operant conditioning; cognitive/social learning theory; evolutionary perspectives on learning; the role of biology and the brain in learning; sensation and perception; information processing; models of memory and forgetting; decision-making and concept formation; cognitive development; artificial intelligence and computer simulation; and the role of motivation in learning. Prerequisite(s): PSYC 1215
MnTC Goal Area(s): 5

PSYC 2218 Industrial Organization Psychology
4 credits (**Lecture**)
This course is an introduction to the study of human behavior in the work environment. Topics for discussion will include the nature of work in the modern world, organizational theory and culture, personnel selection, personnel training, work efficiency, human motivation, performance appraisal, leadership and supervision, teams, job satisfaction, employee safety and health, stress, human engineering, consumer psychology, and challenges and obstacles diverse populations of workers may face.
MnTC Goal Area(s): 5, 7

PSYC 2225 Group Processes
3 credits (**Lecture**)
In completing this course students will gain an understanding of the importance of groups, learn about group theory and dynamics, become more aware of their own interpersonal style and group behavior, and develop more effective group skills. Prerequisite(s): ENGL 0200, READ 0100
MnTC Goal Area(s): 5, 7

PSYC 2226 Behavioral Statistics
4 credits (**Lecture/Lab**)
Behavioral Statistics introduces students to basic mathematical and computerized procedures to analyze data in the behavioral sciences. In this course, students will use statistical software to conduct descriptive and inferential data analyses. Students will identify research designs, choose and apply statistical procedures to help to answer psychological and behavioral scientific research questions, as well as read, interpret, and write APA-style Results sections for behavioral science research. Prerequisite(s): MATH 1215, MATH 1220, PSYC 1215
MnTC Goal Area(s): 5

Reading

READ 0100 Analytical College Reading
3 credits (**Lecture**)
Analytical College Reading prepares students to read and analyze college-level material across disciplines. Emphasis is on the development of reading fluency and comprehension through active reading strategies, textual analysis, vocabulary strategies, and reading behaviors that influence reading engagement.

Sociology

SOC 1200 Introduction to Sociology
3 credits (**Lecture**)
Humans by nature are social animals. Our lives depend upon other people. Sociology is the scientific study of our social world, structure and social interactions. In Intro to Sociology, we will learn how we are socialized to be human, the power of culture, organizations and stratification. We will delve into some real-world social challenges and understand how to view them through major sociological perspectives. By developing and applying a sociological imagination, we will learn how society influences our lives more than we would have ever guessed.
MnTC Goal Area(s): 5, 7

SOC 1210 Social Problems
3 credits (**Lecture**)
Addiction. Poverty. Violence. Social Problems explores these and other issues plaguing us in America and around the world. By using social research and theoretical explanations, we examine the multiple causes, experiences, and opportunities for change. Students are encouraged to understand how their actions affect social change.
MnTC Goal Area(s): 5, 8

SOC 1215 Marriage and Family
3 credits (**Lecture**)
Our family, in whatever form, is a powerful source of socialization. Marriage and Family examines how society affects the dynamics of the family. In this course, we will study the history, racial and ethnic differences, and humanizing forces of family. We will explore the foundations of family and its changing face, the effects of race and ethnicity, class, sexuality, love, mate-selection, raising children and challenges in families. This course emphasizes the sociological perspective and the effects of social structure and socialization. Marriage and Family meets the Minnesota State Sociology Transfer Pathway Elective A requirements
MnTC Goal Area(s): 5, 7

SOC 1220 Sociology of Pop Culture
3 credits (**Lecture**)
Like fish in fishbowls, we swim within the water of popular culture. From the food we eat, to the music we listen to, the video games we play and the clothes we wear, we are embedded within a large fabric of popular culture. This course critically examines popular culture through sociological, theoretical lenses. We investigate how race, class, gender, sexuality, and disability influence the production, content, audience, and social world for media, and in turn how these media influence us, our diverse identities, and society.
MnTC Goal Area(s): 5, 7

SOC 1300 Introduction to Community Organizing and Development
3 credits (**Lecture**)
Bring your passion to practice. Introduction to Community Organizing and Development examines the theories, current trends and practical dimensions of how people organize to effect change. In this applied sociology course, we will identify a social issue in the community, develop a plan, and take action. This course includes interactive and reflective exercises designed to increase students' ability to effect change.
MnTC Goal Area(s): 5, 9

SOC 1310 Introduction to Criminal Justice
3 credits (**Lecture**)
This course is an introduction to Criminal Justice and provides students with a sociological analysis of the development, components, and administration of the criminal justice system in the United States. It deals with criminal law and the roles and relationships of police, courts and corrections.
MnTC Goal Area(s): 5, 9

SOC 2210 Human Relations
3 credits (**Lecture**)
Designed to introduce students to the sociological study of human interactions. The course is a practical application of the sociological perspective to examine the processes of interactions, problem solving, decision making, and conflict resolution in interpersonal, group and intergroup relations. A special emphasis will be

placed on living and working in a changing and diverse society.
MnTC Goal Area(s): 5

SOC 2215 Womens Studies
3 credits (**Lecture**)
Is feminism a dirty word? What does it mean to be a woman? Women's Studies delves into the social and cultural diversity found among women through an examination of the ways in which gender, race, ethnicity, class, sexual orientation, and physical ability intersect to influence the status of women. The course considers how individuals learn gender, how culture shapes the way we think about gender, and how law, public policy, and economics affect gender and the struggle for equality.
MnTC Goal Area(s): 5, 7

SOC 2225 Race and Ethnicity
3 credits (**Lecture**)
Race and Ethnicity underlie some of the hottest issues in the United States today. In this course we will examine dominant-minority group relations and learn the histories, situations and issues associated with race and ethnicity. Specifically, we will explore the interrelationship between dominant culture and Black, Latino/a, Native American/Alaskan Native, Asian American/Pacific Islander, and current immigrants. This course focuses on large groups and social structures with an emphasis on social conflict and change. Race and Ethnicity meets the Minnesota State Sociology Transfer Pathway Elective B requirements.
MnTC Goal Area(s): 5, 7

SOC 2245 Sociology of Sexuality and Gender
3 credits (**Lecture**)
Let's talk about sex! Sociology of Sexuality and Gender explores the ways we construct our understanding of sexuality and gender. We examine how society organizes people into categories such as female and male or homosexual and heterosexual. We apply the theoretical and methodological approaches that have been used in sociological studies of sexuality-including those that guide sexuality-related analyses of meanings and identities, practices and behaviors, power and politics, sexual interaction, morality, and social control.
MnTC Goal Area(s): 5, 7

SOC 2255 Aging
3 credits (**Lecture**)
Aging affects us all. If we are not currently "old," we will be in the future. Who decides what age means? Society's definitions of the "old" and "young" statuses affect our lives, especially as we enter into older adulthood. This course presents a sociological study of aging. Utilizing biological, psychological, and sociological perspectives, we will examine the aging process and its impact on the individual and society.
MnTC Goal Area(s): 5, 9

SOC 2265 Environmental Sociology
3 credits (**Lecture**)
The Earth is what we all have in common and is fundamentally our home. Environmental Sociology examines the social causes and consequences of environmental problems, interrelationship between social inequality and environmental inequality, and environmental racism. Additionally, we discuss the social construction of nature and the environment, cultural relations with nature, and environmental mobilization and movements.
MnTC Goal Area(s): 8, 10

SOC 2335 Crime and Delinquency
3 credits (**Lecture**)
Crime and Delinquency examines deviance, crime, and delinquency from the social, psychological, and biological view. Emphasis will be placed upon the theoretical roots of criminology, the nature and extent of crime, and root causes of juvenile delinquency. Particular attention will be paid to the role of family, the school, and the peer group. This course will provide students with the tools to analyze and evaluate justice policies and programs.
MnTC Goal Area(s): 5, 9

Spanish

SPAN 1211 Spanish 1
4 credits (**Lecture**)
This course provides the foundation for conversational ability in Spanish. Students will learn basic grammar, some everyday vocabulary, and gain an understanding of the many different cultures that speak Spanish.
MnTC Goal Area(s): 8

SPAN 1212 Spanish 2
4 credits (**Lecture**)
This course is the second of a two part course in conversational Spanish. Students will learn some everyday vocabulary, including past and future tense and be able to discuss many different characteristics of Spanish-speaking countries. Prerequisite(s): SPAN 1211
MnTC Goal Area(s): 8

Student Success

SSSC 1100 Transition to College
2 credits (**Lecture**)
Transition to College provides new students with the tools necessary to increase their success in college. It provides information and resources about college orientation and success, financial literacy, and personal success strategies. The class will stress how critical thinking and communication skills play an important role in college success.

SSSC 1115 Choosing a Major and Career
1 credit (**Lecture**)
Choosing a Major & Career provides students the opportunity to explore personality profiles and to assess interests, values, aptitudes, and skills. Using career selection inventories and classification exercises, students will define goals and plan educational pursuits. Students will also be given the CliftonStrengths for College Students assessment and be paired with a certified CliftonStrengths Coach during the semester.

SSSC 1120 Introduction to Personal Finance
1 credit (**Lecture**)
This course introduces students to basic money management skills. Learning activities and class discussions provide students with opportunities to apply course content to their personal lives. Through personal reflection and analysis, students will feel empowered to make financial decisions which support their educational, career, and personal goals.

Teaching Assistant / Instructional Aide

TAIA 1202 Guiding Children's Development & Behavior 1
4 credits (**Lecture**)
Students will develop a basic knowledge and understanding of child development with an intensive focus on children birth to eight years of age. Redirection of children's behavior and additional guidance techniques will be presented. In addition, students will learn how to use indoor and outdoor space effectively in order to meet children's growing developmental needs.

TAIA 1204 Engaging Families in Culturally Responsive Practice
3 credits (**Lecture**)
This course introduces and explores myriad culturally responsive strategies to prepare students to engage in responsive communication, care, and instruction with children and families from cultures other than their own.

TAIA 1212 Environments for Learning
3 credits (**Lecture**)
Students will develop a basic understanding of child physical, social, emotional, and cognitive development. Student will apply their knowledge of child development to create a stimulating learning environment which incorporates the use of developmentally appropriate activities, materials, and equipment.

TAIA 1218 Health, Safety, and Nutrition
3 credits (**Lecture**)
This course provides focused training in recognizing and caring for child breathing and cardiac emergencies as well as basic first-aid. Environmental health and safety is addressed with an emphasis on prevention. A basic nutritional component is integrated which provides for a basis for students to understand appropriate food handling and sanitation.

TAIA 1220 Teaching Young Children with Challenging Behaviors
3 credits (**Lecture**)
This course introduces participants to universal promotion, secondary prevention, and tertiary intervention approaches to educate and care for children with challenging behaviors. In addition, participants will learn how to conduct a functional behavior assessment and provide positive behavior support. Physical space, appropriate

routines, and a myriad of transition and teaching strategies will also be addressed.

TAIA 2202 Foundations in Assessment & Special Education
4 credits (**Lecture**)
This course explores the purpose of designing student learning outcomes as well as introduces multiple modes of assessment methods in order to measure student learning. In addition, it provides an overview of Special Education laws in the United States as well as defines the role of Paraprofessional on the education team.

TAIA 2206 Trauma-Informed Teaching
3 credits (**Lecture**)
Students will be able to articulate the essential findings from the Adverse Childhood Experiences (ACEs) Kaiser Research Study as well as be able to recognize ACEs in children and families. Students will develop the necessary skills to become mandated reporters which include the ability to identify and report what constitutes child abuse and neglect in the state of Minnesota. In addition, students will learn how to identify and make appropriate referrals when working with families. Furthermore, students will explore successful intervention approaches to working with children who have experienced trauma.

TAIA 2214 Positive Behavior & Guidance Techniques
4 credits (**Lecture**)
This course introduces students to a variety of positive guidance techniques when working with children birth to eight years of age. These strategies include: redirection, encouraging cooperation, problem solving and conflict resolution skills; and promoting positive social/emotional development. Strategies to engage families in the guidance process are also addressed.

Theater

THTR 1100 Peer Theater
1 credit (**Lecture**)
Peer Theater gives students an introduction to a hands-on experience in acting. Students will learn basic theater terminology, vocal production, and staging skills. They will engage in the creative process and interpretive performance as they rehearse and present short scenes performed for the student body, providing an educational benefit for fellow students.
MnTC Goal Area(s): 6

THTR 1215 Theater Appreciation
3 credits (**Lecture**)
Theater appreciation investigates theater as an art form and a medium of communication. It examines theater from primitive rites to contemporary forms. This survey of theater includes theater architecture and stage structures, production aspects including lighting, scenery, costuming, and makeup, with an overview of play script analysis, directing, acting, and theater criticism.
MnTC Goal Area(s): 6

THTR 1300 Introduction to Acting
3 credits (**Lecture**)
Introduction to Acting is a course for beginning actors or experienced actors to explore acting theory, character development, and acting techniques. The course includes an exploration of theater history, genres, styles, and literature as they impact performance practices through participation in in-class exercises and performances of improvisations, monologues, and scenes.
MnTC Goal Area(s): 6

THTR 1315 Theater Performance Practicum
3 credits (**Practicum**)
Theater Performance Practicum gives students the opportunity to rehearse and perform in a fully-staged, full-length theater production. Students will engage in the creative process and interpretive performance as they learn staging techniques, develop characters, and hone skills in performing practices, including voice and movement.
MnTC Goal Area(s): 6

THTR 1316 Theater Production Practicum
1 credit (**Practicum**)
Theater Production Practicum is an opportunity for students to work in conjunction with the Technical Director to contribute to the technical side of a full-scale theater production. Topics include theatrical set and prop building, painting and preparation of sets and props, stage lighting and sound, and performance technical assistance and enhancement.
MnTC Goal Area(s): 6

Veterinary Technology

VTCH 1215 Introduction to Veterinary Technology
2 credits (**Lecture**)
This course is an introduction to the profession. Topics covered will include career options, veterinary legal considerations, the value of professional organizations, crisis intervention/grief management skills with clients, and the importance of continuing education. Safety in the workplace and the role of the veterinary technician in keeping livestock safe from exotic disease (biosecurity) are also covered. Acceptance into Vet Tech program.

VTCH 1225 Medical Terminology
2 credits (**Lecture**)
This course introduces students to vocabulary commonly encountered in veterinary medicine. Terminology related to anatomy, procedures, and healthy and diseased states is covered. Students will learn to construct medical terms using prefixes, roots, and suffixes. Additionally, non-scientific but common veterinary-specific terminology is introduced.

VTCH 1235 Animal Husbandry
4 credits (**Lecture/Lab**)
Animal husbandry introduces students to the species commonly encountered in veterinary practice. Students will learn to recognize breeds and determine the sex of various species. Safe restraint, humane treatment, proper housing, nutrition, and common husbandry-related illnesses will be covered. Additionally, students are introduced to the ethics of and techniques for humane euthanasia. Acceptance into Vet Tech program.

VTCH 1315 Medical Math
1 credit (**Lecture**)
This course teaches students how to calculate dosages, use English and metric units of measurement, and calculate rations and rates.

VTCH 1345 Comparative Anatomy and Physiology
3 credits (**Lecture**)
This course will teach students anatomical structures and basic physiological body functions of domestic animals. Differences among selected species will be of particular focus. Body systems discussed will include integument, musculoskeletal, sensory, neural, cardio-vascular, respiratory, digestive, endocrine, urinary, and reproductive. Acceptance into the Vet Tech program.

VTCH 1351 Pharmacology 1
2 credits (**Lecture**)
Topics include principles of pharmacology, labeling drugs, using weights and measures and calculating drug dosages, managing inventory of controlled substances, explaining the appropriate routes and methods of drug administration. Prerequisite(s): VTCH 1345

VTCH 1352 Pharmacology 2
2 credits (**Lecture**)
This course expands on principles presented in Pharmacology I. Students will utilize knowledge gained in prior coursework to explore general pharmacological principles of the following types and groups of drugs: antibacterials, gastrointestinal, anti-inflammatories, nutraceuticals, ophthalmics, otics, dermatologicals, and chemotherapy. Prerequisite(s): VTCH 1315, VTCH 1351

VTCH 1355 Animal Behavior
2 credits (**Lecture**)
This course will teach students how to identify behavior signals of the dog, cat, horse, pocket pets, and reptiles. This course will also teach students some of the most commonly encountered behavioral problems reported by clients in these species. Prerequisite(s): VTCH 1235

VTCH 2215 Clinical Pathology
3 credits (**Lecture/Lab**)
Clinical pathology focuses on hematology, cytology, and urine analysis. Proper collection, sample preparation, and staining techniques are discussed. Students use microscopes as well as blood analysis machinery to perform common examinations. Specialized in house testing (ELISA) as well as tests typically performed at reference laboratories are covered. Prerequisite(s): VTCH 1345

VTCH 2220 Veterinary Technician Internship
Variable, 1-6 credits (**Internship**)
This course provides structure to a work experience with an agency or company related to this career field. This internship will offer the opportunity for the student to further develop on-the-job experience related to this field of study and enhance future career options. Students will be expected to complete 80 hours of on-the-site work for each credit taken. The instructor/coordinator will oversee associated

academic coursework. This course may be repeated once during a student's academic coursework. Completion of first two years VTCH coursework. Prerequisite(s): VTCH 2315, VTCH 2510, VTCH 2530, VTCH 2570

VTCH 2225 Parasitology
3 credits (**Lecture/Lab**)
Parasitology is a survey of both internal and external parasites of domestic species. Life cycles, disease transmission, diagnosis, and treatment are examined. Prerequisite(s): VTCH 1345

VTCH 2235 Disease and Preventative Care
2 credits (**Lecture**)
In this course students learn about common infectious and non-infectious conditions and measures that can be used to prevent or limit the course of disease. Vaccination, weight management, and dentistry are among topics covered. Prerequisite(s): VTCH 1235, VTCH 1345

VTCH 2315 Veterinary Hospital Procedures
2 credits (**Lecture**)
This course introduces common business procedures used in veterinary practice such as bill collection, appointment scheduling, telephone techniques, record keeping, merchandising, and supervision of employees. The course includes follow-up and discharge procedures, filing and record retention, and using the computer in veterinary medicine. Prerequisite(s): VTCH 1215, VTCH 2235

VTCH 2325 Introduction to Laboratory Animals/Exotics
2 credits (**Lecture/Lab**)
Husbandry and handling of common laboratory animals, "pocket pets," birds, and reptiles are introduced in this course. In addition to husbandry, common illnesses and their treatment, common clinical procedures and euthanasia are taught. Prerequisite(s): VTCH 1345, VTCH 1352, VTCH 2335, VTCH 2412

VTCH 2335 Introduction to Imaging
3 credits (**Lecture/Lab**)
Both radiology and ultrasonography are introduced in this course. After gaining understanding of the physics and safety elements of these modalities, students will learn to position patients, take X-rays, assess film for technique quality, and use an ultrasound for common procedures. Proper maintenance of machinery and developers is discussed. Prerequisite(s): VTCH 1225, VTCH 1235, VTCH 1345

VTCH 2411 Small Animal Nursing 1
4 credits (**Lecture/Lab**)
This course introduces the student to concepts including record keeping, taking histories, initial physical exam, basic grooming procedures, animal restraint, collection of urine and fecal samples, administration of treatments, and injection techniques. Prerequisite(s): VTCH 1225, VTCH 1235, VTCH 1345

VTCH 2412 Small Animal Nursing 2
2 credits (**Lecture/Lab**)
This course expands on skills acquired in Small Animal Nursing I. Skills that are taught include wound management, bandaging, IV catheter placement, and administration of IV fluids and treatments. Prerequisite(s): VTCH 2411

VTCH 2421 Large Animal Nursing 1
4 credits (**Lecture/Lab**)
This course introduces the livestock and equine industry and the various species of large animal livestock. Includes livestock terminology, basic management practices, preventive medicine, lameness examinations, and necropsy. Techniques covered will include restraint, behavior, venipuncture, and medical and surgical nursing procedures of large production animals and equines. Prerequisite(s): VTCH 1235, VTCH 1345, VTCH 1352, VTCH 2412

VTCH 2422 Large Animal Nursing 2
2 credits (**Lecture/Lab**)
Students expand on skills developed in Large Animal Nursing I. Bandaging, wound management, and teeth floating are introduced. Course Prerequisite(s): A grade of C or better in VTCH 2421.

VTCH 2510 Surgical Nursing
4 credits (**Lecture/Lab**)
Surgical nursing includes the topics of patient positioning and preparation, aseptic technique, instrumentation, intraoperative monitoring, post-operative monitoring, and analgesia.

VTCH 2530 Anesthesiology
2 credits (**Lecture/Lab**)
This course covers the technician's role in record keeping of controlled drugs, premedicating, induction and maintenance of anesthesia, and patient monitoring. Students will gain exposure to both injectable and gas anesthetic agents. Local

anesthetics, nerve blocks and analgesia are also discussed. Prerequisite(s): VTCH 1315, VTCH 1352, VTCH 2412

VTCH 2540 Emergency and Critical Care
2 credits (**Lecture**)
Emergency/Critical Care Nursing introduces the skills needed to care for the patients that need care the most. Coursework will focus on fluid therapy, advanced monitoring, and analgesia.

VTCH 2570 Kennel / Shelter Medicine
1 credit (**Lecture**)
This course introduces students to proper kennel management and includes feeding, nutrition, and other aspects of caring for kennel and shelter animals. It exposes students to issues of husbandry, group health, and herd economics which are related to housing groups of companion animals. All first, second, and third year kennel care shifts completed.

VTCH 2590 National Exam Prep
2 credits (**Lecture**)
Completing the veterinary technician curriculum and an associate's degree are not all that are required to become a licensed vet tech. Passing a national exam is required for licensure, and this course aims to help prepare for that exam. Students learn test taking strategies and take practice exams in preparation for the national licensure exam. Prerequisite(s): VTCH 2220, VTCH 2325, VTCH 2421

VTCH 2710 Independent Study
Variable, 1-3 credits (**Independent Study**)
This course is an opportunity to complete an independent project under faculty supervision.

Water Quality Science

WQAL 1255 Water Resources Field Visits
2 credits (**Lab**)
This course is a weekly visit to area and regional water projects, or guest speakers. Topics may include laboratories, government water agencies, engineering and consulting firms, industries, research activities, water and wastewater treatment systems, well drilling, biosolids, and hydrologic activities. (Cross-listed course; students can enroll only in WQAL 1255 or WSHD 1255.)

WQAL 1257 System Hydraulics
3 credits (**Lecture/Lab**)
Study theory, design and applications of equipment used in the water resources field: pumps, piping, mechanical systems, water distribution supply, and storage, wastewater collection, lift stations, storm water systems, mechanical maintenance, management and energy efficiency. This includes the design and selection of equipment, total dynamic head, equipment manufacturer's visits, and a field project in the area.

WQAL 1651 Water Treatment
3 credits (**Lecture**)
This course is a comprehensive study of water source and supply, pollutants and principles of drinking water treatment, chemical dosages, softening, disinfection, fluoridation, system strategies and economics. It includes Safe Drinking Water Act, Minnesota State Water Operators Certification Exam preparation, and fundamental management concepts. (Cross-listed course; students can enroll only in WQAL 1651 or WSHD 1651.)

WQAL 1652 Wastewater Treatment
3 credits (**Lecture**)
This course offers a practical and theoretical approach to basic and advanced wastewater treatment and pollution control. Students will investigate a variety of pollutant types and effects on surface water and ground water. Design, construction, operation and maintenance strategies, and water quality standards municipal and industrial treatment systems will be addressed. Preparation for Minnesota State Wastewater Operators Certification Exam will be a component of this course. (Cross-listed course; students can enroll only in WQAL 1652 or WSHD 1652.)

WQAL 1656 Environmental Compliance
3 credits (**Lecture**)
This course is a comprehensive coverage of federal, state and local environmental laws and regulations emphasizing those affecting water, wastewater treatment, and watershed management. Policy development, program implementation, permitting, certification and enforcement are discussed. Basic field measurements that are encountered in the natural resources environment will also be introduced. (Cross-listed course; students can enroll only in WQAL 1656 or WSHD 1656.)

WQAL 2220 Water Resources Internship
Variable, 1-6 credits (**Internship**)
This field experience course provides structure to a work experience with an agency or company related to the water resources field. This internship will offer the opportunity for the student to further develop on-the-job experience related to this field of study and enhance future career options. Students will be expected to complete 80 hours of on-the-site work for each credit taken. The instructor/coordinator will oversee associated academic coursework. This course may be repeated once during student's academic coursework. (Minimum 2.0 GPA required for registration.) Prerequisite(s): WQAL 1651, WQAL 1652, WQAL 2265, WSHD 2265

WQAL 2265 Water & Wastewater Analysis 1
5 credits (**Lecture/Lab**)
This course includes chemical and biological analysis of water, wastewaters, surface and groundwater. Volumetric, gravimetric, colorimetric, instrumentation and microbiological procedures are covered. Topics include lab safety, theory, test applications, sampling QA/QC, analytical procedures, troubleshooting and essential laboratory skills. (Cross-listed course; students can enroll only in WQAL 2265 or WSHD 2265.)

WQAL 2267 Watershed Management
3 credits (**Lecture/Lab**)
The student will apply team building and personal communication skills to the development of basin-wide watershed management planning; study fundamental water resources management concepts as applied to the water/wastewater industry and the natural environment; use techniques and knowledge that have been developed in prior courses within the water resources curriculum to manage water resources from a watershed perspective. Public relations and leadership skills will be emphasized in relation to achieving stakeholder consensus for basin-wide watershed management plans/projects. This course includes a focus on Comprehensive Local Water Management Plans based on local priorities which link many land-use decisions with local goals for surface and groundwater protection and management. (Cross-listed course; students can enroll only in WQAL 2267 or WSHD 2267.) Prerequisite(s): NRT 2315, WQAL 1656, WSHD 1656

WQAL 2269 Water & Wastewater Analysis 2
3 credits (**Lecture/Lab**)
This course is a continuation of WQAL/WSHD 2265, Water and Wastewater Analysis I. The course addresses advanced water analysis specific for process control of water and wastewater systems. (Cross-listed course; students can enroll only in WQAL 2269 or WSHD 2269.) Prerequisite(s): WQAL 2265, WSHD 2265

Watershed Science

WSHD 1255 Water Resources Field Visits
2 credits (**Lab**)
This course is a weekly visit to area and regional water projects, or guest speakers. Topics may include laboratories, government water agencies, engineering and consulting firms, industries, research activities, water and wastewater treatment systems, well drilling, biosolids, and hydrologic activities. (Cross-listed course; students can enroll only in WQAL 1255 or WSHD 1255.)

WSHD 1656 Environmental Compliance
3 credits (**Lecture**)
This course is a comprehensive coverage of federal, state, and local environmental laws and regulations emphasizing those affecting water, wastewater treatment, and watershed management. Policy development, program implementation, permitting, certification and enforcement are discussed. (Cross-listed course; students can enroll only in WQAL 1656 or WSHD 1656.)

WSHD 2220 Water Resources Internship
Variable, 1-6 credits (**Internship**)
This is a structured ten week session of on the job experience with an agency or company in the water resources field. Prerequisite(s): WQAL 1656, WQAL 2265, WSHD 1656, WSHD 2265

WSHD 2258 Soils and Hydrology
3 credits (**Lecture/Lab**)
This course is a systematic introduction to forest soils and the hydrologic cycle, emphasizing their effects on forest productivity and watersheds, and their role in forest and water resource management. Soil development, properties, identification and mapping are covered along with the principle of the hydrologic cycle and its component processes. Basic techniques of soil property measurement and hydrologic data

collection and analysis are practiced in the lab and in the field.

WSHD 2265 Water & Wastewater Analysis I
5 credits (**Lecture/Lab**)
This course include chemical and biological analysis of water, wastewaters, surface and groundwater. Volumetric, gravimetric, colorimetric, instrumentation and microbiological procedures are covered. Topics include lab safety, theory, test applications, sampling, QA/QC, analytical procedures, troubleshooting, and essential laboratory skills. (Cross-listed course; students can enroll only in WQAL 2265 or WSHD 2265.)

WSHD 2267 Watershed Management
3 credits (**Lecture/Lab**)
The student will apply team building and personal communication skills to the development of basin-wide watershed management planning; study fundamental water resources management concepts as applied to the water/wastewater industry and the natural environment; use techniques and knowledge that have been developed in prior courses within the water resources curriculum to manage water resources from a watershed perspective. Public relations and leadership skills will be emphasized in relation to achieving stakeholder consensus for basin-wide watershed management plans/projects. This course includes a focus on Comprehensive Local Water Management Plans based on local priorities which link many land-use decisions with local goals for surface and groundwater protection and management. (Cross-listed course; students can enroll only in WQAL 2267 or WSHD 2267.) Prerequisite(s): NRT 2315, WQAL 1656, WSHD 1656

Welding

WELD 1220 Basic Welding Skills
2 credits (**Lecture/Lab**)
The purpose of this course is to build skills in welding mild steel using E6010 and/or E6011 electrodes with the Shielded Metal Arc Welding Process and GMAW Process. The student will become familiar with SMAW and GMAW principles and techniques, practical safety standards, and filler metals and how to apply them according to AWS D1.1 Code in 1F, 2F, 3F, 4F, 1G, 2G, 3G, & 4G positions. Students will be evaluated on their performance in an industrial environment.

WELD 1221 Introduction to Shielded Metal Arc Welding
1 credit (**Lecture**)
The purpose of this course is to introduce the student to the Shielded Metal Arc Welding process and related safety practices established by the American Welding Society. The student will become familiar with SMAW principles and techniques, the ANSI/AWS Z49.1 safety standard, metallurgy, electrical principles, filler metals, and the application of filler metals to all weld types in all positions. Welding terminology and typical job communications will be covered.

WELD 1222 Basic Shielded Metal Arc Welding Skills
2 credits (**Lab**)
The purpose of this course is to develop skills in welding mild steel utilizing E6010 electrodes with the Shielded Metal Arc Welding process. The student will become familiar with associated SMAW principles, techniques, and related areas of the ANSI/AWS Z49.1 safety standard, when applying E6010 according to AWS Structural Welding Code in all positions.

WELD 1223 Shielded Metal Arc Welding Low Hydrogen Skills
2 credits (**Lab**)
The purpose of this course is to develop skills in welding mild steel utilizing E7018 electrodes with the Shielded Metal Arc Welding process. The student will become familiar with associated SMAW principles, techniques, and the related areas of the ANSI/AWS Z49.1 safety standard, when applying E7018 according to AWS Structural Welding Code in all positions.

WELD 1224 Shielded Metal Arc Welding Alloyed Metal Skills
2 credits (**Lab**)
The purpose of this course is to develop skills in welding alloyed materials and dissimilar metals utilizing stainless steel electrodes with the Shielded Metal Arc Welding process. The student will become familiar with associated SMAW principles, techniques, and related areas of the ANSI/AWS Z49.1 safety standard, when applying stainless steel electrodes according to AWS Structural Welding Code in all positions.

WELD 1231 Intro to Thermal Cutting Processes
1 credit (**Lecture**)
The purpose of this course is to introduce the student to Thermal Cutting Processes and the

related safety practices established by the American Welding Society. The student will become familiar with the process principles, capabilities, related areas of the ANSI/AWS Z49.1 safety standard, and equipment limitations of Oxy-Fuel Cutting (OFC), Plasma Arc Cutting (PAC), Carbon Arc Cutting-Air (CAC-A), and other various types of thermal cutting processes.

WELD 1232 Flame Joining Processes
1 credit (**Lab**)
The purpose of this course is to develop skills in joining materials utilizing the Oxy-Fuel Welding (OFW), Brazing (TB/TBW), and Soldering Processes established by the American Welding Society. The student will become familiar with associated flame joining principles, techniques, and related areas of the ANSI/AWS Z49.1 safety standard while practicing the oxy-fuel welding, brazing, and soldering processes on applicable materials in pre-determined positions.

WELD 1233 Cutting and Gouging Processes
4 credits (**Lab**)
The purpose of this course is to develop skills in cutting and gouging materials utilizing the Oxy-Fuel Cutting (OFC), Plasma Arc Cutting (PAC), Carbon Arc Cutting-Air (CAC-A) processes established by the American Welding Society. The student will practice the oxy-fuel cutting, plasma arc cutting, and carbon arc cutting- air processes and related areas of the ANSI/AWS Z49.1 safety standard, on various materials in pre-determined positions.

WELD 1234 Metal Prep Equipment, Operation, and Safety
1 credit (**Lecture/Lab**)
The purpose of this course is to introduce the student to the equipment and safety practices necessary to prepare metals satisfying joint design and joint testing requirements as described by the American Welding Society. The student will become familiar with the use of equipment in a safety focused environment. Welding terminology and typical job communications will be covered.

WELD 1241 Blueprint Reading
1 credit (**Lecture**)
The purpose of this course is to develop knowledge in practical blueprint reading and interpretation of welding symbols per the ANSI/AWS A2.4 Standard. Student will become familiar with blueprint features and the language of welding symbols used throughout the welding industry.

WELD 1251 Assigned Projects
1 credit (**Lab**)
This course covers the knowledge and skills to complete a typical job order as required by industry. The student will be assigned a project that expands upon the competencies learned in Weld 1221, Weld 1231, Weld 1261, Weld 1271, Weld 1281, depending on applicability. Prerequisite(s): WELD 1221, WELD 1231, WELD 1261, WELD 1271, WELD 1281

WELD 1255 Welding Mathematics
1 credit (**Lecture**)
The purpose of this course is to develop skills in measurement and mathematical calculation practiced in the field of welding. These skills are necessary throughout the welding field addressing fitment, machine settings, load limits, safe operating values, and material/job estimations.

WELD 1261 Gas Metal Arc Welding 1
1 credit (**Lecture/Lab**)
The purpose of this course is to develop skills in welding mild steel with the Gas Metal Arc Welding process. The student will become familiar with associated GMAW principles, equipment, techniques, and related ANSI/AWS Z49.1 safety standards, when welding according to AWS D1.1 Structural Welding Code- Steel standards in multiple positions. Student's welding performance will be evaluated with visual inspection (VT) of weld samples per AWS D1.1 Structural Welding Code- Steel standards in a work-like environment.

WELD 1262 Gas Metal Arc Welding 2
2 credits (**Lab**)
The purpose of this course is to develop skills in welding mild steel with the gas metal welding process. The student will become familiar with associated GMAW principles, equipment, techniques, and related ANSI/AWS Z49.1 safety standards, when welding in multiple positions on ferrous and non-ferrous materials. Student welding performance will be evaluated with visual inspection in a work like environment.

WELD 1271 Gas Tungsten Arc Welding 1
3 credits (**Lecture/Lab**)
The Purpose of this course is to introduce the student to the background and theory related to the Gas Tungsten Arc Welding Process and the

related areas of the ANSI/AWS Z49.1 safety standard. The student will become familiar with GTAW fundamentals, equipment, filler metals, and shielding gas related to GTAW on mild steel, and welding with the process in multiple positions.

WELD 1272 Gas Tungsten Arc Welding 2
2 credits (**Lab**)
The Purpose of this course is to introduce the student to the background and theory related to the Gas Tungsten Arc Welding Process and the related areas of the ANSI/AWS Z49.1 safety standard. The student will become familiar with GTAW fundamentals, equipment, filler metals, and shielding gas related to the GTAW process while welding ferrous and non-ferrous materials in multiple positions.

WELD 1281 Flux Core Arc Welding 1
2 credits (**Lab**)
The purpose of this course is to develop skills in welding mild steel with the Flux Core Arc Welding Process. The student will become familiar with associated FCAW principles, equipment, techniques, and related ANSI/AWS Z49.1 safety standard in the flat and horizontal positions. Students welding performance will be evaluated with visual inspection in a work like environment.

WELD 1282 Flux Core Arc Welding 2
2 credits (**Lab**)
The purpose of this course is to develop skills in welding mild steel with the Flux Core Arc Welding Process. The student will become familiar with associated FCAW principles, equipment, techniques, and related ANSI/AWS Z49.1 safety standard in the vertical and overhead positions. Students welding performance will be evaluated with visual inspection of weld samples in a work like environment.

WELD 1527 Welding for Automotive and Diesel
2 credits (**Lab**)
Welding for Automotive and Diesel is designed to give the auto service technician and diesel mechanic a basic understanding of the most commonly used welding equipment in the diesel mechanic field. Arc and gas welding safety are covered. Students experience various types of welding equipment and processes.

WELD 2240 Properties of Welding 1
1 credit (**Lecture**)
The purpose of this course is to continue the students' understanding of the Shielded Metal Arc Welding processes as applied to pipe and stainless steel welding. It will also expand the students' knowledge in the metallurgy of carbon and stainless steels. In addition, this course will also cover the AWS Standards (AWS D1.1, D1.6, API 1104) pertaining to plate, pipe and stainless steel certification. Prerequisite(s): WELD 1221

WELD 2241 Shielded Metal Arc Welding - Pipe
5 credits (**Lab**)
The purpose of this course is to afford the student the opportunity to become proficient welding pipe to AWS D1.1 and API 1104 codes using the Shielded Metal Arc process. Prerequisite(s): WELD 1222, WELD 1223

WELD 2242 Advanced Blueprint Reading
1 credit (**Lecture**)
This course covers mechanical drafting and welding symbols, sketching and drawing of simple assemblies and subassemblies, and applied metrics dimensioning and testing. This course will also cover the principles and methods of layout fabrication by means of scaling and modeling. Prerequisite(s): WELD 1241

WELD 2243 Flux Core Arc Welding 3
4 credits (**Lab**)
The purpose of this course is to afford the student the opportunity to become proficient welding plate and structural steel in all positions using Flux Core Arc Welding (self and dual shield) processes. AWS D1.1 and D1.6 codes will be followed. Prerequisite(s): WELD 1281

WELD 2244 Shielded Metal Arc Welding - Structural
2 credits (**Lab**)
The purpose of this course is to acquire the skills necessary to weld Low-Hydrogen electrodes in all positions to the profiles and acceptance criteria of AWS D1.1-Structural and AWS D1.5-Bridge. Prerequisite(s): WELD 1223

WELD 2245 Gas Tungsten Arc Welding - Pipe and Tube
3 credits (**Lab**)
The purpose of this course is to afford the student the opportunity to become proficient welding carbon steel pipe roots and tube using the Gas Tungsten Metal Arc (TIG) process to the

standards prescribed in the appropriate AWS, API, and ASME codes. Prerequisite(s): WELD 1271

WELD 2251 Gas Metal Arc Welding 3
4 credits (**Lab**)
The purpose of this course is to afford the student the opportunity to become proficient welding plate, pipe, and sheet steel, stainless steel and aluminum in all positions using Gas Metal Arc Welding (spray, short circuit) processes. AWS D1.1 and AWS D1.7 codes will be followed. Prerequisite(s): WELD 1261

WELD 2252 Gas Tungsten Arc Welding 3
3 credits (**Lab**)
The purpose of this course is to afford the student the opportunity to become proficient with the welding tube and sheet steel, stainless steel, and aluminum in all positions using Gas Tungsten Arc Welding processes. AWS D1.1 and 1.7 codes will be followed. Prerequisite(s): WELD 1271

WELD 2253 Template Development
2 credits (**Lecture**)
The purpose of this course is to acquire the skills necessary to develop templates used for pipe joint geometry layout and fabrication. Duct layout for welding will also be performed. Prerequisite(s): WELD 1255

WELD 2257 Rigging for Welders
1 credit (**Lecture/Lab**)
The purpose of this course is to introduce the student to simple machines, how they operate, and how they are used in combination to become compound machines that are used in industry. The student will also learn the math and measuring skills required.

WELD 2265 CNC Programming and Cutting
3 credits (**Lecture/Lab**)
This course provides studies in Computed Numerically Controlled (CNC) Programming and Cutting commonly done in fabrication shops.

WELD 2275 Stainless Steel Welding
2 credits (**Lab**)
This course covers the physical and mechanical properties of stainless steel as applicable to the welder. A variety of stainless steel weldments will be made in all positions. Destructive testing will be done on some weldments and the effects of technique, heat, and metallurgy will be examined. Prerequisite(s): WELD 1224

Wilderness Management

WILD 1265 Introduction to Wilderness and Park Management
3 credits (**Lecture**)
Students will be provided with an introduction to the wilderness and park concepts and land conservation in the United States. An overview of the Wilderness and Park Management Program at Vermilion will be presented with emphasis on its pre-professional nature and its career opportunities. Topics include the history of wilderness and parks in the United States, the Wilderness Act of 1964 and other land protection legislation and mechanisms, anthropocentric and biocentric land use perspectives, wilderness pioneers, land management agencies, wildland advocacy organizations, and an overview of contemporary wilderness and park management philosophy and techniques.

WILD 1271 Wilderness and Park Maintenance
4 credits (**Lecture/Lab**)
This course introduces the student to the basics of front and back country trail, campsite, grounds and facility maintenance. Topics will include site evaluation, planning and design for maintenance efficiency, maintenance standards, and resource/user safety. This course gives the student the opportunity to work with tools and techniques in order to develop and maintain the wilderness and park resource. Field work will be accomplished primarily through United States Forest Service, Minnesota State Parks and local community projects. Students will obtain traditional tool certification from the United States Forest Service. Prerequisite(s): PREC 1241

WILD 1420 Wilderness Topics
3 credits (**Lecture**)
This course is an examination of special wilderness topics, which may include but is not limited to, research and exploration of wilderness areas and issues in the United States and worldwide. This course goes in depth into researching assigned topics and creating and presenting the given topics.

WILD 2272 International Land Preservations Systems
3 credits (**Lecture**)
This course is an introduction to the fundamentals of International Land Preservation Systems will provide an exploration of wilderness and preserves on video, through research and travel. Students will learn how biodiversity fits into the

concept of cultural diversity, with an explanation of the differences between our system of wilderness preservation and that in other countries as well as a brief look at protected areas around the globe. Students will discuss buffer zones and sustainable development. Students will discover how people and culture define perspectives of wilderness. Students will understand the positive and negative aspects of eco-tourism and how it affects the host country.

WILD 2710 Independent Study - Wilderness
Variable, 1-3 credits (**Lecture**)
This is an independent study course for students demonstrating abilities to complete independent research. Students must have consent of the instructor and Provost after a special petition has been filed and approved.

CREDENTIALS

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