



## Section I

## Section II

### Graduate: Academic Integrity, Rights and Responsibilities

#### 2021-2022 Graduate Catalog

#### BSU Policy Statement on Academic Integrity

Graduate study at Bemidji State University offers students the opportunity to achieve an advanced state of knowledge based on the philosophy, history, theory, and methodology of a discipline or field of study. The ability to conduct research, to evaluate and apply the research of others, and to present, orally and in writing, the results of study and research to other scholars and to the community at large are among the professional skills obtained through such study. Graduate courses may be applied to graduate degrees and special programs such as licensures, or may be taken for professional and personal enhancement.

Bemidji State University fosters the highest standards of academic integrity and the highest regard for truth and honesty. The attempt by students to present as their own any work not actually performed by them; collusion, fabrication, and cheating on examinations, papers, and other course-related work; stealing, duplicating, or selling examinations; substituting for others in class discussions or examinations; producing other students' papers or projects; knowingly furnishing false or misleading academic information to University officials or on official University records; and altering such information on official University records are considered violations of academic integrity and destructive to the central mission of the University.

Students who violate academic integrity shall, after due process, be subject to University sanctions that may include failure on assignments and examinations and in courses, and suspension or expulsion.

Established academic integrity policies, procedures, and sanctions are communicated in classes and publications such as the student/faculty guides, and during orientation programs. For more information see the Student Handbook.

Rights and Responsibilities  
Code of Conduct

#### STUDENT RESPONSIBILITIES

Students are also expected to be familiar with academic policies and procedures as described in this catalog, as well as in the Handbook.

Students are expected to be familiar with the Student Code of Conduct and the Student Conduct System as presented in the Student Handbook. The rights and responsibilities of students and the expectations of the University are described in the guide, along with grievance and other procedures. Behavior that is threatening to the safety or welfare of one's self or others, or that is harassing or discriminatory in nature, will be reviewed promptly by the University, and appropriate action will be taken. The Student Code of Conduct does not replace or reduce the requirements of civil or criminal laws.

#### EXCERPT FROM THE PREAMBLE TO THE CODE OF CONDUCT

The campus is not a sanctuary from the general law. University community members violating civil or criminal law may be subject to University Conduct procedures for the same conduct when the conduct occurs on campus or when it occurs off campus but is directly related to the University community. The University may initiate Student Conduct action at its discretion.

#### Family Educational Rights and Privacy Act

Bemidji State University protects the privacy of student education records as required by the Family Educational Rights and Privacy Act (FERPA) of 1974 and the Minnesota Government Data Practices Act (MGDPA). These federal and state laws provide information on the privacy and confidentiality of student educational records. This notice of student rights, policy and procedures is available in hard copy and in alternative formats from the Office of Student Development and Enrollment, Deputy Hall 313 and the Records and Registration Office, Deputy Hall 101.

The laws are applicable to postsecondary institutions in two primary ways: 1) institutions must permit students to inspect and review their education records; and 2) in most instances only information defined and publicized by the institution in semester class schedules as "directory information" will be released without the expressed consent of the student unless otherwise directed by the student. However, under certain circumstances all educational records may be released without consent of the student.

More detailed information regarding data privacy laws is available in the Student Handbook.

#### Student Right to Know Act

As required by federal law, the rates at which full-time students complete bachelor's degrees from the University within a specified period of time are available on request in the Office of Institutional Research or in the Admissions Office in Deputy Hall.

#### Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act

The Annual Security Report, published by the Department of Public Safety, is distributed to all students, prospective students, faculty, staff, and prospective employees, and is available upon request. The report, which is in compliance with the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act, contains security policies and practices and campus crime statistics. The report may also be viewed online at [www.bemidjistate.edu/offices/safety/annual\\_report/](http://www.bemidjistate.edu/offices/safety/annual_report/).

#### Victims' Bill of Rights

Provisions addressing the rights of victims of sexual violence or assault were added to existing Minnesota State University Board policy on September 30, 1992. The Victims' Bill of Rights policy applies to all students, faculty, and staff, of Bemidji State University and the Minnesota State Colleges and Universities system. The policy is printed in the Student Handbook and in the Annual Security Report.

#### Additional Information on Rights and Responsibilities

For further information on rights and responsibilities, refer to the following publications:

The Student Handbook ([www.bemidjistate.edu/students/handbook/](http://www.bemidjistate.edu/students/handbook/))  
Annual Security Report (Department of Public Safety, Walnut Hall, 218-755-3888)  
Residential Life Handbook (Residential Life, Walnut Hall, 218-755-3750)  
Department and program handbooks (department and program offices)

#### Academic Grievances

The grievance procedures for challenging grades and registering complaints about faculty, courses, teaching procedures, and related academic concerns are described fully in the Policies and Procedures section of the Student Handbook. This section also describes administrative procedures for dealing with non-

academic complaints such as discrimination and harassment.

### Written Student Complaints

The University maintains a record of written student complaints filed with the offices of the President, the Provost and Vice President for Academic Affairs, the Vice President for Student Development and Enrollment, and the Vice President for Finance and Administration. Summary information regarding student complaints to these administrative offices is provided to the Higher Learning Commission (North Central Association), upon their request and in compliance with data privacy policy, as a part of the University's periodic accreditation review.

Bemidji State University endorses the Minnesota State Legislature's ethic of zero tolerance toward sexual violence and sexual harassment. All members of the Bemidji State Community are expected to comply with the letter of protective laws, and to take the spirit of such laws to heart. For information on the consequences of violating regulations, and on reporting incidents, refer to sexual violence/harassment publications available at the Hobson Memorial Union Information Desk and other campus locations, or contact the Office of Student Development and Enrollment, Deputy Hall, 218-755-2075; Department of Public Safety, Walnut Hall, 218-755-3888; the Human Resources Office, Deputy Hall, 218-755-3966, or the Office for Responsible Men, Responsible Women, 218-755-2080.

### BSU Graduate Studies Committee

The BSU Graduate Studies Committee is composed of graduate faculty. The Committee normally consists of five members elected by the faculty. One College Dean is invited to participate as an ex-officio member; the Director, School of Graduate Studies also attends as a non-voting member. The Committee considers graduate curriculum requests, program proposals, and advises the Director in formulating and discharging administrative responsibilities. Visit the School of Graduate Studies for Committee membership and minutes of past meetings.

### Director, School of Graduate Studies

The Director is the principal administrative officer of the graduate school. Responsibilities include participating as a non-voting member of the BSU Graduate Studies Committee, interpreting graduate policies and guidelines, carrying out assignments for the Vice President for Academic Affairs, and working with the faculty and academic deans on matters pertaining to graduate education.

## Graduate: Academic Progress and Status

### Academic Status

#### ACADEMIC STANDARDS

A high level of scholarship is expected of all students enrolled for graduate credit, whether or not they are pursuing a degree. Students are required to maintain a minimum cumulative GPA of 3.00 ("B") for all course work attempted.

#### FULL TIME/PART TIME STUDENT STATUS

Full-time and Part-time Status: A full-time graduate student is defined as one who has enrolled for a minimum of nine (9) semester credits. Full-time status is required to qualify for insurance coverage and for certain federal and state

financial aid programs (contact the Financial Aid Office). Status is based on credit load. For enrollment verification purposes, the graduate student course load is defined as follows:

Full time - at least nine (9) credits per semester.  
Three-quarter time - at least seven (7) credits per semester.  
Half time - at least five (5) credits per semester.

The maximum graduate credit load is sixteen (16) credits per semester. Students wishing to exceed the maximum load must receive approval from the Director, School of Graduate Studies. Additional information applies for graduate students who are participating in a graduate assistantship. Please see Graduate Assistantships located on the School of Graduate Studies website.

### RESIDENCE REQUIREMENTS

The master's degree requires a minimum of twenty (20) graduate credits completed through Bemidji State University. Individual programs may have on-campus residence requirements.

### FIFTY PERCENT (50%) REQUIREMENT

According to MnSCU Policy 3.36.1.9, "At least one-half of the required credits in a master's degree, exclusive of a thesis, capstone or similar culminating project, shall be credits restricted exclusively to graduate student enrollment." Therefore, the graduate student's course work must include a minimum of 50% of 6000-level credits, excluding those credits associated with a thesis, research paper, capstone, or similar culminating project.

### TIME LIMIT

Graduate credits earned within seven (7) years before the confirming of the degree shall apply to the master's program. All course work, including transfer credits, greater than seven (7) years old is considered to be obsolete and may not be included in a student's program of study.

A high level of scholarship is expected of all students enrolled for graduate credit, whether or not they are pursuing a degree. Students are required to maintain a minimum cumulative GPA of 3.00 ("B") for all course work attempted.

The academic progress of each student is reviewed by the Director, School of Graduate Studies, at the conclusion of each semester or summer term. Students who are not making satisfactory progress will be notified as follows:

Students who are provisionally admitted to the graduate studies program will be dismissed if they do not attain a cumulative GPA of 3.00 ("B") for the initial six (6) 6000-level graduate credits attempted. Students may petition the BSU Graduate Studies Committee, through the Director, School of Graduate Studies, for readmission (see Reinstated/Appeal Process in this section).

### CONTINUOUS ENROLLMENT

Students must register for at least 1 course credit for each semester until completion of the degree program. All requirements must be met to obtain a licensure or degree from Bemidji State University, it is quite possible that a student may have the required number of credits for a degree but has not finished all required components of the degree which necessitates continuous enrollment until all requirements are fully met and the student has successfully petitioned to graduate. Students must be registered during the semester in which the degree or licenses is conferred.

## II. MINIMUM PERCENT COMPLETION

A student is required to obtain a 66.67% course completion rate. Credits accepted in transfer are added to the BSU attempted credits and BSU earned credits, the calculated total earned credits is then divided by the calculated attempted credits to determine the percent completion rate.

### III. PROGRESS

Cumulative values are used in determining if academic progress has been met. Students not meeting the minimum grade point average or the minimum percent completion requirements will be notified of their academic progress status. Academic progress statuses include Academic Warning and Academic Suspension. See below for the criteria for each academic progress status.

### IV. DETERMINATION OF ACADEMIC PROGRESS STANDING

#### Academic Warning

The first time a student fails the minimum cumulative grade point average requirement or the cumulative percent completion requirement during the semester, the student will be placed on ACADEMIC WARNING.

Students placed on academic warning are eligible for continued enrollment and are expected to make progress toward meeting the minimum cumulative grade point average requirement and minimum percent completion requirement.

#### REQUIREMENTS FOR ACADEMIC WARNING

Upon conclusion of the warning term, if the student has met BSU's minimum cumulative grade point average and cumulative percent completion, the student's warning status will be removed.

#### Academic Suspension

At the conclusion of the warning term, those students not meeting the minimum cumulative GPA or minimum cumulative percent completion requirement will be suspended for the minimum time period of one calendar year indicated below.

### V. REINSTATEMENT/APPEAL PROCESS

Students suspended from Bemidji State University who wish to return following the period of suspension must submit a petition to the Director of the School of Graduate Studies. The petition should include information on the circumstances that affected past performance and a plan to be successful in achieving future academic progress goals. Readmission will be considered provided that certain conditions regarding academic deficiencies, as stated and designed by the student's advisor and approved by the Dean of the College, are agreed to in advance and reflected in the subsequent registration.

Those students on suspension due to poor academic performance may submit a petition/appeal prior to sitting out the term of suspension if extenuating circumstances impeded their academic performance.

All petitions are submitted to the Records & Registration Office to be reviewed by the Student Programs & Admissions (SPA) Committee. In order to allow sufficient time to review the petition, it is recommended that appeals are submitted at least two weeks prior to the start of the semester for which the appeal is being requested.

#### Academic Probation

Students with an approved petition for academic reinstatement will be placed on academic probation. While on probation, the student will be required to meet the terms that are set forth in the approved petition.

### CONTINUOUS ENROLLMENT

Students must register for at least 1 course credit for each semester until completion of the degree program. All requirements must be met to obtain a licensure or degree from Bemidji State University, it is quite possible that a student may have the required number of credits for a degree but has not finished all required components of the degree which necessitates continuous enrollment until all requirements are fully met and the student has successfully petitioned to graduate. Students must be registered during the semester in which the degree or licensure is conferred.

## Graduate: Academic Policies

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#### Academic Year

Bemidji State University functions on an academic semester system consisting of fall and spring semesters of approximately sixteen (16) weeks each, and a summer term. Credits earned during summer term may be applied toward the fulfillment of degree requirements.

#### Exceptions and Course Substitutions

Transfer credits are only accepted from colleges and universities that are regionally accredited and from approved international universities that offer a master's degree program.

- A transfer or substitutions of course credit(s) requires approval by petition (Graduate Petition-Form 6)
- A minimum letter grade of "B" (3.00) must be associated with each course to be transferred as a core requirement or elective.
- A maximum of ten (10) semester credits or equivalent will be considered in transfer, and all transferred course work must have been completed within the seven [7] years before the conferment of a BSU master's degree.
- Course work to be transferred into the guided electives category, in which a non-letter grade was received, will not be considered.
- Transferred courses will apply for credit only; grades of transferred courses will not be included in the computation of the Bemidji State University grade point average.
- All course work to be considered as transfer courses or substitutions must have the approval of the advisor, program director and/or department chair, College Dean, and Director, School of Graduate Studies and is reviewed on a student-by-student basis.
- Requests to register at another institution for the purpose of transferring credit into the program of study should receive advanced petition approval.
- Official transcripts must be on file before transfer credits are posted to student's BSU transcript.

Any student who has cause to request an exception and/or course substitution to existing academic requirements must fill out a Graduate Petition to initiate the request. Students requesting an exception should submit a petition to the appropriate department, dean and School of Graduate studies. The student's advisor, department chair and dean must sign the form.

### CONTINUOUS ENROLLMENT

Students must register for at least 1 course credit for each semester until completion of the degree program. All requirements must be met to obtain a licensure or degree from Bemidji State University, it is quite possible that a student may have the required number of credits for a degree but has not finished all required components of the degree which necessitates continuous enrollment until all requirements are fully met and the student has successfully petitioned to graduate. Students must be registered during the semester in which the degree or licensure is conferred.

## Withdrawal from School

Complete withdrawal from all courses must be finished prior to the withdrawal deadline published in the Academic Calendar, except in hardship cases.

A "W" grade is assigned when students formally withdraw from a course for which they are financially responsible.

Failure to withdraw officially will result in "F" grades.

For refund information, see Tuition and Fees.

Withdrawal may require repayment of financial aid and/or GI Bill payments and reassessment of eligibility. For return to the University see contact the Graduate Office or Admissions Office.

## CHANGE OF DEGREE OR PROGRAM

A change of degree or program requires approval by petition (Graduate Petition-Form 6).

## DUPLICATION OF COURSE WORK

A course taken at the undergraduate level cannot be retaken for credit at the graduate level. An appropriate course and credit substitution or waiver must be made.

## Graduate: Registration Policies

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Registration is not complete until tuition charges and fees incurred at registration have been paid in accordance with University procedures. Preregistered students are requested to comply with the payment deadline specified in the semester class schedule. Bemidji State University complies with Minnesota Statute 197.775 which exceeds all criteria of Title 38 United States Code Section 3679(e).

Late registrants must obtain instructors' approval to register for classes.

A hold will be placed on registration for students who have not paid any tuition charges and fees by the published deadline in the Academic Calendar.

Students must obtain instructor approval to register for a class after the "last day to add" date published in the Academic Calendar.

Grades, transcripts, and diplomas will not be released for students who have outstanding financial obligations at the close of a semester or summer term.

### Add, Drop or Change of Courses

The following guidelines apply unless otherwise noted in the current Class Schedule.

An instructor may decide to drop a student who does not attend the first three class meetings.

Schedule changes may be made without financial obligation by the deadline published in the Academic Calendar.

Students must obtain instructor approval to register for a class after the "last day to add" date published in the Academic Calendar.

Students may withdraw (drop) from a course at any time up to the published

deadline in the Academic Calendar, unless otherwise noted in the current semester class schedule--after this time, no course may be dropped except in special hardship cases. A student wishing to withdraw from a course must follow the proper procedure using the Web registration option. Courses dropped after the fifth day of classes will be assigned a "W" grade.

See "Academic Policies" for withdrawal from all courses.

No refunds for dropped courses will be given after the add/drop deadline as published in the Academic Calendar.

No course may be dropped after the published withdrawal deadline in the Academic Calendar, except in special hardship cases.

No student is added or dropped from a course until the proper procedure is followed using the Web registration option.

Withdrawal from classes could affect continued eligibility for financial aid. For details, visit the Financial Aid website.

### Repeating Courses

Apart from those courses whose descriptions state they may be repeated for additional credit, any course may be repeated once for the purpose of replacing the former grade with a new grade. Students wishing to do this must file a Repeat Form with the Records and Registration Office. Once the form is filed, the new grade, whether higher, the same, or lower, will be substituted for the original grade in computing the grade point average and total semester credits applied toward graduation. However, the original course and its grade will remain on the transcript. Classes originally taken for a letter grade must be repeated for a letter grade.

### Prerequisites and Corequisites

A prerequisite is a course that must be taken or an experience that must be acquired prior to registration for the course that lists the prerequisite. Departments may waive prerequisites in specific cases.

A corequisite is a course that must be taken or an experience that must be acquired concurrent with enrollment in the course that lists the corequisite. Departments may waive corequisites in specific cases.

It is the prerogative of the instructor to drop students from a class if they have not completed the prerequisites and/or corequisites as listed in the college catalog.

## Graduate: Registration

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### Academic Year

Bemidji State University functions on an academic semester system consisting of fall and spring semesters of approximately sixteen (16) weeks each, and a summer term. Credits earned during summer term may be applied toward the fulfillment of degree requirements.

### Withdrawal from School

Complete withdrawal from all courses must be finished prior to the withdrawal deadline published in the Academic Calendar, except in hardship cases.

A "W" grade is assigned when students formally withdraw from a course for which they are financially responsible.

Failure to withdraw officially will result in "F" grades.

For refund information, see the section on Tuition and Fees.

Withdrawal may require repayment of financial aid and/or GI Bill payments and reassessment of eligibility. For return to the University see "Students" under

the Admission section of this catalog.

Instructions for Complete Withdrawal from School

If you are withdrawing from ALL of your classes, you are advised to complete the following steps:

If you would like to speak to a counselor or faculty member about any academic or personal circumstances related to your withdrawal:

You are encouraged to stop by the Counseling Center in Birch Hall 1A or call 755-2053 to set up a confidential meeting, or contact your academic advisor.

Contact the Financial Aid Office in Deputy 114, 755-2034, to address the following: 1) repayment of aid received if you are withdrawing prior to 60% of the term being completed; 2) your eligibility for future financial aid when you return to school; and 3) exit student loan information.

All students withdrawing must:

Contact the Cashier's Office in Deputy 202, 755-2046, to determine if you are to receive a refund or if a financial aid repayment is necessary.

Finally, you must withdraw from all your classes prior to the last day to withdraw as published in the semester class schedule by:

Web Registration: Go to the BSU homepage (www.bemidjistate.edu) under myBSU, then e-Services.

Questions? Need assistance? Check out the last few pages of the class schedule for further information or stop by the Records and Registration Office, Deputy 101, or the Office of Student Development and Enrollment, Deputy 313.

Senior Citizens

https://www.bemidjistate.edu/admissions/graduate/apply/senior-citizens/

Graduate: Grades & Grading

Grades & Grading

Grade Point Average (GPA)

1. The grade point average is computed by dividing the number of quality points earned by the number of semester credits attempted for which grades of A, B, C, D, or F were given. Quality points for each course are calculated by multiplying the number of semester credits by the points awarded for the grade achieved in that course. Grade points are shown under "Grade Types" below. For example, a student who received an A, two B's, and one C, each grade from a three semester credit course, would have the following GPA:

A x 3 semester credits = 4 x 3 = 12 quality points  
B x 3 semester credits = 3 x 3 = 9 quality points  
B x 3 semester credits = 3 x 3 = 9 quality points  
C x 3 semester credits = 2 x 3 = 6 quality points  
  
12 semester credits - 36 quality points  
36 quality points divided by 12 semester credits = 3.00 GPA

2. Only the most recent grade of a repeated course will be used in computing the GPA. The first grade will be removed from the computation of the GPA once a Repeat Form is submitted to the Records and Registration Office. (See "Repeating Courses".)

3. Only credits taken at Bemidji State University or on the Common Market Program will be used in the computing the GPA. (See "Common Market Program" under Academic Degrees and Programs.)

4. All BSU courses taken in the major and minor areas count in the computation of those GPAs and, therefore, must be taken for a letter grade.

Grade Types

The work of a student is recorded as follows:

- A+ (4.0 quality points)
- A (4.0 quality points) | excellent
- A- (3.67 quality points)
- B+ (3.33 quality points)
- B (3.0 quality points) | very good
- B- (2.67 quality points)
- C+ (2.33 quality points)
- C (2.0 quality points) | average
- C- (1.67 quality points)
- D+ (1.33 quality points)
- D (1.0 quality point) | passing
- D- (0.67 quality point)
- F (0.0 quality points) | failure
- I - incomplete\*
- IP - in-progress\*
- Z - no grade reported by the instructor
- NC - no credit\*
- P - pass\*
- S - satisfactory\*
- U - unsatisfactory\*
- AU - audit \*
- W - withdraw (drop)\*
- EX -exchange\*

\*Additional information in "Grade Explanations" below.

The records of all courses completed prior to spring quarter 1975 are microfilmed and stored at Northwest Technical College, Bemidji, MN. Subsequent grade records are stored and backed up on computer disks.

Grade Explanations

I - Incomplete: To be used when prior arrangement is made between the student and the instructor or in the case of a verifiable emergency situation. An incomplete must be resolved by the end of the next regular term; otherwise, the grade is a failure and is so recorded. Any exception must be petitioned and approved by the Student Program and Admission Committee (petition forms in the Records and Registration Office). After one (1) year these grades may be discounted from the grade point average only when the courses are repeated. All "I" (Incomplete) grades must be resolved before a degree will be conferred.

IP - In-Progress: The student may, with the instructor's prior approval, be granted a grade of "IP" (In Progress) for an independent study project (e.g., thesis or research paper) or special course for which completion of the course within one semester may not normally be anticipated. All "IP" (In Progress) grades must be removed before a degree will be conferred.

S or U - Satisfactory or Unsatisfactory: Some courses, such as student teaching, internships, and some workshops, are offered only with the "S or U" grade designation. Letter grades are not available for these courses.

P, NC, or A - Pass, No Credit, or A Option: A student may enroll in certain courses on a Pass/No Credit (P/NC) basis by petitioning the Records and

Registration Office. No letter grade is assigned unless a grade of "A" is achieved and then that grade is so recorded. Semester credits earned on a Pass/No Credit basis are not included in the computation of the student's grade point average (GPA), but the pass semester credits count toward graduation. If an "A" grade is achieved, it is included in the GPA computation. Pass/No Credit grades become a part of the student's permanent record. The option to register on a Pass/No Credit basis may be exercised until the end of the tenth class day of a semester (fourth day of class during summer term). The Pass/No Credit registrant is obligated to complete all course requirements and to take all examinations. The following restrictions apply to Pass/No Credit registration:

- Pass/No Credit courses may not be used as part of a major, a minor, an emphasis, or Liberal Education.
- Professional Education courses and courses required for teacher licensure may not be taken Pass/No Credit.
- Courses offered on a Satisfactory/Unsatisfactory basis may not be taken Pass/No Credit.
- No more than one class per semester (regardless of semester credit) may be taken Pass/No Credit.
- No more than thirteen (13) semester credits may be accrued for graduation using the Pass/No Credit grading option.
- A student who is on academic probation may not register for any course on a Pass/No Credit basis, unless it is in excess of the twelve (12) semester credits of letter grade (A, B, C, D, or F) course work required.
- No class taken initially for a letter grade may be repeated on a Pass/No Credit basis.
- A petition to take a class on a Pass/No Credit must be filed with the Records Office by the 15th day of the semester.

**AU-Audit Option:** Students who desire to take a course without credit and without regard for the usual prerequisites may enroll as "audit." These students must notify the instructor that they are auditing. Students taking a course as 'audit' must pay the regular tuition and fees required of other students, but they are not permitted to take examinations. Audited courses do not earn credits and therefore cannot be counted toward graduation requirements or as part of the student's course load. Grades are recorded only as "AU" - audit. A petition to take a class as 'Audit' must be filed with the Records Office by the 15th day of the semester.

**W-Withdraw:** Given to students who withdraw prior to the withdrawal deadline published in the Academic Calendar from a class for which they are financially responsible. No one may withdraw from class after that time except in special hardship cases. Please see the Academic Calendar for accurate withdrawal dates.

**EX-Exchange:** Eligible students have the option of taking courses at other state universities while maintaining their residency at Bemidji State University. These courses are designated with an EX grade and are considered "residence credits" for all other university policies (GPA computation, residency requirements, etc.).

## Graduate: Graduation

# Graduation

Requirements for All Masters Degrees (MA., MS., MBA., MPAC, MSPED., MAT, GC)

## Graduate Program Requirements

Bemidji State University offers multiple pathways toward earning a Master's degree. Academic departments through the curricular process and approved by the Vice President of Academic Affairs choose the pathway (credit count and final project) for the graduate degrees they offer. Following the best practices established by the Council of Graduate Schools, Bemidji State University offers a variety of pathways for completing a master's degree as outline below.

### Master's Completion Project

Each graduate program has chosen the final project completion route for its master's degree program. A final project can come in a variety of forms: thesis (original research or an original creative project), research paper (comprehensive review and exposition of scholarly works within a disciplinary area), a capstone project (project based or simulations), and/or written comprehensive examinations. A Master of Arts or a Master of Science may utilize any of the final project forms listed above as determined by the department, college dean and VP for Academic Affairs but typically focuses on a thesis or research paper but can utilize the capstone project. The expectation for the Master of Arts or Master of Science is that the final project will be submitted in written format (utilizing appropriate disciplinary writing format: MLA, APA, etc.) to the School of Graduate Studies have been approved by all required personnel of the university

### Admission to Candidacy

Admission to the university and a graduate program signifies that a student has satisfied the entrance requirements that normally will lead to a degree. Advancement to candidacy, formally admits the student into a graduate degree program with the intent of earning a master's degree. Candidacy is granted to a student who has demonstrated, by initial credits and subsequent grades earned in a Bemidji State University graduate program, the ability to produce quality work in accordance with the program, college and university expectations

1. Requirements for Admission to Candidacy: All candidates are required to satisfy any conditions attached to their admission and achieve a cumulative GPA of at least a 3.00 ("B") for course work attempted.
2. Application for Admission to Candidacy: Students must submit the Admission to Candidacy Form upon completion of 9-12 graduate-level credits. It is the student's responsibility to initiate contact with the advisor for the purpose of applying for candidacy, designing a plan of study, and (where/when appropriate) forming an advisory committee.
3. Admission to Candidacy for Dual Degree/Program: Student who are attempting two earn two graduate degrees simultaneously at Bemidji State University must submit an Admission to Candidacy Form for both programs. No more than 10 credits of core and elective courses may count across programs.
4. A Program of Study or Application for Admission to Candidacy: The program of study a) must be determined in consultation with the student's advisor, b) must list all course work completed as well as all anticipated course work to be used to satisfy degree requirements, and c) requires the approval of the advisor, the department/program chair, the college dean, and the Director, School of Graduate Studies.
5. Changes to an Approved Program of Study: A Graduate Petition approved by the advisor, the department/program chair, College Dean, and the Director, School of Graduate Studies, is required if the student intends to substitute course work in areas other than the elective category. A revised second set of candidacy plans must be approved if the student requests more than three (3) non-elective courses, or six (6) credits, in substitutions to the approved program.
6. Transfer Credit: All transfer credits should be indicated on the Application for Admission to Candidacy. No more than 10 credits can be transferred from another accredited university towards a

graduate program at Bemidji State University.

7. Students must consult with their assigned advisor as to the master's completion project pathway to be utilized and indicated on the Application for Admission to Candidacy.

#### Thesis Option

1. Coursework Completion: A minimum of 30 credits is required in the thesis option including the credits granted for the thesis. A maximum of 10 graduate semester credits may be considered in transfer from another regionally accredited U.S. or approved international college or university. A cumulative grade point average of 3.0 for all coursework and completion of all program requirements are required prior to the student's final thesis oral defense and submission. 50% of coursework excluding the thesis credits must be at the 6000 level.
2. Submission of the Culminating Project Committee Approval Form. The initial date for convening the committee must be recorded on the form. The student is not permitted to submit the Culminating Project Committee Approval Form during the same semester in which they plan to graduate, it must be submitted at least one semester prior to the graduation semester. All committee members must be approved and hold Graduate Faculty status at Bemidji State University. The committee will be chaired by the principal thesis advisor and will be composed of at least two graduate faculty. A graduate faculty representative will be appointed by the School of Graduate Studies as an outside process monitor.
3. Submit the Application for Graduation during the first week of the final semester.  
The Application for Graduation is valid for one semester only and must be resubmitted if the student wishes to change semesters.
4. Schedule the final defense/oral examination with the committee.
  - a. Notification of Final Defense/Oral Examination must be submitted to the Office of Graduate Studies three weeks prior to the selected date for the final defense/oral examination. At this time, the School of Graduate Studies will appoint the Graduate Faculty Representative.
  - b. Cannot be held during the same semester when the initial Culminating Project Committee Approval Form is submitted.
5. A student in the Thesis Option is required to submit an original manuscript and one copy of the thesis to the School of Graduate Studies in partial fulfillment of the requirements for the degree. All theses must be prepared in accordance with the "Handbook for the Preparation of the Thesis or Research Paper."
6. Department submits "Confirmation of Degree Requirements" Form.

#### Research Paper Option

1. Coursework Completion: A minimum of 30 credits is required in the research paper option including the credits granted for the research paper. A maximum of 10 graduate semester credits may be considered in transfer from another regionally accredited U.S. or approved international college or university. A cumulative grade point average of 3.0 for all coursework is required and completion of all program requirements are required prior to the student's final oral defense and submission. 50% of coursework excluding the research paper credits must be at the 6000 level.
2. Submission of the Culminating Project Committee Approval Form. The initial date for convening the committee must be recorded on the form. The student is not permitted to submit the Culminating Project Committee Approval Form during the same semester in which they plan to graduate, it must be submitted at least one semester prior to the graduation semester. All committee members must be approved and hold Graduate Faculty status at Bemidji State University. The committee will be chaired by the principal advisor and will be composed of at least two department faculty and one

additional Graduate Faculty member. A graduate faculty representative will be appointed by the School of Graduate Studies as an outside process monitor.

3. Submit the Application for Graduation during the first week of the final semester.  
The Application for Graduation is valid for one semester only and must be resubmitted if the student wishes to change semesters.
4. Schedule the final defense/oral examination with the committee.
  - a. Notification of Final Defense/Oral Examination must be submitted to the Office of Graduate Studies three weeks prior to the selected date for the final defense/oral examination. At this time, the School of Graduate Studies will appoint the Graduate Faculty Representative.
  - b. Cannot be held during the same semester when the initial Culminating Project Committee Approval Form is submitted.
5. Department submits "Confirmation of Degree Requirements" Form.

#### Capstone Option

1. Coursework Completion: A minimum of 30 credits is required for the Capstone option including the credits granted for the Capstone course and all program requirements must be fulfilled. A maximum of 10 graduate semester credits may be considered in transfer from another regionally accredited U.S. or approved international college or university. A cumulative grade point average of 3.0 for all coursework and completion of all program requirements are required prior to the student's final capstone submission. 50% of coursework excluding the capstone credits must be at the 6000 level.
2. Submission of the Culminating Project Committee Approval Form. All committee members must be approved and hold Graduate Faculty status at Bemidji State University. The committee will be chaired by the advisor and will be composed of at least one other graduate faculty member.
3. Submit the Application for Graduation during the first week of the final semester.  
The Application for Graduation is valid for one semester only and must be resubmitted if the student wishes to change semesters.
4. Schedule the final review of the Capstone project with the committee.
5. Department submits "Confirmation of Degree Requirements" Form.

#### Written Comprehensive Examination Option

1. Coursework Completion: A minimum of 30 credits is required in the written comprehensive examination. A maximum of 10 graduate semester credits may be considered in transfer from another regionally accredited U.S. or approved international college or university. A cumulative grade point average of 3.0 for all coursework and completion of all program requirements are required prior to the student's submission of the written comprehensive exams. 50% of coursework must be at the 6000 level, no credits are given for the written examination.
2. Submission of the Culminating Project Committee Approval Form. Three members of the department, chaired by the primary advisor, will serve as the written examination readers. The student is not permitted to submit the Culminating Project Committee Approval Form during the same semester in which they plan to graduate, it must be submitted at least one semester prior to the graduation semester. All committee members must be approved and hold Graduate Faculty status at Bemidji State University.
3. Submit the Application for Graduation during the first week of the final semester.
  - a. The Application for Graduation is valid for one semester only and must be resubmitted if the student wishes to change semesters. The application must contain the dates for the written examinations.



4. Schedule the written examinations with the committee.
  - a. Notification of the Examination date must be submitted to the Office of Graduate Studies three weeks prior to the selected date for the written examination.
  - b. The committee members will compose five written comprehensive examination questions for the student's schedule examination date and submit the questions to the School of Graduate Studies.
  - c. During the examination period, the student will select three out of five questions to answer for the exam. The questions will be submitted electronically to the School of Graduate Studies.
  - d. The School of Graduate Studies will send copies of the written examinations to the three committee members, who will independently grade the examination questions as Satisfactory "S" or Unsatisfactory "U". In order to pass the examination, a student must earn at least 2 "S" grades per each question submitted from the three graders on the committee.
  - e. If a student does not pass the final examinations on the first round, they are permitted to take the examinations again during the following semester. Only two attempts are permitted for the examination process, if a student does not pass during these two attempts, they will be dismissed from the program.
5. Department submits "Confirmation of Degree Requirements" Form if the student successfully passes the written examinations.

## Graduate: Understanding Programs

### Graduate Studies

Memorial 310  
218-755-2027

Bemidji State University began offering graduate course work in the summer of 1953. Accreditation was received from the North Central Association of Colleges and Secondary Schools for the Master of Science degree in Education in 1957. The University received approval to offer graduate course work leading to the Master of Arts degree in 1969. The graduate program offers a variety of graduate master's degree programs and specialized licensures. Graduate-level course work is offered for students pursuing a degree, as well as for students who wish to continue professional preparation or broaden their educational experiences without reference to the requirements for a degree.

The goal of graduate studies is to enable the student to achieve an advanced state of knowledge and professionalism encompassing the philosophy, history, theory, and methodology of a discipline or field of study. Students who attain this goal will have developed the skills necessary to conduct research, to evaluate and apply the research of others, and to present, orally and in writing, the results of their studies to other scholars and to the community at large.

Applicants with an undergraduate cumulative grade point average of at least 2.75 (4.0 = A) (check with specific department as some may have a different requirement) or a cumulative grade point average of at least 3.00 ("B") during the final 60 semester credits will be considered for admission. All applicants for a degree program must also submit one (1) official transcript from each previously attended regionally accredited college or university and a completed application for admission accompanied by a non-refundable application fee. Biology and Environmental Studies applicants in addition are required to provide results from the Graduate Record Exam (GRE) general test. International applicants whose first language is other than English must also submit the TOEFL.

**Graduate Special Student Status:** Students seeking to take graduate courses without a planned degree objective may apply for special student admission. Admission as a Graduate Special student requires that the applicant must have graduated with a baccalaureate degree from a regionally accredited college or university. Applicants who are admitted as Graduate Special students may later

apply for admission to a graduate degree program. A non-refundable application fee is required.

## Graduate: Understanding University Credit

### Semester Credits

The unit of credit is the semester credit, representing the satisfactory completion of a subject pursued for a period of not less than fifty (50) classroom minutes per week for the semester, or two periods (100 minutes) of laboratory work per week for the semester, or the equivalent.

Students who transfer quarter credits are awarded .67 semester credits for every quarter credit accepted.

### Maximum Credit Load

### Residence Credit

### Fifty Percent (50%) Requirement

According to MnSCU Policy 3.36.1.9, "At least one-half of the required credits in a master's degree, exclusive of a thesis, capstone or similar culminating project, shall be credits restricted exclusively to graduate student enrollment." Therefore, the graduate student's course work must include a minimum of 50% of 6000-level credits, excluding those credits associated with a thesis, research paper, capstone, or similar culminating project.

### Extended Learning

Credits earned through Extended Learning are considered Bemidji State University residence credits.

### Correspondence Credits

Correspondence credits are semester credits earned in courses taken by correspondence through an accredited institution of higher education.

### Non-Collegiate and Experiential Learning

Extended Learning, 105 Deputy Hall  
218-755-2068

The University's program for the evaluation of non-college and experiential learning which occurred prior to or outside a formal academic institution enables students to enrich or accelerate their program of study. Such learning may be the result of a variety of life experiences, such as continuing education, work experience, or individual study. Experiential university credit is not awarded on the basis of experience alone, but for the achievement of an advanced level of knowledge and/or skill.

The methods of determining either recognition or university credit are predicated on prior learning that is considered to be at a university level. Each department determines the criteria, if any, which if satisfied, will result in the awarding of university credit. The departments have the prerogative of determining which courses, if any, may be evaluated for non-college or experiential learning.

### Transfer of Credits to Other Institutions

Credits earned at Bemidji State University are accepted by other colleges and universities, if they are applicable to the student's undergraduate or graduate program.

As the University cannot certify credit earned at other institutions, copies of transcripts other than those from Bemidji State University will not be issued.

## Graduate: Understanding University Courses

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### Common Course Outlines

Common course outlines are available in the course catalog under each course description. A common course outline is intended to provide additional course information that may be used to evaluate a course for transfer.

### Course Levels by Number

#### 5000 Level Courses

Graduate courses offered at the 5000 level may be double numbered with courses at the 3000 or 4000 level. However, all such courses require prior approval through the curriculum process. Courses at the 5000 level concurrently offered with undergraduate courses include additional graduate-level assignments, typically in the form of an advanced paper or project, reading assignments, examinations, and conferences. A differentiated grading system is also required for graduate students in double-numbered courses.

#### 6000 Level Courses

Graduate courses at the 6000 level are available to graduate students only. Undergraduate students may not register or attend 6000-level courses.

### All-University Courses

The All-University courses listed below are generally not included in the formal semester or summer term schedules. Registration in such courses requires the approval of the instructor, department/program chair, College Dean, and the Director, School of Graduate Studies.

#### 5910, 6910 DIRECTED INDEPENDENT STUDY

Arranged individual study.

#### 5920, 6920 DIRECTED GROUP STUDY

Arranged group study.

#### 5930, 6930 EXPERIMENTAL COURSE

A course proposed for inclusion in the University curriculum; may not be offered more than two times as an experimental course.

#### 5940, 6940 IN-SERVICE COURSE

An in-service course is for practitioners seeking additional training or expertise in their current vocation or profession. The format typically includes an educational experience in which a University faculty member and a group of students

concentrate on working toward the resolution of a specific problem.

#### 5960, 6960 SPECIAL PURPOSE INSTRUCTION

A course intended for specific groups or organizations outside the University community.

#### 5970, 6970 INTERNSHIP

Graded Satisfactory/Unsatisfactory only Student internships may be either full-time or part-time in a public or private agency appropriate to the degree objective. Internships consist of closely supervised periods of service that are arranged in advance of the course registration. Students should consult their advisor concerning prerequisites.

#### 5980, 6980 RESEARCH

Research carried out by the student that is based on appropriate methodology and scholarship.

#### 5990, 6990 THESIS

A thesis written by the student that reports extensive original research carried out by the student and demonstrates appropriate methodology and scholarship.

### Academic Procedures

#### READMISSION AFTER DISMISSAL

A graduate who is dismissed based on academic performance or academic irregularities may petition for admission following an absence of one calendar year from the date of formal dismissal. The petition (Graduate Petition-Form 6) for readmission requires the approval of the department/program chair, College Dean, and the Director, School of Graduate Studies.

#### ACADEMIC GRIEVANCES

The grievance procedures for challenging grades and registering complaints about faculty, courses, teaching procedures, and related academic concerns are described fully in the Policies and Procedures section of the Student Handbook. This section also describes administrative procedures for dealing with non-academic complaints such as discrimination and harassment.

#### WRITTEN STUDENT COMPLAINTS

The University maintains a record of written student complaints filed with the offices of the President, the Vice President for Academic Affairs, the Vice President for Student Development & Enrollment, and the Vice President for Finance and Administration.

Summary information regarding student complaints to these administrative offices is provided to the Higher Learning Commission (North Central Association), upon their request and in compliance with data privacy policy, as a part of the University's periodic accreditation review.

# Accounting

## Programs

- Accounting, M.P.A. *mpac*

## Accounting, M.P.A. *mpac*

The Master of Professional Accounting (MPA) is the graduate degree offered by Bemidji State University's Accountancy Department. It is intended to provide graduates with advanced-level skills and understanding required to function effectively in the dynamic, technologically complex, and rapidly changing accounting environment of today, and to prepare students to pass the CPA exam. Successful graduates of the program will be able to apply analytic thinking methods to accounting scenarios using multidisciplinary concepts and tools; to communicate effectively in writing in a variety of accounting environments; to demonstrate advanced competence in auditing, financial accounting, business environment and concepts, business law, tax, and ethics; to manage data analytics projects; and to clearly define the role of corporate social responsibility in today's complex world.

### *Accelerated MPA Option (4 + 1 Program)*

The accelerated MPA (4+1) program option enables undergraduate students of Accounting to be accepted, and potentially start the MPA Program while pursuing their accounting bachelor's degree. Students admitted into the Accelerated MPA (4+1) Program may have a limited number of graduate level courses counted toward both the undergraduate and graduate degree taken during their senior year. Before enrolling in a course to be counted as both undergraduate and graduate credit (mixed credit), an undergraduate student must be accepted into the program and receive prior approval from the graduate program advisor/director and the respective college dean. A maximum of 12 credit hours may be taken as Mixed Credit. Students who are interested in the program apply for admission during the fall/spring of their junior undergraduate year, allowing the option of taking MPA courses during their senior year that can be counted as elective courses for the undergraduate degree. Full Time students take 3 to 4 classes per semester, while Part Time students take 1 to 2 classes per semester.

### *Regular MPA Option*

This program option is for students who already have a bachelor's degree in accounting from an accredited college or university. The program can be completed either full-time or part-time. Full Time students take 3 to 4 classes per semester, while Part Time students take 1 to 2 classes per semester.

**Program Admission Requirements for 4 + 1 program option: Accounting**  
**Applicants for admission to the program will be evaluated on the following criteria:**

1. An undergraduate grade point average with minimum of 80 credit hours that is at least 3.25 in the accounting program at Bemidji State University.
2. A GMAT score (or an equivalent GRE score) from test taken within the past five years and scores of at least 400.

\*The GMAT may be waived for present BSU students who satisfy ALL of the following requirements:

- Earned a 3.5 cumulative GPA at Bemidji State University
  - Admitted as an Accounting major at Bemidji State University
  - Completed a minimum of 80 hours at the time of application
  - Meet all English proficiency requirements
5. Two letters of recommendation from professional individuals
  6. A one to two page letter of intent that states why the applicant is

- seeking this degree with a resume
7. TOEFL or IELTS scores for international applicants

### **Program Admission Requirements for Regular MPA**

**Applicants for admission to the program will be evaluated on the following criteria:**

1. A bachelor's degree in accounting from a regionally-accredited university or its equivalent
2. An undergraduate grade point average that is at least 2.75, or its equivalent
3. A combination of undergraduate GPA and GMAT score (or an equivalent GRE score) from test taken within the past five years that meets one of the following criteria:
  - GPA of at least 2.75 and GMAT of at least 500 or
  - GPA of at least 3.00 and GMAT of at least 450 or
  - GPA of at least 3.25 and GMAT of at least 400 or
  - GPA of at least 3.50\* or an equivalent

\*The GMAT may be waived for candidates who satisfy ALL of the following requirements:

1. Earned a 3.5 cumulative GPA
2. Admitted or have graduated as an Accounting major at Bemidji State University OR graduated with an accounting degree from a regionally-accredited school in the United States
3. Meet all English proficiency requirements

OR professional licensure in the US as a CPA, CMA, CIA, CFA, or CFP  
OR an earned terminal degree (PhD, DBA, MD, JD, etc.) from an accredited institution.

4. Two letters of recommendation from professional individuals
5. A one to two page letter of intent that states why the applicant is seeking this degree
6. TOEFL or IELTS scores for international applicants
7. Offered

### **Competency Requirement**

A working knowledge of applied statistics. This requirement may be satisfied by successfully completing MBA 5110 Business Analytics (3 credits).

### **COMPREHENSIVE EXAMINATION**

Upon completion of all required coursework, MPA students will be required to take a simulated Certified Public Accountant (CPA) exam administered by Becker and obtain an average score of at least 60 on all 4 sections in order to graduate from the program. Students will be allowed to retake any section of the exam in order to increase the average score. Students will be able to replace any section of the Becker CPA exam sections with proof of a score on the actual

exam.

## Accounting, M.P.A. master

The Master of Professional Accounting program is a Master's Program with two options for completion. In the accelerated option, students are able to take the first four classes as a senior accounting student at Bemidji State. Other incoming graduate students can take those courses once they are admitted to the program. The program assumes a Bachelor of Accounting degree as a requirement and admittance into the program for students to take the other required courses.

**Required Credits: 30**

**Required GPA: 3.0**

### I. CORE COURSES

Complete the following courses:

- ACCT 5100 Accounting Theory and Research (3 credits)
- ACCT 5150 Advanced Accounting Systems (3 credits)
- ACCT 5160 Business Communication (3 credits)
- MBA 5110 Business Analytics (3 credits)

### II. OTHER REQUIRED COURSES

Complete the following courses:

- ACCT 6110 Financial Accounting and Reporting (FAR) (3 credits)
- ACCT 6120 Business Environment and Concepts (BEC) (3 credits)
- ACCT 6130 Auditing & Attestation (AUD) (3 credits)
- ACCT 6140 Business Law, Ethics & Tax Regulation (REG) (3 credits)
- MBA 5120 Managerial Finance (3 credits)
- MBA 6135 Information Systems Management (3 credits)

#### Competency Requirement

A working knowledge of applied statistics. This requirement may be satisfied by successfully completing MBA 5110 Business Analytics (3 credits).

**Comprehensive Examination** Upon completion of all required coursework, MPA students will be required to take a simulated Certified Public Accountant (CPA) exam administered by Becker and obtain an average score of at least 60 on all 4 sections in order to graduate from the program. Students will be allowed to retake any section of the exam in order to increase the average score. Students will be able to replace any section of the Becker CPA exam sections with proof of a score on the actual exam.

## Accounting Courses

### ACCT 5100 Accounting Theory and Research (3 credits)

Selected contemporary and international issues in financial accounting, with an emphasis on reading and interpreting professional accounting literature to prepare financial statements according to generally accepted accounting principles (GAAP). This course is designed as an overview of professional literature on financial accounting for majors in professional accountancy. Also appropriate for controllers and others interested in the application of GAAP. Prerequisite(s): Accounting Bachelor's degree.

### ACCT 5150 Advanced Accounting Systems (3 credits)

In-depth coverage of advanced accounting information systems topics that will be critical for future accounting professionals. These include awareness and exposure to SEC coding - XBRL, the use of data analytics in accounting for management support, auditing engagements, internal control tools, etc., advanced excel skills such as pivot tables and lookups, and exposure to an Enterprise Resource Planning system (ERP) used by the vast majority of mid-size and large enterprises throughout the world. Prerequisite(s): Acceptance into the Master of Professional Accountancy (MPA) program.

### ACCT 5160 Business Communication (3 credits)

This course is intended to provide students with increased knowledge and communication competencies in a business setting. The course is divided into three sections, which allows students to analyze data and present recommendations to a simulated investing business committee. Students will execute higher-level excel functions, produce professional business correspondence based on excel data, and prepare and deliver individual and group presentations applicable to their findings. Overall, this course emphasizes the importance of professional communication used in business settings.

### ACCT 6110 Financial Accounting and Reporting (FAR) (3 credits)

Conceptual framework and structure of accounting theory, including study of selected Financial Accounting Standards Board (FASB) statements and other professional literature. Prerequisite(s): Accounting Bachelor's Degree or instructor consent.

### ACCT 6120 Business Environment and Concepts (BEC) (3 credits)

An in-depth study of business environment and concepts adapted to current business conditions. Prerequisite(s): Accounting Bachelor's Degree or instructor consent.

### ACCT 6130 Auditing & Attestation (AUD) (3 credits)

Planning the auditors engagement with clients, evaluating internal controls, obtaining and documenting information, reviewing engagements, evaluating information, and preparing communications. Prerequisite(s): Accounting Bachelor's Degree or instructor consent.

### ACCT 6140 Business Law, Ethics & Tax Regulation (REG) (3 credits)

The advanced study of ethics and professional responsibility, business law, Federal tax procedures and accounting issues, Federal taxation of property transactions, and Federal taxation for individuals and entities. Weekly case studies included for topics of study. Prerequisites: Accounting Bachelor's Degree or instructor consent

## All-University Courses

The course numbers listed below, not always included in the semester class schedule, may be registered for by consent of the advisor, instructor, or department chair, or may be assigned by the department when warranted. Individual registration requires previous arrangement by the student and the completion of any required form or planning outline as well as any prerequisites.

1910, 2910, 3910, 4910 DIRECTED INDEPENDENT STUDY  
1920, 2920, 3920, 4920 DIRECTED GROUP STUDY  
1930, 2930, 3930, 4930 EXPERIMENTAL COURSE  
1940, 2940, 3940, 4940 IN-SERVICE COURSE  
1950, 2950, 3950, 4950 WORKSHOP, INSTITUTE, TOUR  
1960, 2960, 3960, 4960 SPECIAL PURPOSE INSTRUCTION  
1970, 2970, 3970, 4970 INTERNSHIP  
1980, 2980, 3980, 4980 RESEARCH  
1990, 2990, 3990, 4990 THESIS

# Biology

Chair:  
michael.hammann@bemidjistate.edu

Graduate Coordinator:  
richard.koch@bemidjistate.edu

## Programs

- Biology, M.S. *master*

## Biology, M.S. *master*

Required Credits: 30 (Thesis) or 36 (Non-Thesis)  
Required GPA: 3.0

### Biology, MS

Pathway 1: Thesis Option

#### I. REQUIRED CORE

Complete the following courses:

- BIOL 6338 Advanced Science Communication (3 credits)
- BIOL 6350 Computer Applications in Statistics (3 credits)
- BIOL 6890 Grants and Contracts (2 credits)

Must be taken 4 times over 4 semesters for 4 credits:

- BIOL 6880 Seminar (1 credit)

#### II. REQUIRED ELECTIVES

Select, with consent of advisor, a minimum of 12 semester credits of graduate level coursework in Biology or related field:

#### III. REQUIRED RESEARCH THESIS

Complete the following course for 6 credits:

- BIOL 6990 Thesis (1-3 credits)

#### COMPETENCY REQUIREMENT

Statistics: A working knowledge of applied statistics. This requirement may be satisfied by successfully completing BIOL 6350 Computer Applications in Statistics (3 credits).

Pathway 2: Non-Thesis Option

#### I. REQUIRED CORE

Complete the following courses:

- BIOL 6330 Current Topics in Biology (3 credits)
- BIOL 6338 Advanced Science Communication (3 credits)
- BIOL 6340 Controversies in Biology (3 credits)
- BIOL 6350 Computer Applications in Statistics (3 credits)
- BIOL 6450 Trajectories in Biology: Past, Present, and Future (3 credits)
- BIOL 6890 Grants and Contracts (2 credits)

#### II. REQUIRED ELECTIVES

Select, with consent of advisor, a minimum of 16 semester credits of graduate level coursework in Biology or related field:

#### III. REQUIRED CAPSTONE (Note: Completed in student's final semester.)

- BIOL 6899 Capstone (3 credits)

#### COMPETENCY REQUIREMENT

Statistics: A working knowledge of applied statistics. This requirement may be satisfied by successfully completing BIOL 6350 Computer Applications in Statistics (3 credits).

## Biology Courses

### BIOL 5030 Wetland Delineation and Classification (3 credits)

This training course for the identification, delineation, and classification of wetlands covers the major types of wetlands and their general delineation procedures. Hydrological, soil, and vegetation characteristics will be used to identify and map wetland boundaries. Focuses on current regulations as established by the US Army Corps of Engineers' 1987 Wetland Delineation Manual with additional regulations specific for the state of Minnesota. Satisfies the requirements for basic delineation training as specified by the Corps of Engineers and certification programs in many states.

### BIOL 5120 Soils (4 credits)

Introduction to principles of soil genesis, classification, physical and chemical properties, and biological significance. Lecture and laboratory.

### BIOL 5200 Freshwater Invertebrates (4 credits)

Morphology and functional roles of representative freshwater invertebrates, their ecological and habitat interrelationships. Lecture and laboratory.

### BIOL 5210 Parasitology (4 credits)

The biology of animal parasites, their identification, biochemistry, immunology, and epidemiology. Lecture and laboratory.

### BIOL 5250 Human Anatomy (4 credits)

Anatomical structure of the human body, from individual organ systems to the integrated whole.

### BIOL 5260 Human Physiology (4 credits)

Physiological and pathophysiological principles and control mechanisms of organ systems within humans. Lecture and laboratory.

### BIOL 5270 Histology (4 credits)

Microscopic anatomy of vertebrate tissues and organs with functional correlations. Lecture and laboratory. Prerequisites: BIOL 5250, BIOL 5260

**BIOL 5299 Virology (3 credits)**

This course explores virology, which is the study of viruses that infect all manner of life on earth. We will focus on animal viruses and those that impact human health. Important discoveries from viruses that infect microbes, plants, and non-human animals will be included. Prerequisite(s): One year introductory biology or consent of instructor.

**BIOL 5310 Entomology (3 credits)**

The biology of insects and their importance.

**BIOL 5330 Upland Wildlife Management (3 credits)**

An advanced pre-professional course for majors in natural resources, biology, and related fields. Lectures cover the history, philosophy, evolution, and application of wildlife management with a focus on upland wildlife as a renewable, sustainable natural resource. The course fulfills some professional certification requirements of The Wildlife Society and is recommended for students planning graduate study or employment in natural resources management.

**BIOL 5337 Science Communication (3 credits)**

This online course includes training in the skills, tools, and habits of mind of the practicing scientist. These skills include navigating and understanding the scientific literature, framing evidence-based and model-driven scientific questions, proposing and testing hypotheses, conducting research responsibly and ethically, analyzing and visualizing data, and communicating scientific rationale and results in lab meetings, presentations, research funding applications, and job searches.

**BIOL 5339 Bioethics (3 credits)**

In this online Bioethics course we will grapple with the many philosophical, ethical, and practical questions created by advances in medicine and biology using a combination of readings, case studies, scientific literature, and popular culture. The course has undergraduate and graduate sections and is intended for students in their Junior year of college or later. Topics include prenatal testing, abortion, assisted suicide, human augmentation/transhumanism, cloning, disability rights, animal rights, genetically modified organisms, and environmental ethics.

**BIOL 5360 Developmental and Tumor Biology (3 credits)**

Investigation of the mechanisms leading to the development of multicellular animal organisms from a fertilized egg. In contrast, the course also investigates how cells within a multicellular organism can become misregulated, leading to cancer.

**BIOL 5361 Limnology (4 credits)**

Introduction to the biology, chemistry, geology, and physics of lakes and streams. Lecture, field, and laboratory work.

**BIOL 5362 Streams and Rivers (4 credits)**

An introduction to the physical characteristics, chemistry, and biology of lotic systems such as streams and rivers. Includes information on morphology, hydrology, and alteration of these natural systems. Includes laboratory simulations and field exercises. Lecture and laboratory.

**BIOL 5380 Molecular Genetics (3 credits)**

: Study of the structure, replication, repair, expression, regulation, and change of genetic material. Introduction to theory and procedures by which recombinant DNA molecules are formed, cloned, and expressed.

**BIOL 5400 Fish & Wildlife Law and Administration (3 credits)**

This course is for majors in natural resources, biology, and related fields. The lectures throughout the course will cover the history, philosophy, evolution, and application of these laws in the management of fish, wildlife, and other renewable resources for the benefit of the public. The course concludes with contemporary economic, administrative and political aspects of fish and wildlife management. The course fulfills some certification requirements of The Wildlife Society and the American Fisheries Society and is recommended for students planning graduate study or employment in natural resources management.

**BIOL 5420 Human Dimensions of Wildlife and Fisheries Management (3 credits)**

This course is for majors in natural resources, biology, and related fields. The lectures throughout the course will cover the history, philosophy, evolution, and application of human dimensions in wildlife and fisheries management. The course fulfills some certification requirements of The Wildlife Society and the American Fisheries Society and is recommended for students planning graduate study or employment in natural resources management.

**BIOL 5447 Genomics (3 credits)****BIOL 5460 Stem Cells and Regenerative Medicine (3 credits)**

This course is designed as an introduction to stem cell biology and the medical applications of stem cells including in the field of regenerative medicine.

**BIOL 5470 Introduction to Vaccinology (4 credits)**

This course will introduce students to the field of vaccinology and aspects of the bioscience industry related to vaccine discovery, production, and testing. Students will learn about the history of vaccines; the production of vaccines in a regulated environment; the benefits and concerns with vaccine use. The course will include a discussion of vaccine types, delivery, efficacy, and safety. Students will learn about the mechanism of action of different vaccines; traditional versus modern vaccine production methods, the process of clinical trials and approval for new vaccines; and discuss ethical concerns related to vaccine use.

**BIOL 5510 Ornithology (3 credits)**

Morphology, ecology, behavior, classification, distribution, and evolution of birds. Lecture, laboratory, and field study (early morning field trips and one or two all-day field trips).

**BIOL 5520 Mammalogy (3 credits)**

Morphology, ecology, behavior, classification, distribution, and evolution of mammals. Lecture and laboratory.

**BIOL 5530 Ecology and Management of Large Mammals (3 credits)**

Large mammals are socially and ecologically important components of the landscape and are intensively managed by wildlife agencies and private landowners. The primary focus of the course will be on life-histories, investigative techniques, and management of the major large mammals in Minnesota; white-tailed deer, black bear, wolves, moose, and elk. Biology, management, and research of large mammals from the western United States (i.e., mule deer, cougar, bison, pronghorn antelope, bighorn sheep, brown bear, etc.) will also be discussed. Students will be introduced to current issues concerning the political and social aspects of big game management.

**BIOL 5534 Ichthyology (4 credits)**

An overview of morphology, physiology, behavior, taxonomy, systematics, and ecology of fishes. This course emphasizes the evolution of ecological adaptations and the origin and conservation of biodiversity. Lecture, laboratory, and field work.

**BIOL 5545 Fisheries Management (4 credits)**

Theory and methods of fisheries management with an emphasis on quantitative methods and ecosystem management. Lecture and extensive field and laboratory work.

**BIOL 5580 Immunology (3 credits)**

The study of disease fighting mechanisms of the innate and adaptive immune systems.

**BIOL 5590 Cell Biology (3 credits)**

Microscopic anatomy and physiological mechanisms of plant and animal cells. Gene control of cellular metabolism, mechanism of energy utilization in cells and pathways of synthesis of molecules.

**BIOL 5610 Principles of Wildlife Management (3 credits)**

Introduction to the field of wildlife management, including the biological principles important to the understanding of wildlife populations and the management strategies implemented by natural resource managers.

**BIOL 5620 Evolution (3 credits)**

Patterns and processes of biological evolution. Topics include phylogenies, speciation, extinctions, biogeography, adaptations, sexual selection, and behavior, with an emphasis on vertebrates and invertebrates.

**BIOL 5623 Forest Ecology (4 credits)**

Fundamentals of forest ecology, including study of tree growth, tree demography, forest community dynamics, and ecosystem processes. Students also learn to identify forest trees native to the region and basic techniques of forest stand description.

**BIOL 5630 Conservation Biology (3 credits)**

Principles and theories of conservation biology. Topics include biodiversity, threats to biodiversity, extinctions, management of threatened and endangered species, managing habitats for conservation, and methods to mitigate biodiversity loss. Also GEOG 5630

**BIOL 5710 Microbiology (4 credits)**

Structure, classification, and physiology of bacteria and related microorganisms. Lecture and Laboratory.

**BIOL 5720 Plant Form and Function (4 credits)**

Structure, function, and development of vascular plants. Interrelationships between anatomical structures and physiological processes and how plants cope with environmental challenges. Lecture and laboratory.

**BIOL 5723 Ecosystem Ecology (3 credits)**

Fundamentals of the study of ecosystems, with emphasis on the integration of abiotic and biotic components in the development of ecosystem processes. Comparisons and interactions between terrestrial, wetland, aquatic, and atmospheric systems across the major biomes.

**BIOL 5730 Plant Diversity (4 credits)**

Classification, phylogeny, collection, field identification, and uses of wild plants. Lecture and laboratory.

**BIOL 5780 Wildlife Management Techniques (5 credits)**

This course emphasizes application of ecological principles, knowledge, and practical field skills to data collection used in the management of wildlife resources and their habitats. Use of literature, development of basic field and laboratory skills, and application of management and research principles are integral. Designed for upper level students who have met prerequisites, and graduate students, who are preparing for professional careers in wildlife conservation, natural sciences, and related areas of natural resources management. The course helps fulfill The Wildlife Society professional certification requirements.

**BIOL 5830 Aquatic Plants and Algae (4 credits)**

Survey of the morphology, physiology, taxonomy, systematics, and ecology of algae and aquatic vascular plants. Lecture, laboratory, and field study.

**BIOL 5840 Wetlands Ecology (3 credits)**

Survey course develops a basic understanding of the terminology, classification, ecology, values, and conservation of wetlands. Covers wetland systems from around the world, with emphasis on wetlands in North America.

**BIOL 5844 Wetlands Ecology Lab (1 credit)**

Laboratory course to supplement BIOL/ENVR 5840 Wetlands Ecology. Intended to strengthen a basic understanding of the terminology, classification, ecology, values, and conservation of wetlands. Prerequisite or Corequisite: BIOL/ENVR 5840 or consent of instructor.

**BIOL 5850 Marine Biology (3 credits)**

Lecture course introducing major concepts and theories. Includes physical and chemical components of the oceans, with special interest paid to the major groups of organisms living in marine systems. Emphasis on the different types of marine systems (coral reefs, mangroves, open water, etc.).

**BIOL 6010 Advanced Topics in Biology (1 credit)**

Advanced interdisciplinary study of the biological sciences. Intensive lectures, literature reviews, and discussions on fundamental and contemporary topics that have shaped and continue to shape our understanding of natural systems. Topics vary based on the interests of the students and instructor.

**BIOL 6330 Current Topics in Biology (3 credits)**

A critical analysis of scientific information distributed in social, popular, and traditional media.

**BIOL 6338 Advanced Science Communication (3 credits)****BIOL 6340 Controversies in Biology (3 credits)**

In this online graduate course, students will examine the responsible conduct and the social, economic, legal, and environmental impact of research across a wide range of the biological sciences, including the consequences of biological knowledge on humans, other animals, and the planet. Using a combination of readings, case studies, scholarly literature, and popular culture we will focus on practical decision-making frameworks in research, education, natural resources, and policy professions. Because controversial topics touch on deeply held personal beliefs and excite passionate disagreement, the course will also focus on communication, standards of evidence, and curiosity as tools to find common ground between differing positions. Topics will include genetic counseling and prenatal genetic testing, CRISPR and other gene editing and gene therapy technologies, cloning, biodiversity, hunting and fishing, invasive species, and the impact of climate change on organisms.

**BIOL 6350 Computer Applications in Statistics (3 credits)**

An examination of several computer-based packages for statistical analysis, focusing on selection of appropriate statistical procedures, processing by computer, and interpretation of results.

**BIOL 6450 Trajectories in Biology: Past, Present, and Future (3 credits)**

Trajectories in Biology is an expansive, wholistic view of how the history of biology laid the groundwork to the explosion of knowledge in the 19th and 20th century. As we grapple with technological, ethical, and biological possibilities we will imagine and explore how the vast field of biology might evolve in, and beyond, our lifetimes.

**BIOL 6880 Seminar (1 credit)**

This course is designed to guide biology graduate students in completion of their M.S. in Biology. Students will take the course four consecutive semesters. Each semester students will have specific requirements for completing the course, which will move them towards completion of their degree.

**BIOL 6890 Grants and Contracts (2 credits)**

A practical investigation of grantsmanship with emphases on funding sources, creative writing, effective conduct of project and reporting results. Gives students first-hand practice in all phases of grantsmanship. Review and critique both qualitative and quantitative model proposals.

**BIOL 6894 Advanced Graduate Project (3 credits)**

Students learn laboratory or field techniques and carry out research under the supervision of a faculty advisor.

**BIOL 6899 Capstone (3 credits)**

In this final course, students work closely with the professor of record and 2 additional professionals to design and implement a capstone project. Capstone projects involve scholarly and/or research-based pursuit of knowledge and content development. Though projects may vary based on individual interests, each will reflect a significant level of scholarship and creativity and build upon existing knowledge to create new learning experiences and an enhanced level of expertise. Prerequisite(s): BIOL 6337 and BIOL 6890.

**BIOL 6990 Thesis (1-3 credits)**

Thesis

**All-University Courses**

The course numbers listed below, not always included in the semester class schedule, may be registered for by consent of the advisor, instructor, or

department chair, or may be assigned by the department when warranted. Individual registration requires previous arrangement by the student and the completion of any required form or planning outline as well as any prerequisites.

1910, 2910, 3910, 4910 DIRECTED INDEPENDENT STUDY

1920, 2920, 3920, 4920 DIRECTED GROUP STUDY

1930, 2930, 3930, 4930 EXPERIMENTAL COURSE

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1960, 2960, 3960, 4960 SPECIAL PURPOSE INSTRUCTION

1970, 2970, 3970, 4970 INTERNSHIP

1980, 2980, 3980, 4980 RESEARCH

1990, 2990, 3990, 4990 THESIS



# Business Administration

## Graduate Faculty

Dr. Joann Fredrickson, Dr. Dean Frost, Dr. William Joyce, Dr. Zhe Li, Dr. Kelly La Venture, Dr. David Massaglia, Dr. Halbana Tarmizi, Dr. Valerie Wallingford, Dr. Gabriel Warren

## Programs

- Business Administration, M.B.A. *mba*

## Business Administration, M.B.A. *mba*

The Master of Business Administration (MBA) is the graduate degree offered by Bemidji State University's Business Administration Department. It is intended to provide graduates with advanced-level skills and understanding required to function effectively in the dynamic, technologically complex, and rapidly changing business environment of today. Successful graduates of the program will be able to apply analytic thinking methods to business scenarios using multidisciplinary concepts and tools, to communicate effectively in writing and orally in a variety of business environments, to bring required global perspectives to bear when seeking solutions to problems encountered in today's business environments, and to clearly define the role of corporate social responsibility in seeking these solutions.

### *Accelerated MBA Option (4 + 1 Program)*

The accelerated MBA (4+1) program option enables undergraduate students of Accounting and Business Administration (major or minor) to be accepted, and potentially start the MBA Program while pursuing their bachelor's degree. Students admitted into the Accelerated MBA (4+1) Program may have a limited number of graduate level courses counted toward both the undergraduate and graduate degree taken during their senior year. Before enrolling in a course to be counted as both undergraduate and graduate credit (mixed credit), an undergraduate student must be accepted into the program and receive prior approval from the graduate program advisor/director and the respective college dean. A maximum of 12 credit hours may be taken as Mixed Credit. Students who are interested in the program apply for admission during the fall/spring of their junior undergraduate year, allowing the option of taking MBA courses during their senior year that can be counted as elective courses for the undergraduate degree. Full Time students take 3 to 4 classes per semester, while Part Time students take 1 to 2 classes per semester.

### *Regular MBA Option*

This program option is for students who already have a bachelor's degree. The program can be completed either full-time or part-time. Full Time students take 3 to 4 classes per semester, while Part Time students take 1 to 2 classes per semester.

## Program Learning Outcomes

Successful Graduates of Bemidji State University's MBA program will be able to:

1. demonstrate higher learning in the field of business administration.
2. employ and apply quantitative and qualitative techniques and methods to analyze and solve real-world business problems.
3. devise sound business strategies.
4. generate sustainable business options.
5. identify and analyze ethical responsibilities.
6. produce effective written and oral business presentations and other

- forms of business communications.
7. work effectively within a team.

## Program Admission Requirements for 4 + 1 program option: Accounting, Business Administration

Applicants for admission to the program will be evaluated on the following criteria:

1. An undergraduate grade point average with minimum of 80 credit hours that is at least 2.75 at Bemidji State University OR a bachelor's degree from a regionally-accredited university or its equivalent with an undergraduate grade point average that is at least 2.75.
2. A combination of undergraduate GPA and GMAT score (or an equivalent GRE score) from test taken within the past five years that meets one of the following criteria:
  - GPA of at least 2.75 and GMAT of at least 500 or
  - GPA of at least 3.00 and GMAT of at least 450 or
  - GPA of at least 3.25 and GMAT of at least 400 or
  - GPA of at least 3.50\*

\*The GMAT may be waived for candidates who satisfy ALL of the following requirements:

- Earned a 3.5 cumulative GPA
  - Admitted or have graduated as Business Administration or Accounting majors and minors at Bemidji State University OR graduated with a business degree from a regionally-accredited school
  - Completed a minimum of 80 hours at the time of application
  - Meet all English proficiency requirements
- OR professional licensure in the US as a CPA, CFA, or CFP
- OR an earned terminal degree (PhD, DBA, MD, JD, etc.) from an accredited institution.
3. Two letters of recommendation from professional individuals
  4. A one to two page letter of intent that states why the applicant is seeking this degree with a resume
  5. TOEFL or IELTS scores for international applicants

In addition, applicants to the program will need to fulfill demonstrated competencies with a C or better in the areas of accounting, economics, management, marketing, finance, and statistics. This competency can be demonstrated by the completion of the following undergraduate courses at Bemidji State University, their equivalents: ACCT 1101, ACCT 1102, MATH 1170, ECON 2000, ECON 2100, BUAD 2231, BUAD 3351, BUAD 3361, BUAD 3771.

The Business Administration department will evaluate applicants to determine if undergraduate coursework or graduate coursework such as MBA 5100 and MBA 5105 will be needed to resolve deficiencies prior to starting the required

program courses.

### Program Admission Requirements for Regular MBA

Applicants for admission to the program will be evaluated on the following criteria:

1. A bachelor's degree from a regionally-accredited university or its equivalent
2. An undergraduate grade point average that is at least 2.75, or its equivalent
3. A Graduate Management Admission Test (GMAT) score of at least 500 or an equivalent Graduate Record Examinations (GRE) score, with the test taken within the last 5 years or Professional licensure in the United States as a Certified Public Accountant, Certified Financial Analyst, or Certified Financial Planner. An earned terminal graduate degree (Ph.D., DBA, MD, JD, etc.) from an accredited institution.
4. Two letters of recommendation from professional individuals
5. A one to two page letter of intent that states why the applicant is seeking this degree
6. TOEFL or IELTS scores for international applicants

In addition, applicants to the program will need to fulfill demonstrated competencies with a C or better in the areas of accounting, economics, management, marketing, finance, and statistics. This competency can be demonstrated by the completion of the following undergraduate courses at Bemidji State University, their equivalents: ACCT 1101, ACCT 1102, MATH 1170, ECON 2000, ECON 2100, BUAD 2231, BUAD 3351, BUAD 3361, BUAD 3771. The Business Administration Department will evaluate applicants to determine if undergraduate coursework or graduate coursework such as MBA 5100 and MBA 5105 will be needed to resolve deficiencies prior to starting required program courses.

Required Credits: 30

Required GPA: 3.00

### I. CORE COURSES

- MBA 5110 Business Analytics (3 credits)
- MBA 5120 Managerial Finance (3 credits)
- MBA 5130 Corporate Social Responsibility (3 credits)
- MBA 6100 Managerial Accounting (3 credits)
- MBA 6105 Organizational Behavior (3 credits)
- MBA 6125 Marketing Management (3 credits)
- MBA 6135 Information Systems Management (3 credits)
- MBA 6145 Strategy and Management (3 credits)

### II. REQUIRED ELECTIVE COURSES

Complete the following courses:

- MBA 5140 Global Business (3 credits)
- MBA 6400 Managing Human Resources (3 credits)

### III. CAPSTONE EXPERIENCE

Student pursuing the MBA degree must fulfill the degree's Capstone Experience Requirement. This is completed by successfully completing MBA 6145: Strategy and Management. Details are provided within

the course description and course syllabus.

- MBA 6145 Strategy and Management (3 credits)

### COMPETENCY REQUIREMENT

A working knowledge of applied statistics. This requirement may be satisfied by successfully completing MBA 5110, Business Analytics.

**COMPREHENSIVE EXAMINATION** As part of the capstone experience, MBA students will be required to take the Major Field Test (MBA) administered by the Educational Testing Service (ETS) to graduate from the program.

## Master of Business Administration Courses

### MBA 5100 Survey of Accounting and Finance Concepts (3 credits)

This course provides a survey of relevant financial accounting, managerial accounting, and managerial economic and finance concepts and processes. The course includes the application and use of financial statements in decision making, with the analysis of internal controls concepts, and evaluation of cash flows. Business ethics will be applied to cost concepts, cost systems, and budgetary planning and controls. Evaluation of relevant cost, opportunity cost, and sunk cost as related to short-run financial decisions. Evaluation of long-run financial decisions, which incorporate the concepts of the cost of capital and the time value of money. The application and evaluation of discounted cash flow methods. The various concepts and processes will be combined to create shareholder value.

### MBA 5105 Quantitative Analysis for Business (3 credits)

This course reviews and develops the mathematical tools to get ready for the MBA courses. This course provides many applications of finite mathematics including linear mathematics, probability and statistics and the mathematics of finance to demonstrate how to solve quantitative problems and how to relate the basic mathematical tools to business decision making.

### MBA 5110 Business Analytics (3 credits)

This course provides an understanding of the use of statistical and quantitative models to effectively manage and utilize information for the purpose of business decision making. Concepts covered include data analysis, probability theory, decision making models, statistical inference and estimation, hypothesis testing, analysis of variance, regression analysis, time series analysis, optimization models, and simulation. Competency in Microsoft Excel is required.

### MBA 5120 Managerial Finance (3 credits)

This course covers the major concepts in corporate finance, including the analysis of financial statements, securities and options, project valuation and budgeting, corporate governance, and the financial management of global operations.

### MBA 5130 Corporate Social Responsibility (3 credits)

This course focuses on the importance of business ethics, sustainability and stakeholder management in the current business environment. It illustrates how decision makers in business need to balance and protect the interests of various stakeholders, including investors, employees, the community, and the environment. Topics include the social, legal, political, and ethical responsibilities of a business to both external and internal stakeholder groups.

### MBA 5140 Global Business (3 credits)

This course provides an overview of the global business environment, including geographic, economic and political perspectives, cultural factors, international trade and investment, technology transfer, human resource capabilities, global supply chains, and global strategies.

### MBA 6100 Managerial Accounting (3 credits)

The course provides an in-depth coverage of relevant managerial accounting concepts and processes, including cost functions, cost-volume-profit analysis, planning and control systems, performance measurement and evaluation, and capital budgeting. It also provides a review of current managerial systems and issues.

**MBA 6105 Organizational Behavior (3 credits)**

This course examines individual and group behavior, the structure and dynamics of groups, and the concepts of leadership, all within the framework of business organizations.

**MBA 6115 Operations Management (3 credits)**

This course covers the management of the operations function in both manufacturing and service organizations. Concepts, techniques, and requisite technologies are discussed. Topics include operations strategy, quality management, product development, project management, inventory management, and global supply chain management.

**MBA 6125 Marketing Management (3 credits)**

This course covers the management of the marketing function within an organization. Topics covered include marketing strategy, product positioning, marketing analysis and planning in the areas of price, place and promotion, customer relationship management, and the role of marketing in strategic planning.

**MBA 6135 Information Systems Management (3 credits)**

This course focuses on the effective management of Information Technology (IT) to create competitive advantage and bring about organizational change. Topics include trends in technology and industry, the changing business process, using IT to add value to products and processes, managing applications and systems, and creating sustainable systems.

**MBA 6145 Strategy and Management (3 credits)****MBA 6400 Managing Human Resources (3 credits)**

This course focuses on strategic management of human resources within organizations. It examines employment relations; theories of selecting, developing, and motivating human resources. Topics include job analysis, hiring, performance appraisal, training and development, compensation, and labor relations.

**MBA 6405 Organization Theory (3 credits)**

This course examines the structures, processes, and outcomes of organizations. It includes the concepts of organization structure and design, as well as the management of processes within organizations. Along with MBA 6400, this is one of the pair of courses that is required for the Management Concentration in the MBA.

**MBA 6600 Promotion Management (3 credits)**

This course focuses on organizational promotion policies and practices that are used in the planning of a campaign. Topics include media selection, client-agency relationships, research and testing and the overall creation of a promotional campaign. Along with MBA 6605, this is one of the pair of courses that is required for the Marketing Concentration in the MBA.

**MBA 6605 Services Marketing (3 credits)**

This course examines the marketing of services in both the profit and not-for-profit sectors. The differences between the marketing of services versus physical goods are examined in the context of both internal and external marketing environments. Along with MBA 6600, this is one of the pair of courses that is required for the Marketing Concentration in the MBA.

**MBA 6700 Financial Institutions (3 credits)**

Course Description: This course examines role of financial institutions in the economy. Topics covered include asset, liability, and capital management issues, decision making in commercial banks and other depository institutions, monetary economics, the structure and functioning of commercial banks and other financial intermediaries, the Federal Reserve System and its monetary policy tools, goals and targets. Along with MBA 6705, this is one of the pair of courses that is required for the Finance Concentration in the MBA.

**MBA 6705 Derivatives and Risk Management (3 credits)**

This course examines role of financial derivatives and their characteristics. The focus is on how corporations manage risks using financial derivatives. Topics include pricing models, trading strategies, and the hedging of financial risks. Along with MBA 6700, this is one of the pair of courses that is required for the Finance Concentration in the MBA.

**All-University Courses**

The course numbers listed below, not always included in the semester class schedule, may be registered for by consent of the advisor, instructor, or department chair, or may be assigned by the department when warranted. Individual registration requires previous arrangement by the student and the completion of any required form or planning outline as well as any prerequisites.

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1970, 2970, 3970, 4970 INTERNSHIP

1980, 2980, 3980, 4980 RESEARCH

1990, 2990, 3990, 4990 THESIS

# Chemistry

## Graduate Faculty

Dr. Keith Marek (Chair; kmarek@bemidjistate.edu), Dr. Julie Larson, Dr. Katie Peterson, Dr. Bob Quandt

## Chemistry Courses

### CHEM 5110 Lab Management and Safety (2 credits)

Laboratory management concepts, safety information concerning chemical substances.

### CHEM 5140 Chemical Toxicology (3 credits)

Chemical principles in toxicology. Design of environmentally safer chemicals; quantitative analysis of the toxicity of various molecules.

### CHEM 5210 Interpretation of Spectral Data (2 credits)

Systematic identification of chemical structures utilizing data from mass spectrometry, infrared spectroscopy, and nuclear magnetic resonance spectroscopy.

### CHEM 5320 Special Topics in Organic Chemistry (1-3 credits)

Selected topics such as advanced synthesis, advanced reaction mechanisms, polymers, and natural products. May be repeated when topic is changed.

### CHEM 5411 Biochemistry I (3 credits)

General biochemistry with an introduction to the chemical principles governing proteins and nucleic acids. Emphasis on the conformation, dynamics, and function of proteins.

### CHEM 5412 Biochemistry II (3 credits)

General biochemistry with an emphasis on the chemical aspects of metabolism, biosynthesis, and the replication and expression of genes. Continuation of CHEM 5411.

### CHEM 5420 Special Topics in Biochemistry (1-3 credits)

Selected topics such as carbohydrates, lipids, proteins, enzymology, nucleic acids, metabolism, toxicology, and biochemical lab techniques. May be repeated when topic is changed. Prerequisite: CHEM 5411.

### CHEM 5471 Biochemistry Laboratory I (1 credit)

Laboratory techniques pertaining to biochemistry. Corequisite: CHEM 5411.

### CHEM 5472 Biochemistry Lab II (1 credit)

Laboratory techniques pertaining to biochemistry. Corequisite: CHEM 5412.

### CHEM 5510 Instrumental Methods of Analysis (3 credits)

Theory and applications of instrumental methods of chemical analysis. Prerequisite: CHEM 5712.

### CHEM 5520 Special Topics in Analytical Chemistry (1-3 credits)

Selected topics such as mass spectrometry, NMR, electrochemistry, chemical separations, and computerized instrument interfaces.

### CHEM 5571 Instrumental Analysis I Laboratory (0 credit)

Experimental applications of instrumental methods of chemical analysis.

### CHEM 5572 Instrumental Analysis Laboratory II (1 credit)

Experimental applications of instrumental methods of chemical analysis. Continuation of CHEM 5571. Prerequisite: CHEM 5571.

### CHEM 5614 Medicinal Chemistry: Drug Design (3 credits)

This course focuses on drug design and development, as well as the absorption, distribution, metabolism and excretion of drug molecules. Organic chemistry principles vital to drug synthesis and case studies of clinically relevant drugs will be incorporated. Prerequisite(s): Degree in Biology, Chemistry, or related field.

### CHEM 5615 Medicinal Chemistry: Drug Action (3 credits)

This course focuses on drug targets such as enzymes, receptors, and nucleic acids and the mechanisms by which pharmaceuticals alter the normal cellular activity. Common classes of pharmaceuticals (antibacterial, antiviral, anticancer, opioids, etc) will be explored. Progress in pharmaceutical development will be highlighted through the incorporation of current literature article and drugs undergoing clinical trials. Prerequisite(s): Degree in Biology, Chemistry, or related field.

### CHEM 5711 Physical Chemistry I (3 credits)

Fundamental understanding of chemical and physical properties of atoms and molecules through quantum mechanical and classical approaches.

### CHEM 5712 Physical Chemistry II (3 credits)

Fundamental understanding of chemical and physical properties of atoms and molecules through quantum mechanical and classical approaches. Prerequisite: CHEM 5711.

### CHEM 5720 Special Topics in Physical Chemistry (1-3 credits)

Selected topics such as kinetics, thermodynamics, quantum chemistry, and molecular modeling.

### CHEM 5771 Physical Chemistry Laboratory I (1 credit)

Physical chemistry laboratory applications. Corequisite: CHEM 5711.

### CHEM 5772 Physical Chemistry Lab II (1 credit)

Physical chemistry laboratory applications. Continuation of 5771.

### CHEM 5811 Adv Inorganic Chemistry I (3 credits)

Theoretical approach to the principles of inorganic chemistry. Integration of theory and descriptive chemistry.

### CHEM 5812 Advanced Inorganic Chemistry II (3 credits)

Continuation of the study of the theoretical approaches to the principles of inorganic chemistry.

### CHEM 5820 Special Topics in Inorganic Chemistry (1-3 credits)

Selected topics such as organometallics, catalysis, bioinorganic chemistry, and materials chemistry.

### CHEM 5871 Inorganic Chemistry Laboratory I (1 credit)

Laboratory oriented approach emphasizing techniques of preparative inorganic chemistry. Prerequisite or corequisite: CHEM 5711.

### CHEM 5872 Inorganic Chemistry Laboratory II (1 credit)

Laboratory oriented approach emphasizing techniques of preparative inorganic chemistry. Continuation of CHEM 5871. Prerequisite or corequisite: CHEM 5871.

## All-University Courses

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1990, 2990, 3990, 4990 THESIS

# Computer Science

## Graduate Faculty

Dr. Marty Wolf (Coordinator; mwolf@bemidjistate.edu)

## Computer Science Courses

### CS 5298 Compiler Construction (3 credits)

The theory, design, and construction of a compiler. Prerequisite: CS 5528.

### CS 5350 Event-Driven Programming in a Windows Environment (3 credits)

Use of a language suitable for creating event-driven programs while focusing on methodology suitable for developing event handlers in windows-oriented programs.

### CS 5360 Software Engineering (3 credits)

A project-based course that focuses on software design issues. Prerequisite: Consent of instructor.

### CS 5390 Social, Ethical, and Professional Issues in Computing (3 credits)

Features strategies for analyzing the social, ethical, and professional implications of issues and decisions that computing professionals might encounter. Those strategies are practiced and refined in a variety of areas of concern for computing. Prerequisites: At least one 5000- or 6000-level CS course.

### CS 5507 Introduction to Databases (3 credits)

Provides an introduction to the theory and use of modern database systems, with particular focus on SQL, the relational data model, and relational database design.

### CS 5528 Data Structures and Algorithms (4 credits)

Study of advanced abstract information storage structures, including priority queues, binary trees, generalized trees, and graphs. Study of algorithm development techniques, including divide and conquer, greedy algorithms, and dynamic programming. Prerequisite: Consent of instructor.

### CS 5560 Data Communication and Networks (3 credits)

Principles of data communications as applied to modern computer networks.

### CS 5627 Theory of Computation (3 credits)

Explores the theoretic roots and limits of computing. Prerequisite: MATH 5210.

### CS 5718 Computer Graphics (3 credits)

Fundamental concepts of computer graphics with emphasis on understanding underlying principles. Topics include line and curve drawing, windowing, clipping, shading, geometric transformations, and 3-dimensional viewing.

### CS 5840 Operating Systems (3 credits)

Fundamentals of operating system design with emphasis on at least one modern operating system. Topics include scheduling, memory management, paging, file management, and mutual exclusion. Required work will include programming investigations. Prerequisite: CS 5528.

### CS 6420 Classroom Integration of Computer Software (3 credits)

An investigation of the current research and literature dealing with the integration of software into the classroom curriculum. Includes software review and evaluation and provides hands-on experience using educational software.

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## All-University Courses

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## Economics Courses

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### **ECON 5040 Environmental Economics (3 credits)**

Examines environmental problems as consequences of market's failure to accurately value environmental resources. Alternative private and public policies are examined in terms of their effectiveness in improving the efficiency and equity with which water, air, and other resources are allocated. Also offered under ENVR 5040.

### **All-University Courses**

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1980, 2980, 3980, 4980 RESEARCH

1990, 2990, 3990, 4990 THESIS

# English

Chair & Graduate Director:  
mchristensen@bemidjistate.edu)

## Programs

- English, M.A. *master*
- English, M.S. *master*

## English, M.A. *master*

Required Credits: 30  
Required GPA: 3.0

### I. Required Core

Complete the following courses:

- ENGL 6110 Research and Bibliography (3 credits)
- ENGL 6277 Problems of Literary Criticism (3 credits)
- ENGL 6337 Language and Linguistics Topics (3 credits)

Select one course in American Literature:

- ENGL 6317 Seminar in American Literature (3 credits)
- ENGL 6680 Interdisciplinary Seminar (3 credits)

Select one course in English Literature:

- ENGL 6260 Shakespeare (3 credits)
- ENGL 6318 Seminar in British Literature (3 credits)
- ENGL 6680 Interdisciplinary Seminar (3 credits)

### II. Required Electives in English

Select with consent of advisor sufficient courses to bring credit total, including thesis, to at least 30. Note that 50% of graduate programs must be 6000-level courses, excluding thesis and research paper credits.

Note: Graduate Assistants with teaching assignments are required to take ENGL 6328 Seminar in Composition Theory (3 credits) Composition Theory (3 credits) as one of their Required Electives in English.

### III. Research Paper or Thesis

#### A. Research Paper or Thesis

An extensive and detailed analysis of an approved topic in the area of English literature, American literature, literary criticism, composition, rhetoric, or other appropriate subject presented in a form suitable for publication. The subject of the thesis must be approved by the thesis advisor and the English graduate committee before the student may begin research.

B. The thesis may be a creative project requiring the same approvals as a scholarly thesis, outlined above in A.

- ENGL6990

### COMPETENCY REQUIREMENT

Select one of the following: 1. Modern Language: A reading knowledge of French, German, Russian, or Spanish. In specific cases other languages such as Ojibwe or Mandarin may be substituted with the consent of the Graduate

Committee of the Department of English. This requirement may be satisfied in either of two ways: successful completion (with grade of "B" or better) of final second-year course for one of the above languages; or passing a standardized reading test, second-year level. 2. Statistics: Candidates may elect to complete the competency requirement by passing a college-level course in the computer application of statistics with a grade of "B" or better, or by passing a proficiency examination. 3. Teaching with Technology: Candidates may elect to complete the competency requirement by passing a college-level course in the use of technology in teaching with a grade of "B" or better, or by passing a proficiency examination.

### WRITTEN EXAMINATION

All major programs require satisfactory completion of a final written examination which needs to be successfully completed prior to scheduling the oral examination. Please consult with your academic advisor for requirements specific to your area of study.

## English, M.S. *master*

Required Credits: 32  
Required GPA: 3.0

### I. Professional Education Core Requirements

Complete the following courses:

- ED 6100 Educational Research I (3 credits)
- ED 6107 Advanced Educational Psychology (3 credits)  
or ED 6108 The Learning Community (3 credits)

### II. Required English Core

Complete the following courses:

- ENGL 6110 Research and Bibliography (3 credits)
- ENGL 6277 Problems of Literary Criticism (3 credits)
- ENGL 6337 Language and Linguistics Topics (3 credits)

Select one course in American Literature:

- ENGL 6317 Seminar in American Literature (3 credits)
- ENGL 6680 Interdisciplinary Seminar (3 credits)

Select one course in English Literature:

- ENGL 6260 Shakespeare (3 credits)
- ENGL 6318 Seminar in British Literature (3 credits)
- ENGL 6680 Interdisciplinary Seminar (3 credits)

### III. Required Electives in English

Select with consent of advisor sufficient courses, including thesis or research



paper, to bring credit total for degree to at least 32.

Note: Graduate Assistants with teaching assignments are required to take ENGL 6328 Seminar in Composition Theory (3 credits) Composition Theory (3 credits) as one of their Required Electives

#### IV. Research Paper or Thesis

Note: The subject of the thesis must be approved by the thesis advisor and the graduate committee before the student may begin research.

- ENGL6980
- ENGL6990

#### COMPETENCY REQUIREMENT

Select one of the following: 1. Modern Language: A reading knowledge of French, German, Russian, or Spanish. In specific cases other languages such as Ojibwe or Mandarin may be substituted with the consent of the Graduate Committee of the Department of English. This requirement may be satisfied in either of two ways: successful completion (with grade of "B" or better) of final second-year course for one of the above languages; or passing a standardized reading test, second-year level. 2. Statistics: Candidates may elect to complete the competency requirement by passing a college-level course in the computer application of statistics with a grade of "B" or better, or by passing a proficiency examination. 3. Teaching with Technology: Candidates may elect to complete the competency requirement by passing a college-level course in the use of technology in teaching with a grade of "B" or better, or by passing a proficiency examination.

#### WRITTEN EXAMINATION II

major programs require satisfactory completion of a final written examination which needs to be successfully completed prior to scheduling the oral examination. Please consult with your academic advisor for requirements specific to your area of study.

## English Courses

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#### ENGL 5101 Advanced Writing (3 credits)

A nonfiction writing course for exploring a wide variety of prose processes, audiences, and formats. Includes revision and editing, style, and the authorial voice. May include exploration of opportunities for publishing.

#### ENGL 5115 Writing Fiction I (3 credits)

An introduction to the study of the form and style of fiction, with practice, study, and writing in a workshop format.

#### ENGL 5116 Writing Fiction II (3 credits)

A workshop course designed to offer the student further practice, analysis, and theoretical study in the writing of original fiction. May be repeated one time.

#### ENGL 5125 Writing Poetry I (3 credits)

An introduction to the study of form and style of poetry, with practice, study, and writing in a workshop format.

#### ENGL 5126 Writing Poetry II (3 credits)

A workshop course designed to offer the student further practice, analysis, and theoretical study in the composition of poetry. May be repeated one time.

#### ENGL 5135 Scriptwriting/Playwriting I (3 credits)

Introduction to the study of the form and style of scriptwriting and playwriting, with practice, study, and writing in a workshop format.

#### ENGL 5145 Writing Creative Nonfiction I (3 credits)

Introduction to the study of the form and style of creative nonfiction, with practice in a workshop format.

#### ENGL 5146 Writing Creative Nonfiction II (3 credits)

Workshop offering further practice, analysis, and theoretical study in the composition of creative nonfiction. May be repeated one time.

#### ENGL 5157 Topics in Writing, Editing and Publishing (3 credits)

Advanced study of and practice in a literary genre or subgenre, editing or publishing. May be retaken multiple times with different topic subtitles.

#### ENGL 5177 Rhetoric of Social Media (3 credits)

This course, which is theory-grounded, gives students the opportunity to explore new forms of online publishing, study, and written expression, including social media. Computer-intensive.

#### ENGL 5179 Elements of Digital Rhetoric (3 credits)

Introduction to the principles of applied rhetoric integrated with continued digital writing experience. Also introduces fundamentals of hypertext. Students investigate email, Web page and site design, social media, wikis, and weblogs, and create and analyze online texts and exchanges. Computer-intensive.

#### ENGL 5180 Digital Writing and Rhetoric Capstone Project (3 credits)

A teacher- and student-designed capstone project building on learning in prerequisite courses in the Digital Writing minor. In consultation with a qualified faculty member, students design and complete a capstone project in digital rhetoric or digital writing that is professional and publishable in nature and quality, or that can serve as documentary evidence appropriate to the field.

#### ENGL 5183 Topics in Writing or Rhetoric (3 credits)

This course fills a gap in the department's Topics series at the 3000 level allowing faculty to shape specific courses under the rubric that address professional, genre, and rhetorical types of writing courses not currently addressed in the department's curriculum. This course is repeatable for up to 9 credits.

#### ENGL 5420 Shakespeare and His Age (3 credits)

A study of Shakespeare's works in the context of his times and of the work of his major contemporaries.

#### ENGL 5429 Shakespeare for Teachers (3 credits)

A study of Shakespeare's plays and poems in contexts appropriate for high school and community college teachers.

#### ENGL 5510 Writing Center Practicum (1-3 credits)

In-class instruction on writing center-specific theoretical and practical applications and supervised field experience by consulting in the Writing Resource Center. Prerequisite(s): consent of instructor.

#### ENGL 5540 Literature for Young Adults (3 credits)

A study of a variety of literature appropriate for adolescents, including criteria for evaluating literary merit; criteria for evaluating classroom usefulness; and effective ways to manage book challenges and censorship issues.

#### ENGL 5860 Internship in Writing, Editing or Publishing (3 credits)

Introduction to the practices of creative and/or professional writing, editing, and/or publishing. Students work on specific projects or internships to gain experience in editing, writing, submitting work for publication, gain an understanding of standard practices and issues in creative and professional writing markets and gain knowledge of careers in creative and professional editing and publishing. Course may be taken as an arranged course for university and off-campus internships.

#### ENGL 6110 Research and Bibliography (3 credits)

Introduction to graduate-level research and methodologies of literary criticism and bibliography.

#### ENGL 6260 Shakespeare (3 credits)

A study of selected works of Shakespeare, with emphasis on a particular genre, such as tragedy.

#### ENGL 6270 Seminar In Literature (3 credits)

Specialized study in comparative literature.

**ENGL 6277 Problems of Literary Criticism (3 credits)**

A descriptive course in criticism which attempts to get at the basic problem of methodology and make applications of the various critical literary problems. Considers aspects of the philosophic inquiry in criticism as well as methods of analysis and their limitations.

**ENGL 6317 Seminar in American Literature (3 credits)**

Specialized study in American Literature

**ENGL 6318 Seminar in British Literature (3 credits)**

Dividing our one-size fits all 6270 Seminar in Literature (American, British or comparative literature) course into three stand-alone courses is intended to reduce confusion for students and on their transcripts by differentiating whether the course focuses on American, British, or other literatures.

**ENGL 6328 Seminar in Composition Theory (3 credits)**

A seminar in contemporary rhetorical and composition theory and practice from 1863 to the present, including the study of current theory and practice in writing in digital media.

**ENGL 6337 Language and Linguistics Topics (3 credits)**

Introduction to elementary linguistics and basic linguistic theory which builds on this introduction to study the development of the English language for 1500 years, focusing on lexis, semantics, morphology and phonology.

**ENGL 6680 Interdisciplinary Seminar (3 credits)**

An interdisciplinary study of specifically chosen literature and cultural relationships of England and America.

**ENGL 6700 Seminar in Rhetorical Theory (3 credits)**

A study of trends in composition theory with special emphasis on academic writing. This course is designed primarily to prepare students to teach university level composition courses.

**All-University Courses**

The course numbers listed below, not always included in the semester class schedule, may be registered for by consent of the advisor, instructor, or department chair, or may be assigned by the department when warranted. Individual registration requires previous arrangement by the student and the completion of any required form or planning outline as well as any prerequisites.

1910, 2910, 3910, 4910 DIRECTED INDEPENDENT STUDY

1920, 2920, 3920, 4920 DIRECTED GROUP STUDY

1930, 2930, 3930, 4930 EXPERIMENTAL COURSE

1940, 2940, 3940, 4940 IN-SERVICE COURSE

1950, 2950, 3950, 4950 WORKSHOP, INSTITUTE, TOUR

1960, 2960, 3960, 4960 SPECIAL PURPOSE INSTRUCTION

1970, 2970, 3970, 4970 INTERNSHIP

1980, 2980, 3980, 4980 RESEARCH

1990, 2990, 3990, 4990 THESIS

# Environmental Studies

## Graduate Faculty

Dr. William Sea, Dr. Carl Isaacson (CSS Chair), Dr. Miriam Rios-Sanchez, Dr. Paul Kivi, Dr. Michael Murray, Dr. Corrie Santos, Dr. Anna Carlson, Dr. Jeffrey Ueland, Dr. Mark Lawrence, Samantha Jones

**Note:** Graduate faculty from the following programs also participate in the teaching and research associated with this program: Biology, Chemistry, Computer Science, Economics, Geography, Geology, Mathematics, Physics, Political Science, Sociology.

## Master of Science - Environmental Studies

The Master of Science program accommodates individual student needs and backgrounds and provides students with several curricular and research opportunities. The interdisciplinary curriculum focuses on the natural and social sciences as they relate to environmental problem solving. Each student should contact a faculty member in the Center for Sustainability Studies to identify potential projects. Once accepted into the program students will complete course work requirements and either a thesis (for the thesis option) or internship (for the non-thesis option).

## Center for Sustainability Studies

The Center for Sustainability Studies (CSS) provides a focus for (1) applied environmental work by faculty and students and (2) the interdisciplinary Environmental Studies program. Applied environmental research in the Center focuses on global and regional environmental problems. CSS has the instrumentation and faculty specialization to work on a variety of natural science and sustainability-oriented projects. Graduate students in CSS have both thesis and non-thesis options in pursuing a masters degree. The thesis pathway is geared towards students who want to demonstrate empirical skills through development and completion of a master's thesis. Students who have completed the thesis track have gone on to Ph.D. programs or employment in industry, government, or academia. The non-thesis track is geared towards students wanting to pursue a professional path and they work on projects in conjunction between the student, faculty, and community partners. To identify which pathway is right for you, we recommend that prospective students contact a faculty member who works in an area of interest to you.

## Programs

- Environmental Studies, M.S. *master*

## Environmental Studies, M.S. *master*

### Environmental Studies, MS

Required Credits: 30 (Thesis) or 32 (Non-Thesis)  
Required GPA: 3.0

### Pathway 1: Thesis Option

#### I. Required Core

Complete the following courses:

- ENVR 5800 Environmental Data Analysis (3 credits)
- ENVR 6250 Advanced Environmental Studies (3 credits)
- ENVR 6400 Research and Project Design (3 credits)
- ENVR 6700 Graduate Sustainability Seminar (1-3 credits)  
Complete for 3 credits
- ENVR 6790 Environmental Project Management (3 credits)

#### II. Required Elective Courses

Select, with the consent of thesis advisor, at least 9 credits of graduate level coursework in Environmental Studies, Geology, or related field. Course options include:

- ECON 5040 Environmental Economics (3 credits)

or ENVR 5040 Environmental Economics (3 credits)

- ENVR 5050 Geochemistry (3 credits)
- ENVR 5110 Environmental Chemistry (3 credits)
- ENVR 5200 Wastewater Treatment (3 credits)
- ENVR 5210 Environmental Law and Policy (3 credits)
- ENVR 5220 Sampling and Analysis (4 credits)
- ENVR 5230 Air Pollution Technology (4 credits)
- ENVR 5240 Waste Management (4 credits)
- ENVR 5260 Risk, Resilience and Sustainable Community Development (3 credits)
- ENVR 5300 Environmental Management and Safety (3 credits)
- ENVR 5400 Environmental Microbiology (3 credits)
- ENVR 5500 Environmental Toxicology (4 credits)
- ENVR 5600 Environmental Justice and Sustainability (3 credits)
- ENVR 5610 Sustainability: Theory and Practice (4 credits)
- ENVR 5710 Indigenous Environmental Knowledge: Global Perspective (3 credits)
- ENVR 5720 Food Sovereignty, Health & Indigenous Environments (3 credits)
- ENVR 5730 Sustainable Communities: Local Indigenous Perspective (3 credits)
- ENVR 5740 Environment, Wellness & the Sacred Connection to Place (3 credits)
- ENVR 5750 Sustainable Communities: Global Indigenous Perspective (3 credits)
- ENVR 5840 Wetlands Ecology (3 credits)  
or BIOL 5840 Wetlands Ecology (3 credits)
- ENVR 6920 Directed Group Study: Seminar (2 credits)
- GEOG 5125 Weather and Climate (3 credits)
- GEOG 5130 Biogeography (3 credits)
- GEOG 5140 Landscape Ecology (3 credits)
- GEOG 5231 Introduction to Geographic Information Systems (3 credits)
- GEOG 5232 Intermediate Geographic Information Systems (3 credits)
- GEOG 5255 Introduction to Remote Sensing (3 credits)
- GEOG 5265 Spatial Analysis (3 credits)
- GEOG 5275 Advanced Geographic Information Systems (3 credits)
- GEOG 5532 Political Ecology (3 credits)
- GEOG 5570 Public Lands Planning (3 credits)
- GEOG 5630 Conservation Biology (3 credits)  
or BIOL 5630 Conservation Biology (3 credits)
- GEOL 5120 Soils (4 credits)  
or BIOL 5120 Soils (4 credits)
- GEOL 5211 Environmental Hydrology (3 credits)
- GEOL 5212 Hydrogeology (3 credits)
- GEOL 5300 Global Environmental Change (3 credits)
- GEOL 5400 Glacial and Pleistocene Geology (3 credits)
- GEOL 5500 Topics in Paleontology (3 credits)
- GEOL 5600 Stratigraphy and Sedimentation (3 credits)
- GEOL 5700 Environmental Geophysics (3 credits)

### III. Thesis Option

Complete the following course for 6 credits:

- ENVR 6990 Thesis (1-6 credits)

### Pathway 2: Non-Thesis Option: course work only

#### I. Required Core

Complete the following courses:

- ENVR 5800 Environmental Data Analysis (3 credits)
- ENVR 6250 Advanced Environmental Studies (3 credits)
- ENVR 6400 Research and Project Design (3 credits)
- ENVR 6700 Graduate Sustainability Seminar (1-3 credits)

Complete for 3 credits

- ENVR 6790 Environmental Project Management (3 credits)

#### II. Required Elective Courses

Select, with the consent of thesis advisor, at least 12 credits of graduate level coursework in Environmental Studies, Geology, or related field. Course options include:

- ECON 5040 Environmental Economics (3 credits)  
or ENVR 5040 Environmental Economics (3 credits)
- ENVR 5050 Geochemistry (3 credits)
- ENVR 5110 Environmental Chemistry (3 credits)
- ENVR 5200 Wastewater Treatment (3 credits)
- ENVR 5210 Environmental Law and Policy (3 credits)
- ENVR 5220 Sampling and Analysis (4 credits)
- ENVR 5230 Air Pollution Technology (4 credits)
- ENVR 5240 Waste Management (4 credits)
- ENVR 5260 Risk, Resilience and Sustainable Community Development (3 credits)
- ENVR 5300 Environmental Management and Safety (3 credits)
- ENVR 5400 Environmental Microbiology (3 credits)
- ENVR 5500 Environmental Toxicology (4 credits)
- ENVR 5600 Environmental Justice and Sustainability (3 credits)
- ENVR 5610 Sustainability: Theory and Practice (4 credits)
- ENVR 5710 Indigenous Environmental Knowledge: Global Perspective (3 credits)
- ENVR 5720 Food Sovereignty, Health & Indigenous Environments (3 credits)
- ENVR 5730 Sustainable Communities: Local Indigenous Perspective (3 credits)
- ENVR 5740 Environment, Wellness & the Sacred Connection to Place (3 credits)
- ENVR 5750 Sustainable Communities: Global Indigenous Perspective (3 credits)
- ENVR 5840 Wetlands Ecology (3 credits)  
or BIOL 5840 Wetlands Ecology (3 credits)
- ENVR 6920 Directed Group Study: Seminar (2 credits)
- GEOG 5125 Weather and Climate (3 credits)
- GEOG 5130 Biogeography (3 credits)
- GEOG 5140 Landscape Ecology (3 credits)
- GEOG 5231 Introduction to Geographic Information Systems (3 credits)
- GEOG 5232 Intermediate Geographic Information Systems (3 credits)
- GEOG 5255 Introduction to Remote Sensing (3 credits)
- GEOG 5265 Spatial Analysis (3 credits)
- GEOG 5275 Advanced Geographic Information Systems (3 credits)
- GEOG 5532 Political Ecology (3 credits)
- GEOG 5570 Public Lands Planning (3 credits)
- GEOG 5630 Conservation Biology (3 credits)  
or BIOL 5630 Conservation Biology (3 credits)
- GEOL 5120 Soils (4 credits)  
or BIOL 5120 Soils (4 credits)
- GEOL 5211 Environmental Hydrology (3 credits)
- GEOL 5212 Hydrogeology (3 credits)
- GEOL 5300 Global Environmental Change (3 credits)
- GEOL 5400 Glacial and Pleistocene Geology (3 credits)
- GEOL 5500 Topics in Paleontology (3 credits)
- GEOL 5600 Stratigraphy and Sedimentation (3 credits)
- GEOL 5700 Environmental Geophysics (3 credits)

#### III. Non-Thesis Option

Complete the following:

- ENVR 6600 Capstone Report (2 credits)
- ENVR 6970 Internship (3 credits)

## COMPETENCY REQUIREMENT

All graduate students in Environmental Studies are required to demonstrate competency in the computer applications of statistics. This requirement is to be satisfied by the completion of the following course with a grade of B or better: ENVR 5800, Environmental Data Analysis, 3 credits, or equivalent.

## WRITTEN EXAMINATION

All major programs require satisfactory completion of a final written examination which needs to be successfully completed prior to scheduling the oral examination. Please consult with your academic advisor for requirements specific to your area of study.

## Environmental Studies Courses

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### ENVR 5040 Environmental Economics (3 credits)

Examines environmental problems as consequence of market's failure to accurately value environmental resources. Alternative private and public policies are examined in terms of their effectiveness in improving the efficiency and equity with which water, air, and other resources are allocated. Also offered under ECON 5040.

### ENVR 5050 Geochemistry (3 credits)

Study of processes in the lithosphere, hydrosphere, and atmosphere; cycling of the elements; weathering; microbe-mineral interactions; nanoparticles; microscopic imaging. Prerequisite: Consent of instructor.

### ENVR 5110 Environmental Chemistry (3 credits)

Intensive study of biogeochemical cycles of natural and man-made pollutants including transformations, transport, fate and persistence mechanisms. Environmental effects, long-term impacts, and methods of treatment/prevention are discussed. Prerequisite: Consent of instructor.

### ENVR 5200 Wastewater Treatment (3 credits)

Introduction to the operation of the principal methods and treatment processes of municipal and industrial wastewaters, and for the disposal of treated effluent and sludges, and other solid materials. Integration of fundamental principles of science with different aspects of sanitary technology. Prerequisite: Consent of instructor.

### ENVR 5210 Environmental Law and Policy (3 credits)

Overview of environmental laws, regulations, and policies. Prerequisite: Consent of instructor.

### ENVR 5220 Sampling and Analysis (4 credits)

Methods of sampling and analysis of air, water, soil and other environmental compartments will be described in lecture and experienced in laboratory session. The focus is on regulations and prescribed protocols for environmental field and lab work. Lecture and laboratory. Prerequisites: CHEM 1112 or CHEM 2212 or ENVR 2000 or GEOL 1110 or consent of instructor.

### ENVR 5230 Air Pollution Technology (4 credits)

In-depth overview of sources and types of air pollution, major environmental impacts, regulations, and technologies for control and cleanup. Prerequisite: ENVR 5210 and ENVR 5300 or consent of instructor.

### ENVR 5240 Waste Management (4 credits)

An overview of the solid and hazardous waste situation at the local, state, national, and international levels. The focus on management will include a systems approach to prevention, control, and remediation of wastes. Prerequisite: ENVR 5300 or consent of instructor.

### ENVR 5260 Risk, Resilience and Sustainable Community Development (3 credits)

### ENVR 5300 Environmental Management and Safety (3 credits)

Helps students pursuing environmental studies to develop environmental management skills required in both manufacturing and non-manufacturing businesses. Safe handling, transport, and storage of hazardous materials with respect to their physical and chemical nature, and application of regulatory requirements relevant to specific business and hazardous materials involved. Prerequisite: Consent of instructor.

### ENVR 5400 Environmental Microbiology (3 credits)

Fundamental aspects of microbiology as related to land production, environmental pollution and water quality control processes. The role of major groups of microbes as pollutants, as purifying agents, and as agents of biochemical changes, and ecological functions and importance of each group in the environment. Prerequisite: Consent of instructor.

### ENVR 5500 Environmental Toxicology (4 credits)

An overview of major environmental pollutants, their transport, fate, and toxicology. Pollutant effects studied from practical and theoretical focus on stress at various levels of biological organization. Prerequisite: Consent of instructor.

### ENVR 5600 Environmental Justice and Sustainability (3 credits)

The ethical and moral dimensions of environmental choices. The legal, philosophical, political, and economic underpinnings of various theories of justice. A major focus is the inequitable distribution of environmental risks and the implications of policies that attempt to combat these risks. Prerequisite: Consent of instructor.

### ENVR 5610 Sustainability: Theory and Practice (4 credits)

Becoming agents of positive change in our communities requires building many different skill sets. This course will build core competencies of community leadership and focus on sustainability issues in our community. We will integrate theories, principles and practices of sustainability throughout the course and explore how various entities such as the University, the City of Bemidji, local tribes, companies, non-profits and individuals approach sustainability actions and choices. We will explore issues such as energy, water, waste, food and transportation as well as diversity, equity and inclusion in decision making. Students will be asked to identify a specific problem facing our community and utilize Problem and Project Based Learning (PBL) techniques to directly engage with these local issues, connect with the stakeholders involved and work together to propose potential solutions. Prerequisite(s): ENVR 2000 or consent of instructor.

### ENVR 5700 Natural Resource Management (3 credits)

This class offers an interdisciplinary introduction to the principles of natural resource management highlighting the biological and physical science aspects of natural resource management at local, national, and global scales. Topics covered may include resource management of soil, water, forests, rangelands, wetlands, waterways, and wildlife. This is an intermediate-level course designed to introduce key concepts and topical areas in natural resource management. A specific focus for the course will be the application of adaptive natural resource management to key Minnesota resources at multiple levels of government (local, county, state, federal, and tribal) over time. Prerequisite(s): consent of instructor.

### ENVR 5710 Indigenous Environmental Knowledge: Global Perspective (3 credits)

Indigenous cultures refer to pre-colonial societies who today represent a minority, non-dominant group in the societies presently residing in territories these cultures once developed. Throughout their history, Indigenous people have developed their own body of environmental knowledge that they have passed on, generation to generation. This course will provide students with a global perspective of Indigenous environmental knowledge and how this knowledge has affected the relationship of the Indigenous peoples with the natural world and its resources. Students will also investigate present-day political, economic, social, and technological issues related to incorporating Indigenous environmental knowledge into sustainability efforts.

**ENVR 5720 Food Sovereignty, Health & Indigenous Environments (3 credits)**

This course is designed to help students understand the interconnections of food sovereignty, health and environmental sustainability. Students will explore why it is not only important for people to control the way their food is produced, distributed, and consumed but why the food should be appropriate to the cultural background of the people consuming it. Students will learn the critical connections between food and health with an exploration of those influences within the context of Indigenous worldviews and ways of knowing. This is an experiential learning course -- learning through interaction, projects, and reflection. This course may be suitable as an elective in Indigenous Studies and Environmental Studies, Health and Nursing degree programs.

**ENVR 5730 Sustainable Communities: Local Indigenous Perspective (3 credits)**

Human societies all across the globe have developed rich sets of experiences and explanations relating to the sustainable communities they live, work and play in. This course is designed to introduce students to the basic concepts of these sustainable communities. Students will learn how these communities function, their challenges, and the critical networks that exist with the environment. This class will explore the role of Indigenous knowledge and traditional ways of learning, as well as scientific knowledge in maintaining the sustainability of a community. This is an experiential learning course -- learning through interaction, projects, and reflection.

**ENVR 5740 Environment, Wellness & the Sacred Connection to Place (3 credits)**

In Indigenous communities, there is a deep and lasting connection to place. Today, there exists overwhelming evidence that connection to place offers important elements for overall individual wellness. However, many communities face challenges in their environments that are detrimental to their health and well-being. To support these communities, there is a need to reconnect them with ways to restore the sustainability of their environment and connection to place. In this course, students will learn the critical connections between the environment and health and will explore the influences of connection to place within the context of Indigenous worldviews and ways of knowing. This is an experiential learning course -- learning through interaction, projects, and reflection.

**ENVR 5750 Sustainable Communities: Global Indigenous Perspective (3 credits)**

Throughout their history, Indigenous people have developed their own body of knowledge on global sustainability that they have passed on, generation to generation. This course will provide students with a large picture perspective of global Indigenous sustainability knowledge and viewpoints and how this perspective continues to affect the relationship of the Indigenous peoples with the natural world and its resources. Students will also investigate present-day global political, economic, social, and technological issues related to incorporating Indigenous views into sustainability efforts across the continents.

**ENVR 5800 Environmental Data Analysis (3 credits)**

The aim of this course is to expose students to analytical methods for environmental applications. The class will provide a primer on introductory inferential statistics (sampling, probability, central tendencies, spread, t-tests and ANOVA) and work towards more advanced analytical applications which are geared towards research questions in Environmental Studies, Geology, and Geography. These techniques include multiple regression, logistic regression, multi-dimensional scaling, regression trees, cluster analysis, survival analysis and basic time series analysis. This class will focus on learning both the theoretical background and application of these methods and discuss the ethical and contextual issues that surround the use of statistical analysis in environmental research.

**ENVR 5840 Wetlands Ecology (3 credits)**

Survey course develops a basic understanding of the terminology, classification, ecology, values, and conservation of wetlands. Covers wetland systems from around the world, with emphasis on wetlands in North America.

**ENVR 6250 Advanced Environmental Studies (3 credits)**

The social causes, ecological impacts, and human health effects of environmental degradation. Students provide in-depth analyses of environmental problems through laboratory research and field studies, library research, oral presentation, and written communication.

**ENVR 6400 Research and Project Design (3 credits)**

Advanced learning in research and project design as it applies to qualitative and quantitative research, sampling and data collection methods, experimental vs. non-experimental procedures, and various statistical methods for data analysis.

**ENVR 6500 Advanced Graduate Project I (2 credits)**

Students learn a combination of literature, laboratory, or field techniques and carry out research under the supervision of a faculty advisor. Students will work together to critique and improve course projects during the semester.

**ENVR 6600 Capstone Report (2 credits)**

In this final course, students work closely with the professor of record and up to 2 additional professionals to design and implement a capstone project. Capstone projects involve scholarly and/or research-based pursuit of knowledge and content development. Though projects may vary based on individual interests, each will reflect a significant level of scholarship and creativity and build upon existing knowledge to create new learning experiences and an enhances level of expertise.

**ENVR 6700 Graduate Sustainability Seminar (1-3 credits)**

This course exposes graduate students to a range of topics within environmental studies from a sustainability perspective. In a seminar format, students will discuss environmental problems in a deeper context and present progress reports on their thesis research and projects. Faculty and guests will make presentations for students to discuss. Students may enroll for up to 6 credits.

**ENVR 6790 Environmental Project Management (3 credits)**

Students will learn the fundamentals of the management of environmental projects, including stakeholder engagement, planning and achieving realistic project milestones, and modifications needed to ensure project success. A practical investigation of grantsmanship with emphases on funding sources, creative writing, effective conduct of project and reporting results. Gives students first-hand practice in all phases of grantsmanship. Review and critique both qualitative and quantitative model proposals.

**ENVR 6920 Directed Group Study: Seminar (2 credits)**

When taken as Graduate Seminar the following description applies: Interdisciplinary study and detailed discussion of major areas of environmental controversy with emphasis on individual investigation of the available literature and effective oral presentation. Prerequisite: Consent of instructor.

**ENVR 6970 Internship (3 credits)**

Graded Satisfactory/Unsatisfactory only. Student internships may be either full-time or part-time in a public or private agency appropriate to the degree objective. Internships consist of closely supervised periods of service that are arranged in advance of the course registration. Students should consult their advisor concerning prerequisites.

**ENVR 6990 Thesis (1-6 credits)**

A thesis written by the student that reports extensive original research carried out by the student and demonstrates appropriate methodology and scholarship.

**All-University Courses**

The course numbers listed below, not always included in the semester class schedule, may be registered for by consent of the advisor, instructor, or department chair, or may be assigned by the department when warranted. Individual registration requires previous arrangement by the student and the completion of any required form or planning outline as well as any prerequisites.

1910, 2910, 3910, 4910 DIRECTED INDEPENDENT STUDY  
1920, 2920, 3920, 4920 DIRECTED GROUP STUDY  
1930, 2930, 3930, 4930 EXPERIMENTAL COURSE  
1940, 2940, 3940, 4940 IN-SERVICE COURSE

1950, 2950, 3950, 4950 WORKSHOP, INSTITUTE, TOUR  
1960, 2960, 3960, 4960 SPECIAL PURPOSE INSTRUCTION  
1970, 2970, 3970, 4970 INTERNSHIP  
1980, 2980, 3980, 4980 RESEARCH  
1990, 2990, 3990, 4990 THESIS

# Gender and Women's Studies

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## Gender and Women's Studies Courses

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### **GWS 5100 Topics in Women's Studies Gender Studies (subtitled) (3 credits)**

Diverse topics encompass an international range of gendered experiences and may include sources from literature, law, history, myth/religion, psychology, sociology, philosophy, theology, and the visual arts. Topics may include: myths and spirituality; mother, daughter, self; writing women's lives; art, erotica, and pornography in American Culture; reproductive freedom; Indigenous women's issues; sexualities and difference in America. May be taken for credit under different subtitles.

### **GWS 5850 Feminist Theories and Practice (3 credits)**

A critical examination of the main currents in contemporary feminist thought. Explores systems of ideas which explain the nature and causes of the position of women and men in society. The course includes a capstone experience involving student production of an original piece of work linking the student's discipline to a gender issue through the use of feminist theory and research.

### **All-University Courses**

The course numbers listed below, not always included in the semester class schedule, may be registered for by consent of the advisor, instructor, or department chair, or may be assigned by the department when warranted. Individual registration requires previous arrangement by the student and the completion of any required form or planning outline as well as any prerequisites.

1910, 2910, 3910, 4910 DIRECTED INDEPENDENT STUDY

1920, 2920, 3920, 4920 DIRECTED GROUP STUDY

1930, 2930, 3930, 4930 EXPERIMENTAL COURSE

1940, 2940, 3940, 4940 IN-SERVICE COURSE

1950, 2950, 3950, 4950 WORKSHOP, INSTITUTE, TOUR

1960, 2960, 3960, 4960 SPECIAL PURPOSE INSTRUCTION

1970, 2970, 3970, 4970 INTERNSHIP

1980, 2980, 3980, 4980 RESEARCH

1990, 2990, 3990, 4990 THESIS



# Geography

Graduate Faculty  
Dr. Jeffrey Ueland, Dr. Mark Lawrence

## Geography Courses

### **GEOG 5125 Weather and Climate (3 credits)**

Weather is the study of the atmosphere over short time scales, while climate is the study of long-term weather trends. The study of weather is commonly termed meteorology, which is actually a branch of physics associated with fluid dynamics. Climate is associated with statistical procedures and analyses. This course examines the geographic patterns and processes of global climate and weather, as well as topics such as global climate change, global climate models, and extreme weather events. Students learn about the Earth's atmosphere; energy budgets and astronomical controls on weather processes; oceanic and atmospheric circulation; the basic atmospheric parameters; atmospheric hazards such as tornadoes, hurricanes, hail, and lightning; and global climate change issues.

### **GEOG 5130 Biogeography (3 credits)**

This course examines the distribution and diversity of flora and fauna across multiple scales. It will focus on the factors that shape and influence these patterns and investigate the role of disturbance in this process. It will also incorporate both field and lab experiences to further examine the key concepts of biogeography.

### **GEOG 5140 Landscape Ecology (3 credits)**

This course examines the connection of pattern and process at the scale of the landscape. Students will utilize several analytical methods to examine and explain how humans, disturbance and natural process work in concert to create landscape-level dynamics and change. The course will also cover how landscape ecology is applied to assist in conservation efforts.

### **GEOG 5190 Qualitative Methods in Geographic Research (3 credits)**

As a geographic perspective becomes increasingly important in analysis of critical issues at multiple scales from the local to the global, this course demonstrates how research grounded in qualitative methodologies encourages innovative approaches and yields significant insights. Prerequisites: GEOG 2200. While not required, it is highly recommended that GEOG 4265/5265 and GEOG 4210/5210 be taken previously or concurrently.

### **GEOG 5210 The History and Development of Geographic Thought (3 credits)**

Development of the discipline of Geography with emphasis on both the historical and recent developments in the field. Includes a critical analysis of writing of representative geographers. Note: Capstone course in the B.A. and B.S., option A. Prerequisite: Senior status geography major or minor.

### **GEOG 5226 Cartography (3 credits)**

Construction and production of maps with an emphasis on computer-generated thematic maps and graphs. Lecture 3 hours, laboratory 2 hours. Prerequisite: Consent of instructor.

### **GEOG 5231 Introduction to Geographic Information Systems (3 credits)**

This course develops a proficiency in basic GIS skills for those new to GIS. The premise of the course revolves around analytical problem solving using spatial data and techniques. The course also focuses on graphic communication of quantitative data including cartographic mapping concepts and data classification. This course concentrates on learning to navigate the current version of ArcGIS software at a beginner's level and developing and creating maps as communication tools.

### **GEOG 5232 Intermediate Geographic Information Systems (3 credits)**

An intermediate course on the theories and application of GIS for spatial data management and analysis, thematic mapping, environmental modeling. This course expands on the concepts and methods presented in Introduction to GIS and guides students through a more comprehensive overview of principles and techniques used in GIS. Course objectives include (1) enhance and build knowledge of GIS as a system and science, (2) improve skills at GIS analysis, and (3) develop and improve problem solving skills. Prerequisite: GEOG 5231 or consent of instructor.

### **GEOG 5255 Introduction to Remote Sensing (3 credits)**

Analysis of a special class of pictures that provide an overhead perspective. These images have unique properties that provide a distinct advantage to assessing spatial changes and patterns of change on the Earth's surface. Students develop an understanding and the skills necessary for interpreting air photos, satellite, and remotely sensed images. Prerequisite: GEOG 5231 or consent of instructor.

### **GEOG 5265 Spatial Analysis (3 credits)**

An examination in the concepts and application of advanced spatial statistical methodologies. These include, kriging, spatial autocorrelation, spatial regression models, and cluster analysis.

### **GEOG 5275 Advanced Geographic Information Systems (3 credits)**

This course will give students hands on experience working with advanced geodatabases, the basic automation and scripting of geospatial processes, web mapping, and server side application in GIS. Prerequisites: GEOG 5231 and GEOG 5232.

### **GEOG 5410 Geography of North America (3 credits)**

A regional analysis of the physical, demographic, economic and cultural characteristics of the nations in North America.

### **GEOG 5531 Political Geography (3 credits)**

This course utilizes "World Systems Theory" to investigate 1) theories of State formation and organization; 2) historical processes of imperialism, colonialism, and decolonization; 3) major issues of the emerging political economy; 4) historical and contemporary geopolitics; and 5) the political geography of everyday life.

### **GEOG 5532 Political Ecology (3 credits)**

Political ecology utilizes a necessary geographical perspective to understand and analyze the biophysical processes that shape issues otherwise inadequately conceptualized as political, economic or social. This spatial understanding developed by political geographers reveals relationships of the ecological and the political that are simultaneously mutually reinforcing and, often, mutually antagonistic. GEOG 3531/5531 or consent of instructor.

### **GEOG 5550 Site and Resource Analysis in Planning (3 credits)**

This course emphasizes techniques and methods in the location, analysis, evaluation, and design of sites, focusing on identifying use potentials and impact limitations for planning and management. Prerequisites: GEOG 2400 or consent of instructor

### **GEOG 5560 Metropolitan Land Use Planning (3 credits)**

An examination of the identification and inventory methods of land use analysis including the designing of land use models which are compatible with environmental, social, and economic goals.

**GEOG 5570 Public Lands Planning (3 credits)**

Comparison and evaluation of natural resource management policies and analytical techniques of the U.S. Forest Service, Bureau of Land Management, National Park Service and U.S. Fish and Wildlife Service. Attention is paid to the historical and contemporary land management approaches used to protect, exploit, manage, and/or use public lands in the United States. Especially relevant are jurisdictional issues over public land, federal agencies involved in land management, state and local issues and land management, and contemporary issues associated with land management in the 21st Century.

**GEOG 5580 Regional Development Planning (3 credits)**

An examination of methods and processes emphasizing contemporary relationships between planners and governments, the private sector, and nongovernmental organizations regarding relationships between regions nationally and internationally, with special attention to environmental sustainability.

**GEOG 5630 Conservation Biology (3 credits)**

Principles and theories of conservation biology. Topics include biodiversity, threats to biodiversity, extinctions, management of threatened and endangered species, managing habitats for conservation, and methods to mitigate biodiversity loss. Also BIOL 5630

**GEOG 5810 Geography of Europe (3 credits)**

A regional analysis of the cultural, economic, physical and landscape patterns of the European cultural region. NOTE: Recommended for students in Euro-Spring, International Studies, foreign languages, and prospective teachers. Liberal Education Goal Area 5.

**GEOG 5820 Geography of East, South, and Southeast Asia (3 credits)**

This course is designed to provide a more in depth look at Asian sub regions of South, East and Southeast Asia. Geographically, we will examine and analyze activities in this part of the world through cultural, demographic, political, economic, urban and geopolitical lenses. Liberal Education Goal Area 8. Might not be offered every year. Prerequisite(s): GEOG 1400 or GEOG 2200

**GEOG 5840 Geography of Africa (3 credits)**

Despite persistent bias about it, Africa's cultural complexity, social dynamism, and political/economic struggle have tremendous relevance for the study of global trends at the start of the twenty-first century. The central purpose of this course is to demonstrate that relevance by investigating the cultural, historical, economic, and political dimensions of change in Africa.

**GEOG 5850 Geography of the Middle East (3 credits)**

This course is designed to provide a more in depth look at the region we routinely describe as the Middle East. Geographically, we will examine activities in SW Asia and the nations of North Africa. We may extend our discussion to the countries of Afghanistan, the Sudan, South Sudan and Turkey to provide a more comprehensive analysis of a particular topic or subtopic. This is a highly complex region and may be looked at from numerous perspectives. Our objective thus is to examine the region through economic, cultural, environmental, urban and geopolitical lenses. Prerequisite(s): GEOG 1400 or GEOG 2200.

**GEOG 5860 Geography of Latin America and the Caribbean (3 credits)**

This course is designed to provide a more in depth look at the region of Latin America and the Caribbean. We recognize at the outset that this is a broad subject and may be looked at from numerous perspectives. Our objective thus is to examine this geographic region through economic, cultural, environmental, urban and political lenses. The text book provides the basis for our study which is further complemented by each students (1) research into an issue or event that had a far reaching impact on this region or within its sub-regions, (2) reading of works of fiction set in Latin America and (3) viewing feature films with Latin American themes. Prerequisite(s): GEOG 2200 or GEOG 1400

**GEOG 5870 Planning for Sustainable Cities (3 credits)**

Using a World Regional Geography approach, this course examines the dynamics of urban development across the globe, with particular reference to sustainable urban design and urban biodiversity. Political, cultural, environmental and economic influences on the city are examined in both the developed and the developing world. Liberal Education Goal Area 5.

**GEOG 5931 Experimental Course (3 credits)**

A course proposed for inclusion in the University curriculum. May not be offered more than two times as an experimental course.

**GEOG 5932 Experimental Course (3 credits)**

A course proposed for inclusion in the University curriculum. May not be offered more than two times as an experimental course.

**GEOG 5933 Experimental Course (3 credits)**

A course proposed for inclusion in the University curriculum. May not be offered more than two times as an experimental course.

**GEOG 5934 Experimental Course (3 credits)**

A course proposed for inclusion in the University curriculum. May not be offered more than two times as an experimental course.

**GEOG 5935 Experimental Course (3 credits)**

A course proposed for inclusion in the University curriculum. May not be offered more than two times as an experimental course.

**GEOG 5936 Experimental Course (3 credits)**

A course proposed for inclusion in the University curriculum. May not be offered more than two times as an experimental course.

**GEOG 5937 Experimental Course (3 credits)**

A course proposed for inclusion in the University curriculum. May not be offered more than two times as an experimental course.

**GEOG 5938 Experimental Course (3 credits)**

A course proposed for inclusion in the University curriculum. May not be offered more than two times as an experimental course.

**GEOG 5939 Experimental Course (3 credits)**

A course proposed for inclusion in the University curriculum. May not be offered more than two times as an experimental course.

**All-University Courses**

The course numbers listed below, not always included in the semester class schedule, may be registered for by consent of the advisor, instructor, or department chair, or may be assigned by the department when warranted. Individual registration requires previous arrangement by the student and the completion of any required form or planning outline as well as any prerequisites.

1910, 2910, 3910, 4910 DIRECTED INDEPENDENT STUDY  
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 1940, 2940, 3940, 4940 IN-SERVICE COURSE  
 1950, 2950, 3950, 4950 WORKSHOP, INSTITUTE, TOUR  
 1960, 2960, 3960, 4960 SPECIAL PURPOSE INSTRUCTION  
 1970, 2970, 3970, 4970 INTERNSHIP  
 1980, 2980, 3980, 4980 RESEARCH  
 1990, 2990, 3990, 4990 THESIS

# Geology

## Graduate Faculty

Dr. Miriam Rios-Sanchez

## Geology Courses

### GEOL 5120 Soils (4 credits)

Introduction to principles of soil genesis, classification, physical and chemical properties, and biological significance. Lecture and laboratory. Prerequisites: (BIOL 1211 or BIOL 1120) and (GEOL 1110 or BIOL 1212) or consent of instructor. May not be offered every year.

### GEOL 5211 Environmental Hydrology (3 credits)

The course provides a basic understanding of the principles and processes governing the movement of water through the hydrologic cycle, including atmospheric moisture flow, surface runoff, infiltration, and groundwater flow. Environmentally relevant applications based on case studies will be studied. The course includes coverage of contemporary global issues related to water resources, sustainable development, and climate change.

### GEOL 5212 Hydrogeology (3 credits)

Groundwater flow to wells, aquifer test analysis, groundwater exploration techniques, application of computer models in groundwater studies, hydrogeologic field methods, contaminant hydrogeology, vadoze zone hydrology. Lecture and laboratory. Prerequisite: GEOL 5211.

### GEOL 5300 Global Environmental Change (3 credits)

This class offers an interdisciplinary introduction to the principles of climate, ecosystems, and biogeochemistry needed to understand human impacts on the natural environment. We will also discuss global change prediction and the scientific bases for global change assessments and policy measures. Key topics are the physical climate system and its variability, the carbon cycle and related biogeochemistry and ecosystem processes, land use issues, the interactions among climate, ecosystems, and biogeochemistry, and the impact of global change on societally relevant parameters. Common threads in all of these topics will pervade the whole semester; these include the use of observations and models, the consideration of multiple scales of change (temporal and spatial), the interaction of human behaviors and choices with natural systems, and the linkages among aspects of global change science (may not be offered every year). Prerequisites: Consent of Instructor

### GEOL 5400 Glacial and Pleistocene Geology (3 credits)

Modern concepts of glaciology and glacial geology. Interpretation of the phenomena and effects on the landscape. Lecture and laboratory.

### GEOL 5500 Topics in Paleontology (3 credits)

Introduction to major groups of organisms that are commonly preserved as fossils. Focus of class may vary between offerings; including invertebrate and vertebrate paleontology, introductory micropaleontology, palynology, and pollen analysis. May be repeated as topics change. Lecture and laboratory.

### GEOL 5600 Stratigraphy and Sedimentation (3 credits)

Study of sedimentary rocks. Recognition of the physical and biological factors affecting deposition. Introduction to stratigraphic principles. Lecture and laboratory.

### GEOL 5700 Environmental Geophysics (3 credits)

Introduction to geophysical processes and geophysical field methods commonly used in environmental evaluation. Interdisciplinary approach to an understanding of the physical environment. Lecture and laboratory.

## All-University Courses

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schedule, may be registered for by consent of the advisor, instructor, or department chair, or may be assigned by the department when warranted. Individual registration requires previous arrangement by the student and the completion of any required form or planning outline as well as any prerequisites.

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1970, 2970, 3970, 4970 INTERNSHIP

1980, 2980, 3980, 4980 RESEARCH

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## Health Courses

### **HLTH 5100 Teaching Elementary School Health (2 credits)**

An integrated approach to the organization, content, goals, objectives, curriculum, methods and techniques of teaching health at the elementary level. Coordinating services and establishing collaboration will be incorporated. Elementary school state and national guidelines and mandates will be discussed. Teaching opportunities will be provided.

### **HLTH 5150 Theoretical and Ethical Foundations of Health (3 credits)**

Provides entry level health education and community health students with the theoretical and ethical foundations of health. Also examines health's history, philosophy, settings, literature, and credentialing.

### **HLTH 5200 Personal and Consumer Health (3 credits)**

A comprehensive study of personal health identifying ill-advised health behaviors and recommending strategies for positive behavioral change. From an opportunity cost perspective, personal health care options, products and services in the marketplace will be examined. Opportunities to network with local, state and federal consumer health agencies will be provided.

### **HLTH 5206 Secondary School Health (2 credits)**

An integrated approach to the organization, content, goals, objectives, curriculum, methods, and techniques of teaching health at the secondary school level. Incorporates coordinating services and establishing collaboration. Secondary school state and national guidelines and mandates are discussed. Prerequisite: Entrance into the teacher education program or consent of instructor.

### **HLTH 5300 Nutrition (3 credits)**

Fundamentals of food utilization in the body and diet planning including discussion of the relationship between dietary habits and disease. Also included are discussions of current trends in nutrition, dietary changes for special conditions such as pregnancy, infancy, aging, athletes and teenagers, and cultural differences in dietary practices.

### **HLTH 5400 Health and Drugs in Society (2 credits)**

A study of chemical use and abuse as related to personal and community health. Various drugs and drug-taking behaviors will be defined and discussed. Historical, cultural, educational, and legal perspectives will be examined. Multifaceted prevention and rehabilitation strategies promoting wellness will be discussed. Prerequisite: Students in FasTrack, Add-on Health Licensure

### **HLTH 5410 Health Programming (3 credits)**

A comprehensive study of the process of identifying health problems, establishing health programming, and promoting, implementing, and evaluating the program. Also examines vision and mission statements, along with goals, objectives, timetables, and interpretation of results. This course parallels CHES criteria and utilizes a local community health organization to integrate student involvement.

### **HLTH 5500 Community Health (3 credits)**

Comprehensive study of the community health challenges confronting the citizenry of the United States of America. Examines the roles of federal, state, and local governments, as well as private agencies, in individual and aggregate health care. Provides opportunities for community health networking.

### **HLTH 5710 Disease Prevention and Epidemiology (3 credits)**

An introduction to disease prevention, pathophysiology, and treatment of the most common communicable and chronic diseases in human populations. Focuses on the history and principles of disease occurrence in the context of environment and lifestyle choice. Students specifically examine risk factor management and the epidemiological data supporting the influence of physical activity in chronic disease prevention and management. Additionally, learners gain an introductory knowledge of epidemiology and biostatistics enabling them to successfully critique the scientific and educational literature.

### **HLTH 5870 Practicum in Health Teaching (1 credit)**

A 30-hour practicum in which students have the opportunity to teach health lessons, assist health teachers deliver health instruction, observe health teachers deliver health instruction, read to students, listen to students read, tutor students, and perform other duties as required by the Professional Educator Licensing and Standards Board (PELSB) and requested by the health teacher. Prerequisite(s): Consent of instructor.

## All-University Courses

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1960, 2960, 3960, 4960 SPECIAL PURPOSE INSTRUCTION  
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# History

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## History Courses

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### **HST 5650 Environmental History (3 credits)**

Environmental History is a relatively new historical discipline dedicated to understanding how our surroundings have influenced our choices and how we have affected our surroundings. Until very recently, history has treated the physical environment of continents, rivers, soils, and climates as a backdrop for political, social, or cultural action. Sometimes a colorful background, but not often a factor in the action taking place in the foreground. At its most basic, Environmental History makes three claims. First, we are influenced by our environments. Second, we change our environments. Third, our knowledge of and attitudes toward our environment change. In this course we'll look at American History using each of these ideas and see things we wouldn't have seen otherwise.

### **HST 6107 Readings in American History (3 credits)**

This course focuses on a topic in American history to be determined by the instructor.

## All-University Courses

The course numbers listed below, not always included in the semester class schedule, may be registered for by consent of the advisor, instructor, or department chair, or may be assigned by the department when warranted. Individual registration requires previous arrangement by the student and the completion of any required form or planning outline as well as any prerequisites.

1910, 2910, 3910, 4910 DIRECTED INDEPENDENT STUDY

1920, 2920, 3920, 4920 DIRECTED GROUP STUDY

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1940, 2940, 3940, 4940 IN-SERVICE COURSE

1950, 2950, 3950, 4950 WORKSHOP, INSTITUTE, TOUR

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1970, 2970, 3970, 4970 INTERNSHIP

1980, 2980, 3980, 4980 RESEARCH

1990, 2990, 3990, 4990 THESIS

# Mathematics

## Graduate Faculty

Dr. Heidi Hansen, Dr. Eric Lund, Dr. Todd Frauenholtz, Dr. Colleen Livingston, Dr. Jenna O'Dell, Dr. Derek Webb, Dr. Randy Westhoff

## Programs

- Elementary and Middle Level Mathematics Education, M.S. *master*
- Mathematics Education, M.S. *master*

## Elementary and Middle Level Mathematics Education, M.S. *master*

Required Credits: 34  
Required GPA: 3.00

### I. REQUIRED EDUCATION CORE

Complete the following courses:

- ED 6100 Educational Research I (3 credits)
- ED 6107 Advanced Educational Psychology (3 credits)
- MATH 6050 Assessment in the Mathematics Classroom (3 credits)

### II. REQUIRED MATHEMATICS ELECTIVE COURSES

Complete the following courses:

- MATH 6061 Number Sense For Teachers (3 credits)
- MATH 5064 Number Concepts (4 credits)  
or MATH 6062 Number Theory For Teachers (3 credits)

Select at least 5 courses from the following:

- MATH 5065 Mathematical Foundations of Algebra (4 credits)
- MATH 5066 Geometry and Technology (4 credits)
- MATH 5067 Data, Probability, and Statistics (4 credits)
- MATH 6200 Structures of Discrete Mathematics (3 credits)
- MATH 6500 Geometry In The Classroom For Teachers (3 credits)
- MATH 6600 Probability For Teachers (3 credits)

### III. REQUIRED PORFOLIO AND RESEARCH

Note: MATH 6050 should be taken prior to the collection of evidence for the pedagogical portfolio.

Note: Consult with advisor before registering for MATH 6055.

Complete the following courses:

- MATH 6055 Pedagogical Portfolio and Action Research (2 credits)

## Mathematics Education, M.S. *master*

Required Credits: 32  
Required GPA: 3.00

### I. REQUIRED EDUCATION CORE

Complete the following courses:

- ED 6100 Educational Research I (3 credits)
- ED 6107 Advanced Educational Psychology (3 credits)
- MATH 6050 Assessment in the Mathematics Classroom (3 credits)

### II. REQUIRED MATHEMATICS ELECTIVE COURSES

Select at least 12 credits from the following:

Note: Some courses listed have prerequisites not required in this program.

Other math content courses may be used with consent of advisor.

- MATH 5240 Number Theory (3 credits)
- MATH 5260 Mathematical Problem Solving (3 credits)
- MATH 5310 Linear Algebra (4 credits)
- MATH 5371 Modern Algebra (3 credits)
- MATH 5410 Introduction to Analysis (3 credits)
- MATH 5440 Introduction to Fractals & Chaos (3 credits)
- MATH 5470 Advanced Calculus (3 credits)
- MATH 5560 Classical and Modern Geometry (3 credits)
- MATH 5710 Mathematical Modeling (3 credits)
- MATH 5720 Numerical Methods (3 credits)
- MATH 5760 Topics in Applied Mathematics (3 credits)
- MATH 5820 History of Mathematics (3 credits)
- MATH 6350 Advanced Abstract Algebra (3 credits)
- MATH 6550 Advanced Geometry (3 credits)
- STAT 5631 Probability and Statistics I (4 credits)
- STAT 5632 Probability and Statistics II (3 credits)
- STAT 5650 Probability and Statistics for Secondary Teachers (4 credits)
- STAT 5660 Statistics for the Health Sciences (3 credits)

### III. REQUIRED MATHEMATICS PEDAGOGY ELECTIVE COURSES

Select at least 9 credits from the following (or other pedagogy courses approved by an advisor):

- MATH 5064 Number Concepts (4 credits)
- MATH 5065 Mathematical Foundations of Algebra (4 credits)
- MATH 5066 Geometry and Technology (4 credits)
- MATH 5067 Data, Probability, and Statistics (4 credits)
- MATH 6061 Number Sense For Teachers (3 credits)
- MATH 6062 Number Theory For Teachers (3 credits)
- MATH 6200 Structures of Discrete Mathematics (3 credits)
- MATH 6500 Geometry In The Classroom For Teachers (3 credits)
- MATH 6600 Probability For Teachers (3 credits)

#### IV. REQUIRED PORTFOLIO EVALUATION AND RESEARCH

Note: Consult with an advisor before registering for MATH 6055:

- MATH 6055 Pedagogical Portfolio and Action Research (2 credits)

#### COMPETENCY REQUIREMENT

Completion of MATH 6050, Assessment in the Mathematics Classroom, with a grade of 'B' or better, or the equivalent as approved by the department.

## Mathematics Courses

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### MATH 5064 Number Concepts (4 credits)

This course provides a background in number concepts that are pertinent to school mathematics. Topics include scientific notation, number sense, properties of integers, prime and composite numbers, divisors, GCDs, LCMs, the number of divisors, the sum of divisors, the Euclidean Algorithm, famous unsolved problems, finite mathematical systems, modular arithmetic, introductory graph theory and applications, permutations, combinations, sorting, congruences, sequences, direct and indirect proofs, mathematical induction, and traveling salesman problem and algorithms. Emphasis will be given to problem solving techniques as they relate to number concepts.

### MATH 5065 Mathematical Foundations of Algebra (4 credits)

This course investigates concepts of patterns, relations, and functions.

### MATH 5066 Geometry and Technology (4 credits)

This course examines the concepts of patterns, shape and space; spatial sense; plane, solid, and coordinate geometry systems; generalizing geometric principals; limits, derivatives and integrals; and appropriate use of technology for Geometry. Prerequisites: MATH 1011 or equivalent or consent of instructor; (Might not be offered every year.)

### MATH 5067 Data, Probability, and Statistics (4 credits)

This course explores data investigations and concepts of randomness and uncertainty. The collection, display, analysis, and interpretation of data are studied. Additional topics include randomness, sampling, probability in simple and compound events, the prediction of outcomes using a variety of techniques, and the comparison of theoretical and empirical results of experiments.

### MATH 5069 Mathematics and Culture (3 credits)

This course will introduce students to the relationships between mathematics and cultures and how an understanding of these relationships can increase learning and success in the mathematics classroom. The main focus of this course is on current cultures and their mathematics although some history of cultural mathematics will be covered. Cultures from around the world will be examined and students will also be given the opportunity to study cultures of particular interest to them or of particular relevance to their career as an educator. This course is designed for students studying to become and students who already are mathematics educators. Prerequisite(s): graduate status, or consent of instructor.

### MATH 5240 Number Theory (3 credits)

Properties of integers, primes and their distribution, linear and quadratic congruences, number-theoretic functions, Diophantine equations, Fibonacci numbers, primitive roots and quadratic reciprocity.

### MATH 5260 Mathematical Problem Solving (3 credits)

Investigation of problems and the process of problem solving across a variety of mathematical areas. Development and application of strategies used to solve problems with emphasis on multistep and nonroutine problems. Application of the process of mathematical modeling to real situations.

### MATH 5310 Linear Algebra (4 credits)

Systems of linear equations, linear transformations, matrix operations, vector spaces, eigenvalues and eigenvectors, orthogonality, and applications.

### MATH 5371 Modern Algebra (3 credits)

A study of abstract algebraic systems with an emphasis on groups and an introduction to rings. Prerequisite: MATH 5310 or equivalent.

### MATH 5410 Introduction to Analysis (3 credits)

Functions, sequences, and properties of limits. Topics from calculus including continuity, differentiation, and integration. Open and closed sets, cluster points, and other topological properties.

### MATH 5440 Introduction to Fractals & Chaos (3 credits)

An introduction into the topics of fractal geometry, chaos, and dynamic mathematical systems. Topics included are iteration, fractals and fractal dimension, iterated function systems, Julia set, Mandelbrot set, and bifurcation.

### MATH 5470 Advanced Calculus (3 credits)

Further properties of limits, vector valued functions, infinite series, Taylor series, uniform convergence, improper integrals, convergence in the mean and Fourier series.

### MATH 5560 Classical and Modern Geometry (3 credits)

Euclidean and non-Euclidean geometry, axiomatic systems, the geometry of solids, transformations, measurement, and fractal geometry.

### MATH 5710 Mathematical Modeling (3 credits)

Mathematical modeling of applications that involve difference equations, matrices, probability, differentiation, and integration. Applications may be chosen from among the biological and physical sciences, economics, the social sciences, or other areas of interest. A graphing calculator is required.

### MATH 5720 Numerical Methods (3 credits)

Root finding techniques, fixed point iteration, polynomial interpolation, methods for solving linear and nonlinear systems of equations, numerical integration and differentiation, numerical solutions of differential equations, and the method of steepest descent. Prerequisite: Programming competency or consent of instructor.

### MATH 5760 Topics in Applied Mathematics (3 credits)

This course focuses on an advanced topic from applied mathematics. Possible topics include game theory, operations research, and cryptography. May be repeated for up to 6 credits with different topics. (Might not be offered every year.)

### MATH 5820 History of Mathematics (3 credits)

Historical investigation and presentation of the sources and growth of mathematical knowledge and principles, including Peano's axioms, the Axiom of Choice, and Russell's Paradox. Prerequisite: Consent of instructor.

### MATH 5961 Special Purpose Instruction (3 credits)

A course intended for specific groups or organizations outside the University community.

### MATH 5962 Special Purpose Instruction (3 credits)

A course intended for specific groups or organizations outside the University community.

### MATH 5963 Special Purpose Instruction (3 credits)

A course intended for specific groups or organizations outside the University community.



**MATH 5964 Special Purpose Instruction (3 credits)**

A course intended for specific groups or organizations outside the University community.

**MATH 5965 Special Purpose Instruction (3 credits)**

A course intended for specific groups or organizations outside the University community.

**MATH 5966 Special Purpose Instruction (3 credits)**

A course intended for specific groups or organizations outside the University community.

**MATH 5967 Special Purpose Instruction (3 credits)**

A course intended for specific groups or organizations outside the University community.

**MATH 5968 Special Purpose Instruction (3 credits)**

A course intended for specific groups or organizations outside the University community.

**MATH 5969 Special Purpose Instruction (3 credits)**

A course intended for specific groups or organizations outside the University community.

**MATH 6050 Assessment in the Mathematics Classroom (3 credits)**

Examination of two important parts of assessment. First is the assessment of students: changes in assessment, new tools for assessment, implementing new assessments, and using the results of assessment. Second, teachers need to understand and know how to assess their teaching or changes in their teaching practices. Teachers learn to pose measurable questions, collect data, statistically analyze the data, interpret the data, and present conclusions. Teachers are given assistance in transferring this process to analyzing their teaching practices or programs in their school. Prerequisite: Teaching license or consent of the instructor.

**MATH 6055 Pedagogical Portfolio and Action Research (2 credits)**

This course is the culmination of the student's coursework, analysis, and study. In MATH 6050, Assessment in the Mathematics Classroom, students examine the current practices in individual and classroom assessment and study the fundamentals of applying statistical methods for instructional analysis. Students implement those skills in this course. Students construct instructional units in some of the courses needed for their program. Students complete one instructional unit change in their classroom and analyze the unit as per the outline from MATH 6050. Students also conduct a literature review that directly relates to their instructional unit changes. The portfolio consists of the literature review, instructional unit changes, and analysis and is evaluated by the student's graduate committee. The student cannot proceed with the oral defense until the portfolio has been approved by the committee. This course is graded Satisfactory/Unsatisfactory only. Prerequisite: Teaching license or consent of the instructor.

**MATH 6061 Number Sense For Teachers (3 credits)**

Number sense is the ability to understand numbers, ways of representing numbers, relationships among numbers, and number systems, according to the National Council of Teachers of Mathematics. This course focuses on these issues by examining problems with quantitative information and exploring reasonable solutions. Prerequisite: Teaching license or teaching position or consent of instructor.

**MATH 6062 Number Theory For Teachers (3 credits)**

Analysis of activities and mathematical games to understand the underlying mathematics. Students also study the division algorithm, prime and composite numbers, greatest common divisor, least common multiple, the Euclidean algorithm, mathematical induction, linear Diophantine equations, famous number theory conjectures, and additional elementary number theory topics. Prerequisite: Teaching license or teaching position.

**MATH 6200 Structures of Discrete Mathematics (3 credits)**

Topics include problem solving, the counting principle, combinations, permutations, graphs, Euler circuits, Hamiltonian paths, Pascal's triangle, Venn diagrams, scheduling, and voting theory. Students are expected to use the concepts and methods of discrete mathematics to model and solve problems. Emphasizes instructional strategies to help all students learn. Prerequisite: MATH 6061.

**MATH 6350 Advanced Abstract Algebra (3 credits)**

Designed to deepen the algebraic background of students through the study of elementary number theory and modular arithmetic; the development of the rational, real and complex number systems; and an introduction to rings, integral domains and fields. Prerequisites: MATH 5310 or equivalent.

**MATH 6500 Geometry In The Classroom For Teachers (3 credits)**

This course uses typical classroom materials to examine the Van Hiele model, 3-dimensional and 2-dimensional geometric shapes, and measurement concepts. Emphasizes instructional strategies, manipulatives, and tools to enhance student learning. Prerequisite: Teaching experience or consent of the instructor.

**MATH 6550 Advanced Geometry (3 credits)**

Historical development and theorems of Euclidean and non-Euclidean geometry, properties of polygons and polyhedra, tessellations of the plane, measurement and strategies for teaching geometry.

**MATH 6600 Probability For Teachers (3 credits)**

Introduction to the terms and models of elementary probability. Emphasizes instructional strategies to help all students learn. Topics include definition of terms, the counting principle, event modeling, event analysis, probability determinations, empirical and theoretical probabilities, and use of simulations to analyze real world problems. Prerequisite: Teaching experience or consent of the instructor.

**MATH 6980 Research (2 credits)**

Research carried out by the student that is based on appropriate methodology and scholarship.

**All-University Courses**

The course numbers listed below, not always included in the semester class schedule, may be registered for by consent of the advisor, instructor, or department chair, or may be assigned by the department when warranted. Individual registration requires previous arrangement by the student and the completion of any required form or planning outline as well as any prerequisites.

1910, 2910, 3910, 4910 DIRECTED INDEPENDENT STUDY

1920, 2920, 3920, 4920 DIRECTED GROUP STUDY

1930, 2930, 3930, 4930 EXPERIMENTAL COURSE

1940, 2940, 3940, 4940 IN-SERVICE COURSE

1950, 2950, 3950, 4950 WORKSHOP, INSTITUTE, TOUR

1960, 2960, 3960, 4960 SPECIAL PURPOSE INSTRUCTION

1970, 2970, 3970, 4970 INTERNSHIP

1980, 2980, 3980, 4980 RESEARCH

1990, 2990, 3990, 4990 THESIS

# Modern Languages

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## Modern Languages Courses

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### ML 5430 Linguistics (3 credits)

The general linguistic topics of phonology, morphology, syntax, lexicography, historical linguistics, and language acquisition theory. Students explore various topics in the language of their interest (German, Spanish, Ojibwe, English).

### All-University Courses

The course numbers listed below, not always included in the semester class schedule, may be registered for by consent of the advisor, instructor, or department chair, or may be assigned by the department when warranted. Individual registration requires previous arrangement by the student and the completion of any required form or planning outline as well as any prerequisites.

1910, 2910, 3910, 4910 DIRECTED INDEPENDENT STUDY

1920, 2920, 3920, 4920 DIRECTED GROUP STUDY

1930, 2930, 3930, 4930 EXPERIMENTAL COURSE

1940, 2940, 3940, 4940 IN-SERVICE COURSE

1950, 2950, 3950, 4950 WORKSHOP, INSTITUTE, TOUR

1960, 2960, 3960, 4960 SPECIAL PURPOSE INSTRUCTION

1970, 2970, 3970, 4970 INTERNSHIP

1980, 2980, 3980, 4980 RESEARCH

1990, 2990, 3990, 4990 THESIS

## Nursing

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### Nursing Courses

# Physical Education

## Physical Education Courses

### **PHED 5100 Motor Development (2 credits)**

An introduction to motor development and related motor theories. Application of these basic motor principles to the teaching of physical education and activity at all levels.

### **PHED 5110 Motor Learning (2 credits)**

An introductory class in motor control and learning that gives an overview of the processes and mechanisms involved in generating, acquiring, and refining motor skills and of factors that foster or hinder the acquisition and refinement of these skills.

### **PHED 5120 Psychology of Sport (2 credits)**

Study of the general relationship between individuals and sports behavior. Covers competitiveness, goal setting, peak performance, psychosocial influences, and rehabilitation. Also includes guides to show how teaching and learning may be applied to the coaching of sport and to bring out the relationship of meaningful learning to successful athletic coaching.

### **PHED 5160 Advanced Fitness Assessment and Prescription--Aerobic (3 credits)**

Theory and practice of physical fitness assessment for the purpose of prescribing aerobic exercise to adults, both healthy populations and those with special conditions, such as obesity, diabetes, osteoporosis, asthma, hypertension, and heart disease. Prepares students for American College of Sports Medicine (ACSM) Health Fitness Specialist exam as well as other personal trainer certifications. Prerequisite: PHED 5300 or consent of instructor.

### **PHED 5170 Advanced Principles for Strength and Speed Training (3 credits)**

Theory and practice of strength and speed training with emphasis on technique analysis and instructional methods for strength training. Includes facility design and equipment purchasing and maintenance. Prepares students for National Strength and Conditioning Association Certified Strength and Conditioning Specialist (CSCS). Prerequisite: PHED 5300 or consent of instructor.

### **PHED 5190 Athletic Training (2 credits)**

A lecture course with laboratory activity introducing the five practice domains of athletic training that include: prevention, recognition and evaluation, rehabilitation, reconditioning of athletic injuries, administration and professional development. Other topics include the theory and practice of athletic taping and risk management.

### **PHED 5200 Introduction to Sport Biomechanics (3 credits)**

Introduction to biomechanical concepts and principles. Application of these principles to evaluating and improving performance in physical activities. Introduction to methods for qualitative movement analysis.

### **PHED 5209 Sport Finance (3 credits)**

This course will provide the student an understanding of theories and concepts used in financial resource management for the operation of programs in both public and private sectors of sport. Topics include ethical concerns, decision making, principles of budgeting, budget development, financial statements, spread sheet utilization, and sources of revenue for financing sport.

### **PHED 5219 Sport Economics (2 credits)**

This course will provide the student an understanding of theories and concepts related to economics of sport. Topics covered: economic growth of the sport industry, concepts of competitive strategy, economic impact principles, economic theory applied to various levels of sport, labor relations, stadium and arenas, venues and events, manufacturing, and service industries.

### **PHED 5300 Physiology of Exercise and Nutrition (3 credits)**

An examination of the effects of exercise on the systems of the body as they relate to health and performance. Nutritional concepts of weight control, ergogenic aids and fluid replacement will be discussed. Techniques for developing, prescribing, and assessing fitness components will be present.

### **PHED 5309 Legal Aspects of Sport, Health, and Fitness (3 credits)**

An overview of the field of sports law, with applications to amateur sport, professional sport, recreation, health, healthcare, and fitness settings. Key areas of the law are identified, and applications within the sport, health and fitness industries are studied. Provides information about legal issues that may help professionals avoid litigation by foreseeing and preventing problems.

### **PHED 5409 Sport Business Management (3 credits)**

Study of the structures and processes of sport organizations, as well as examine principles and concepts as they apply to sport businesses. Topics include definitions; and internal processes such as social responsibility and ethics, organizational behavior and structure, organizational philosophy, mission statements, goals and objectives, chain of command, strategic plans, adapting to change, and so on.

### **PHED 5449 Socio-Culture and Ethical Issues in Sport (3 credits)**

Study of the general relationship between individuals and sport, and sport and society. Examine the ways sport is linked to other spheres of social life, the organization and behavior patterns of both individuals and groups within sport settings, and the cultural, structural, and situational factors affecting sport and sport experiences.

### **PHED 5504 Teaching Rhythms and Dance (2 credits)**

Methods and materials for teaching educational forms of rhythms and dance. Components include effective individual and group instruction, cultural and historical implications, dance steps and fundamentals and a variety of traditional, creative and contemporary dance forms applicable to the K-12 setting. Prerequisite: Entrance into the teacher education program or consent of instructor.

### **PHED 5505 Teaching Elementary Physical Education (2 credits)**

An introduction to the developmental physical education program at the elementary school level. Components include learner characteristics, program content and organization and methods of teaching physical education. Prerequisite: Entrance into the teacher education program or consent of instructor.

### **PHED 5509 Sport Event Management (2 credits)**

This course will provide the student with an understanding of the responsibilities in managing sport facilities, administering, organizing and producing sporting events. The topics will range from personnel issues, facility protocol and procedures, and emergency plans.

### **PHED 5514 DAPE Program Planning (3 credits)**

First in a series of three courses, DAPE Program Planning provides knowledge necessary to develop, organize, and administer DAPE programs supported by DAPE historical and philosophical foundations, legal bases, the IEP process, resources, and an understanding of health-related physical and motor fitness, assistive technology, and adapted equipment. Students assess fitness, motor and behavioral skills of three K-12 students with identified disabilities at a local school. Using assessment information, students develop DAPE programs for elementary, middle, and secondary school levels. Programs reflect individual student goals and objectives. The course includes 15 hours of required field experience. Prerequisites: SPED 5600, SPED 5650, co-requisite SPED 5655

**PHED 5515 DAPE Teaching Strategies (3 credits)**

Second in a series of three courses, DAPE Teaching Strategies provides knowledge and practical experiences necessary for future teachers to develop individual DAPE lessons based on typical and atypical motor development patterns, to deliver lesson plan content using best practice instructional strategies, behavioral interventions, safe learning environments and methods of communicating with nonverbal students. Students will teach the lesson plans to K-12 DAPE students. The course includes 30 hours of required field experience. Prerequisites: SPED 5600, SPED 5650, SPED 5655; PHED 5514

**PHED 5516 The DAPE Professional (3 credits)**

Third in a series of three courses, The DAPE Professional: provides students with opportunities to combine content, theory and research with practical experiences in DAPE programming and teaching strategies. This capstone course allows students to cultivate and maintain positive, collaborative relationships with students, families, and other professional, and the community to support student development and educational process. This course includes 20 hours of required field experience. Prerequisites: SPED 5600, SPED 5650, SPED 5655; PHED 5514, PHED 5515

**PHED 5519 Sport Facility Management (2 credits)**

This course provides an understanding of sport facility management, facility planning, site and design development, systems and operations, and facility administration.

**PHED 5600 Sport Marketing (3 credits)**

Study of fundamental marketing principles utilized in sport. Topics include definitions, marketing planning process, goals and objectives of marketing, marketing mix, target markets, consumer behavior, sponsorship, endorsement, merchandising, fundraising, and mass communication.

**PHED 5604 Teaching Team Sports (2 credits)**

Activities and teaching methods for team sport activities included in current physical education programs at all levels. Prerequisite: Entrance into teacher education program or consent of instructor.

**PHED 5605 Teaching Individual Sports (2 credits)**

Methods of teaching and the practice of the skills such as tennis, golf, pickleball, archery, badminton, bowling, and racquetball are the focus. Development of lesson plans, unit plans and application of the teaching methods is emphasized. Prerequisite: Entrance into teacher education program or consent of instructor.

**PHED 5607 Teaching Fitness (2 credits)**

Methods of teaching and the practice in the development of physical fitness. Development of the health related fitness components of strength, cardiovascular endurance, muscular endurance and flexibility with activities such as cross country skiing, exercise walking, orienteering, cycling, yoga and weight training are emphasized.

**PHED 5870 Practicum in Physical Education Teaching (1 credit)**

A supervised experience in teaching K-12 students in physical education. Emphasis is on meeting the requirements for physical education majors by the Minnesota Professional Education Licensing and Standards Board (PELSB). Required: A minimum of 30 practicum hours per credit. Prerequisite(s): PHED 5505 and PHED 5604; or consent of instructor

**PHED 6109 Sociology of Sport (3 credits)**

Study of the general relationship between sport and society including: (1) the ways sport is linked to other spheres of social life; (2) the organization and behavior patterns that exist within sport settings; (3) the cultural, structural, and situational factors affecting sport and sport experiences; and (4) the social processes related to democratization, collective behavior, and social change.

**PHED 6200 Applied Physiology and Nutrition (3 credits)**

An examination of current conditioning and nutritional practices in sport. Emphasis will be on reading research related to these practices, as well as developing skills and methods for assessing performance and the effects of conditioning.

**PHED 6300 Advanced Principles of Coaching and Administration (3 credits)**

A study of advanced principles and administrative duties of coaching. Practical applications of these will include the use of technology and problem solving in case studies.

**PHED 6400 Advanced Movement Analysis (3 credits)**

A study of the mechanical principles applied to the analysis of human movement including data gathering techniques and interpretations of selected research studies. Lecture and laboratory experiences provided.

**PHED 6991 Thesis Topic (1 credit)**

Students develop a research question(s) to be used for their thesis proposal. Course content includes methods and practice in literature searches.

**PHED 6992 Thesis Proposal Seminar (1 credit)**

An extension of PHED 6991, this course has the objective of taking the advisor-approved topic and problem statement and developing a thesis proposal worthy of acceptance by the PEHS graduate faculty. This includes the completion of the first three chapters of the student's thesis.

**All-University Courses**

The course numbers listed below, not always included in the semester class schedule, may be registered for by consent of the advisor, instructor, or department chair, or may be assigned by the department when warranted. Individual registration requires previous arrangement by the student and the completion of any required form or planning outline as well as any prerequisites.

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# Physics

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## Physics Courses

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### **PHYS 5300 Thermal and Statistical Physics (3 credits)**

Principles of thermodynamics and statistical mechanics. Topics include temperature, the laws of thermodynamics, entropy, heat engines and refrigerators, free energy, and Boltzmann and quantum statistics. Prerequisites: Licensed Physics Teacher or B.S. Degree in Physics.

### **PHYS 6030 Survey of Electronics (3 credits)**

A broad survey of the principles of electronics. Topics include series and parallel circuits, Kirchhoff's rules, capacitors and inductors, and digital ICs. Prerequisites: Licensed Physics Teacher or B.S. Degree in Physics.

### **PHYS 6040 Survey of Optics (3 credits)**

An introduction to modern optics, with emphasis on geometric optics. Wave optics will be introduced sufficiently to enable interpretation of diffraction, interference, and laser effects. Prerequisites: Licensed Physics Teacher or B.S. Degree in Physics.

### **PHYS 6050 Modern Physics (3 credits)**

## All-University Courses

The course numbers listed below, not always included in the semester class schedule, may be registered for by consent of the advisor, instructor, or department chair, or may be assigned by the department when warranted. Individual registration requires previous arrangement by the student and the completion of any required form or planning outline as well as any prerequisites.

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# Political Science

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## Political Science Courses

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### **POL 5170 International Relations (3 credits)**

The study of the behavior of nation-states. Causes of conflict and cooperation, the role of multinational corporations and international organizations.

### **POL 5180 International Law and Organizations (3 credits)**

Explores the role of international organizations such as the United Nations, economic alliances, international law, and regional consolidation in international politics.

### **POL 5230 Environmental Politics (3 credits)**

Surveys the dynamics of the policy process that produce our environmental policies. An analysis of actors, institutions, and organizations that shape U.S. environmental law and policy.

## **All-University Courses**

The course numbers listed below, not always included in the semester class schedule, may be registered for by consent of the advisor, instructor, or department chair, or may be assigned by the department when warranted. Individual registration requires previous arrangement by the student and the completion of any required form or planning outline as well as any prerequisites.

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# Professional Education

## Graduate Faculty

Dr. Layna Cole (chair), Dr. Camille Brandt, Dr. Linda Colburn, Dr. Porter Coggins, Dr. Tim Goodwin, Dr. Lisa Krall, Dr. Carl Lund, Dr. Sonia O'Bryan, Dr. Judy Olson, Dr. Jessamay Pesek, Ms. Lisa Schmitz, Dr. Michael Urban, Dr. Janine Wahl, Dr. Miriam White

## Programs

- Elementary and Middle Level Mathematics Education, M.S. *master*
- Mathematics Education, M.S. *master*
- Online Teaching *cert*
- Special Education *cert*
- Education, M.A.T. *mat*
- Special Education, M.Sped. *mspd*

## Elementary and Middle Level Mathematics Education, M.S. *master*

Required Credits: 34  
Required GPA: 3.00

### I. REQUIRED EDUCATION CORE

Complete the following courses:

- ED 6100 Educational Research I (3 credits)
- ED 6107 Advanced Educational Psychology (3 credits)
- MATH 6050 Assessment in the Mathematics Classroom (3 credits)

### II. REQUIRED MATHEMATICS ELECTIVE COURSES

Complete the following courses:

- MATH 6061 Number Sense For Teachers (3 credits)
- MATH 5064 Number Concepts (4 credits)  
or MATH 6062 Number Theory For Teachers (3 credits)

Select at least 5 courses from the following:

- MATH 5065 Mathematical Foundations of Algebra (4 credits)
- MATH 5066 Geometry and Technology (4 credits)
- MATH 5067 Data, Probability, and Statistics (4 credits)
- MATH 6200 Structures of Discrete Mathematics (3 credits)
- MATH 6500 Geometry In The Classroom For Teachers (3 credits)
- MATH 6600 Probability For Teachers (3 credits)

### III. REQUIRED PORFOLIO AND RESEARCH

Note: MATH 6050 should be taken prior to the collection of evidence for the pedagogical portfolio.

Note: Consult with advisor before registering for MATH 6055.

Complete the following courses:

- MATH 6055 Pedagogical Portfolio and Action Research (2 credits)

## Mathematics Education, M.S. *master*

Required Credits: 32  
Required GPA: 3.00

### I. REQUIRED EDUCATION CORE

Complete the following courses:

- ED 6100 Educational Research I (3 credits)
- ED 6107 Advanced Educational Psychology (3 credits)
- MATH 6050 Assessment in the Mathematics Classroom (3 credits)

### II. REQUIRED MATHEMATICS ELECTIVE COURSES

Select at least 12 credits from the following:

Note: Some courses listed have prerequisites not required in this program.

Other math content courses may be used with consent of advisor.

- MATH 5240 Number Theory (3 credits)
- MATH 5260 Mathematical Problem Solving (3 credits)
- MATH 5310 Linear Algebra (4 credits)
- MATH 5371 Modern Algebra (3 credits)
- MATH 5410 Introduction to Analysis (3 credits)
- MATH 5440 Introduction to Fractals & Chaos (3 credits)
- MATH 5470 Advanced Calculus (3 credits)
- MATH 5560 Classical and Modern Geometry (3 credits)
- MATH 5710 Mathematical Modeling (3 credits)
- MATH 5720 Numerical Methods (3 credits)
- MATH 5760 Topics in Applied Mathematics (3 credits)
- MATH 5820 History of Mathematics (3 credits)
- MATH 6350 Advanced Abstract Algebra (3 credits)
- MATH 6550 Advanced Geometry (3 credits)
- STAT 5631 Probability and Statistics I (4 credits)
- STAT 5632 Probability and Statistics II (3 credits)
- STAT 5650 Probability and Statistics for Secondary Teachers (4 credits)
- STAT 5660 Statistics for the Health Sciences (3 credits)



### III. REQUIRED MATHEMATICS PEDAGOGY ELECTIVE COURSES

Select at least 9 credits from the following (or other pedagogy courses approved by an advisor):

- MATH 5064 Number Concepts (4 credits)
- MATH 5065 Mathematical Foundations of Algebra (4 credits)
- MATH 5066 Geometry and Technology (4 credits)
- MATH 5067 Data, Probability, and Statistics (4 credits)
- MATH 6061 Number Sense For Teachers (3 credits)
- MATH 6062 Number Theory For Teachers (3 credits)
- MATH 6200 Structures of Discrete Mathematics (3 credits)
- MATH 6500 Geometry In The Classroom For Teachers (3 credits)
- MATH 6600 Probability For Teachers (3 credits)

### IV. REQUIRED PORTFOLIO EVALUATION AND RESEARCH

Note: Consult with an advisor before registering for MATH 6055:

- MATH 6055 Pedagogical Portfolio and Action Research (2 credits)

### COMPETENCY REQUIREMENT

Completion of MATH 6050, Assessment in the Mathematics Classroom, with a grade of 'B' or better, or the equivalent as approved by the department.

## Online Teaching *cert*

Required Credits: 10  
Required GPA: 2.00

### I REQUIRED COURSES

COMPLETE THE FOLLOWING COURSES:

- ED 6120 Critical Issues in Education (2 credits)
- ED 6336 Instructional Design (3 credits)
- ED 6446 Distance Education: History and Development (3 credits)
- ED 6447 Seminar in Online Teaching (2 credits)

## Special Education *cert*

Required Credits: 12  
Required GPA: 3.00

Admission requirement: Bachelor's degree in any area Note: This certificate does not provide a licensure through the Minnesota teacher licensing board, PELSB.

### I REQUIRED COURSES

Complete the following courses:

- SPED 5600 Study of the Learner with Special Needs (3 credits)
- SPED 5650 Collaborative Techniques for Special Educators (3 credits)
- SPED 5655 Due Process in Special Education I: Individual Education Plan (3 credits)
- SPED 5715 Curriculum Techniques with Special Populations (3 credits)

## Education, M.A.T. *mat*

Required Credits: 35  
Required GPA: 3.0

### I. Required Core

Educational Research I

- ED 6100 Educational Research I (3 credits)

Advanced Educational Psych

- ED 6107 Advanced Educational Psychology (3 credits)

Curriculum Instruction

- ED 6334 Curriculum and Instruction (3 credits)

Educational Research II

- ED 6750 Educational Research II (2 credits)

### II. Required Core Electives

Note: Online Teaching Certificate courses include ED 6120, ED 6336, ED 6446, and ED 6447.

Select 7 credits of electives with consent of advisor. Courses not used to satisfy the 7 credit requirement may be used to satisfy the credit requirement for ELECTIVE OPTION A.

- ED 6108 The Learning Community (3 credits)
- ED 6117 Critical and Creative Thinking (3 credits)
- ED 6120 Critical Issues in Education (2 credits)
- ED 6336 Instructional Design (3 credits)
- ED 6446 Distance Education: History and Development (3 credits)
- ED 6447 Seminar in Online Teaching (2 credits)

### III. Elective Options

Option II:

Standards of Effective Practice (SEP) Option

\*\*This master's degree is not a teaching license-granting program, but could be used in conjunction with the pursuit of a secondary teaching license (i.e. FastTrack-Bemidji Secondary Post-Bac Initiative)

- ED 5100 Introduction to the Foundations of Public School Education (3 credits)
- ED 5110 Educational Psychology (3 credits)
- ED 5140 Human Relations in Education (3 credits)
- ED 5350 Pedagogy: Planning for Instruction (3 credits)
- ED 5780 Adaptation and Management: Designing the Learning Environment (3 credits)

Option I.

Graduate Elective Option

5000 or 6000 level elective courses using 'Open Study' option or 'Certificate/Elective emphasis' option (contact Professional Education or Grad Studies for more information).

#### IV. Final Paper/Project

##### Capstone

- ED 6850 Capstone (2 credits)

##### Competency Requirement

###### Competency Requirement:

Instructional Technologies: This requirement may be satisfied by successfully completing ED 6850 Capstone (2 credits) Educational Research I.

###### Written Requirement:

This requirement may be satisfied by successfully completing ED 6100 Educational Research II. Student learning outcomes for the program: Outcomes based on a combination of National Board of Professional Teaching Standards (NBPTS) and International Society for Technology in Education (ISTE) National Educational Technology Standards for Teachers (NETS-T). [Learning outcomes are tentatively assigned to these core courses, but as the program evolves, the outcomes may be moved among the defined core courses as necessary.]

## Special Education, M.SpEd. *mspd*

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### Master of SPecial Education - Special Education (M.Sp.ED)

Required Credits: 36

Required GPA: 3.0

The Master of Special Education is an application degree designed for practicing teachers seeking licensure in either specific learning disabilities, emotional behavioral disorders or autism spectrum disorders. Components of the degree emphasize theory to practice in practicum settings, development and modification of curriculum for students with special needs, and an understanding of relevant literature and research within the field. Twenty-nine of the thirty-six credit hours in the Master of Special Education degree are based on the Council of Exceptional Children (CEC) Initial Level Special Educator Preparation Standards and the Minnesota Special Education Licensure Standards. The remaining seven credit hours are research-based professional application courses. The degree, by itself, does not result in Minnesota special education licensure; additional courses are required to be recommended for special education licensure.

#### Standard 1: Learner Devl & Individual Learning Diff

Complete the following courses:

- SPED 5600 Study of the Learner with Special Needs (3 credits)
- SPED 5620 Teaching the Learner with Specific Learning Disabilities I (3 credits)  
or SPED 5630 Teaching the Learner with Emotional Behavioral Disorders I (3 credits)  
or SPED 5660 Teaching the Learner with Autism Spectrum Disorder I: Mild to Moderate (3 credits)

#### Standard 2: Learning Environments

Curriculum Techniques with Special Populations

- SPED 5715 Curriculum Techniques with Special Populations (3 credits)

#### Standard 3: Curricular Content Knowledge

Complete the following courses:

- SPED 6603 Math Difficulties: Diagnosis and Intervention (3 credits)
- SPED 6608 Reading Difficulties: Diagnosis and Intervention (3 credits)

#### Standard 4: Assessment

Due Process in SpEd II: Assessment & Reporting

- SPED 6605 Due Process in Special Education II: Assessment and Reporting (3 credits)

#### Standard 5: Instructional Planning & Strategies

Complete the following course:

- SPED 6620 Teaching the Learner with Specific Learning Disabilities II (3 credits)  
or SPED 6630 Teaching the Learner with Emotional Behavioral Disorders II (3 credits)  
or SPED 6660 Teaching the Learner with Autism Spectrum Disorder II: Moderate to Severe (3 credits)

#### Standard 6: Professional Learning and Ethical Practice

Complete the following courses:

- SPED 5655 Due Process in Special Education I: Individual Education Plan (3 credits)
- SPED 5107 Professional Practice in Special Education III (2 credits)

#### Standard 7: Collaboration

Collaborative Techniques for Special Educators

- SPED 5650 Collaborative Techniques for Special Educators (3 credits)

#### Professional Application

Complete the following courses:

- ED 6100 Educational Research I (3 credits)
- ED 6750 Educational Research II (2 credits)
- ED 6850 Capstone (2 credits)

## Professional Education Courses

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### **ED 5000 Introduction to FasTrack (1 credit)**

This course provides a comprehensive evaluation of the professional and academic experiences of aspiring teacher candidates. Transcripts and professional data are reviewed. Once the evaluation is completed, the student will work with the instructor to create an individualized program plan that leads to teacher licensure. Students are introduced to the concept of professional reflection based on the Standards of Effective practice. Student concerns and questions are addressed as well as an introduction to D2L and online learning. Discussions around the four components of the Professional Education Conceptual Framework in the areas of environmental awareness, technology, proficiency in teaching and collaboration occur via D2L. An introduction to TaskStream and its relation to the documenting of the Standards of Effective practice is provided. The cost for reviewing transcripts is waived for candidates who enroll in this course. This course is required before taking any other courses in the FasTrack program. Prerequisite: An earned bachelor's degree.

### **ED 5100 Introduction to the Foundations of Public School Education (3 credits)**

Introduction to the historical, social, and political foundations of public school education. Introduction to the roles, functions, and responsibilities of an elementary or secondary public school teacher; a practicum experience. Prerequisites: Completion of PPST, 2.50 GPA, and 30 credits, or completion of a baccalaureate degree in a licensure field and consent of department chair.

### **ED 5110 Educational Psychology (3 credits)**

A study of the teaching and learning process: teaching with emphasis on planning effective instruction, management, and assessment; learning from behavioral, information processing, and constructivist views focusing on how learning is influenced by cognitive, personal, social, and moral development, and by teaching approaches, motivation, and other factors. Prerequisite: 2.50 overall GPA; Corequisite: ED 5100.

### **ED 5140 Human Relations in Education (3 credits)**

Study of the causes and psychological dynamics of racism, sexism, and other forms of human oppression. Focus on building teacher/family relationships as a strategy in anti-bias teaching. Prerequisites or Corequisites: ED 5100 and ED 5110.

### **ED 5160 Philosophy and Organization of The Middle School (2 credits)**

Specific information and skills relative to the development of a philosophy and rationale for a middle school. Emphasis on the relationship between the middle school student, the middle school teacher, and the philosophy, organization (including interdisciplinary planning, advisor/advisee plan, etc.), and program of the middle school.

### **ED 5170 Education of the American Indian (3 credits)**

Survey of traditional and western models used in the education of American Indians from colonial times to the present.

### **ED 5201 Language Arts I (3 credits)**

A survey of various approaches and an investigation of the multiplicity of tasks involved in the teaching of elementary school reading. Focuses on emerging literacy development as well as assessment in the early years of learning to read.

### **ED 5202 Language Arts II (3 credits)**

Focuses on the use of children's literature in the elementary and middle schools and the role of literature in a balanced literacy program and continued language development. A balanced literacy program includes the integration of reading, writing, spelling, listening, speaking, and viewing skills meeting the needs of diverse learners.

### **ED 5203 Language Arts III (3 credits)**

Focuses on literacy components of the elementary and the middle school reading program. Special emphasis is given to the development of literacy skills in writing, listening, speaking, media literacy, and presenting and viewing as a part of a holistic view of language and communication. Prerequisite: ED 5202.

### **ED 5212 Curriculum Instruction using Response to Intervention (RTI) (3 credits)**

This course is designed to provide students with opportunities to apply learning in an authentic setting. Students will demonstrate-through fieldwork, online discussion, and course assessments-their knowledge of curriculum using Response to Intervention (RTI) and how to supervise a reading program. Prerequisites: ED 5201 (Elementary Students) or ED 5737 (Secondary Students).

### **ED 5221 Elementary Math Methods (3 credits)**

Objectives, materials and methods of teaching modern mathematics. Requires visits to elementary schools.

### **ED 5250 Elementary School Environmental Education (1 credit)**

Philosophy, objectives, methods, and materials of environmental education. Designed to teach students how to integrate environmental education into the classes of elementary schools.

### **ED 5257 Introduction to Environmental Education and Interpretation (3 credits)**

Objectives, program ideas, methods, and materials of outdoor education. General and specific techniques of implementing a program of environmental education and interpretation.

### **ED 5258 Environmental Interpretation (3 credits)**

Introduces the student to the profession of interpretation. Students gain an understanding of the principles of interpretation and their application in interpretative services in a wide variety of setting including museums, zoological gardens, industrial sites, and parks.

### **ED 5305 Literature Based Differentiated Instruction (3 credits)**

This course emphasizes theory and practice in understanding, diagnosing and correcting problems in reading through differentiated literature-based instruction. Sims strategies as well instructional differentiated instruction will be introduced and implemented in a 20-hour clinical experience. (3 credits) Prerequisites: ED 5201 (Elementary Students) or ED 5737 (Secondary Students).

### **ED 5350 Pedagogy: Planning for Instruction (3 credits)**

Introduction to the elements of designing effective instruction: learners, goals and objectives, teaching strategies, instructional technologies, and assessment, with special attention to the learners. Concepts from educational psychology and human relations are applied to the development of appropriate educational materials for diverse learners. Prerequisites: ED 5100 and ED 5110.

### **ED 5410 Secondary Science Methods (4 credits)**

Introduces strategies and materials for teaching science grades 5-12. Discusses the teaching of science through a hands-on, inquiry-oriented methodology, and includes laboratory activities, class discussions, and modification of materials to address current Minnesota state standards. A field experience is required in an appropriate grade level with public school students. Prerequisite: Senior status or consent of instructor.

### **ED 5417 Teaching and Learning in the Middle School (3 credits)**

Course provides comprehensive preparation for teaching in the middle school. Topics of study include young adolescent development, the family's impact on the middle school learner; middle school philosophy and content, instruction, and assessment at the middle school level. Study is given to the impact of technology on middle school teaching and learning. Course is project-focused, meaning content is organized around projects completed by students individually and in teams. Field experience is required.

### **ED 5500 Young Children with Special Needs (3 credits)**

Introduction to teaching young children with special needs. Includes discussion of important aspects of education for young children in special education and mainstreamed settings. Students interrelate experiences working with young children having special needs to developing an educational philosophy.

**ED 5508 Parent/Professional Team in Early Childhood (3 credits)**

Emphasizes cooperative and coordinated educational programming with parents of normally and atypically developing infants, toddlers, and preschool age children. Models of early intervention and parent-teacher educational programs are presented and adapted for use with parents. First is interagency staffing patterns and cooperation among agencies and second is geographic, economic and social factors and related problems. Prerequisites: ED 5670 and/or ED 5500.

**ED 5580 Teaching of Middle and Secondary School Social Studies (4 credits)**

Objectives, activities, methods, and materials in teaching social studies in grades 5-12. Additional laboratory time is required. Prerequisite: ED 5110.

**ED 5601 Assistive Technology (3 credits)**

An overview of assistive technology for use by individuals with disabilities will be covered. Five types of devices will be examined and their uses discussed. They include environmental control devices simple augmentative communication devices; switches, modules, and mounting systems; computer adapted input devices; and special needs software. This course provides a format via e-mail for discussion regarding application and analysis of assistive technology devices. In addition, students will synthesize and evaluate information on disabilities and assistive technology devices found on the Internet.

**ED 5608 Mathematics for Learners with Special Needs (2 credits)**

Study of the problems that students who have learning difficulties exhibit in mathematics. Diagnostic, remedial, and instructional activities are developed. Requires an approved elementary (K-4) clinical experience. Prerequisite: ED 5221 or MATH 6061, and SPED 5600.

**ED 5670 Foundations of Early Childhood Education (3 credits)**

Social, psychological, historical, and educational foundations of kindergarten and prekindergarten programming are explored. Emphasis is placed on efforts of modern programs to adapt curriculum and instruction to the developmental levels and experience backgrounds of young children. Content is geared toward teaching at either the kindergarten or prekindergarten levels. Requirements: Practicum at level of professional interest.

**ED 5677 Relations and Management in Early Childhood Education (3 credits)**

Study and develop skills in relations with young children, parents, and co-workers. Guidance and group management techniques are addressed for working effectively with prekindergarten and young school aged children. Practicum in prekindergarten or school settings is part of the class.

**ED 5700 Developmentally Appropriate Preprimary Education (3 credits)**

Course studies developmentally appropriate curriculum and methods for young learners, prekindergarten - third grade. The use of learning centers, thematic instruction, culturally sensitive teaching techniques, emergent literacy and numeracy, and constructivist educational theory are explored. This is the culminating seminar in early childhood programs and includes a practicum in prekindergarten of kindergarten classroom. Prerequisite: ED 5670.

**ED 5737 Content Area Reading (3 credits)**

Intensive study of content area reading issues. Assessment techniques and instructional strategies appropriate for grades four through twelve. Literacy requirements addressed include application competencies that take into account classroom experiences related to various disciplines.

**ED 5740 Methods of using Instructional Technology (3 credits)**

Fundamentals of theory and practice in using instructional technology in teaching. Explores current and future methods of teaching with technology. Assists teachers and prospective teachers in utilizing various instructional technologies in their teaching.

**ED 5747 Curriculum Development for Instructional Technology (4 credits)**

How to modify existing curriculum to incorporate instructional technology into the educational program. Focuses on curriculum development processes that link advanced multi-media technologies to the curriculum.

**ED 5750 Family, School, Community Relations (3 credits)**

Course focuses on family involvement as essential in the successful education of the prekindergarten-12th grade learner. Study is given to family dynamics, trends in family-school relations, problems that inhibit parent involvement, and strategies for productive family involvement. Community and cultural considerations in family-school-community relations are examined. Pertinent field activities are required.

**ED 5757 Philosophy and Methods of Parent Education (3 credits)**

Historical, cultural, social, and psychological foundations in the philosophy of parent education are explored. Methods in the education of adults in the context of the family are studied. Models of parent/family education are examined. Visitations to early childhood family education programs are required. Prerequisites: ED 5500, ED 5670, and ED 5677.

**ED 5758 Teaching the Learner at Risk: An Ecological Perspective (2 credits)**

The course explores family and school factors that put the learner at risk for academic and social failure. Strategies are developed for addressing these factors, including collaborative efforts within and outside of the classroom. This is the introductory course in teaching the learner at-risk programs.

**ED 5760 Vocal Music Consultant in the Elementary School (1 credit)**

Music resources, films, records, song literature, and community resources; demonstration and observation lessons; workshop staff relations, purchase and maintenance of materials and equipment.

**ED 5770 Organization and Administration of Environmental Education & Interpretation (2 credits)**

The organization and administration of environmental education and interpretation experiences in varying lengths, and the acquisition, development, and maintenance of outdoor education facilities and programs. Prerequisite: ED 5257.

**ED 5777 Field Experiences in Environmental Education and Interpretation (3 credits)**

An interdisciplinary field oriented course designed to provide the student with basic knowledge of the natural environment and its relationship to the total school curriculum. Each student will design and execute an environmental or outdoor education project related to their major field of study. Arrangements will be made to test out the activity on an appropriate group (e.g. school children, adults, etc.) Prerequisite: ED 5257.

**ED 5780 Adaptation and Management: Designing the Learning Environment (3 credits)**

Focuses on designing and managing the learning environment to meet needs for growth in all learners in affective, cognitive, psychomotor, and social domains. Theories of individual behavior, diverse learners, group dynamics, communication, behavioral interventions, and classroom management presented and applied in simulations. Research on related topics is undertaken. Prerequisites: ED 5100, ED 5110, ED 5140, and ED 5350.

**ED 5799 The Professional Teacher (1 credit)**

Students study the role of the student teacher in planning for full-time teaching. Reviews classroom procedures, organization, planning, and technologies, and covers student teacher and beginning teacher procedures, general background, introduction to the classroom, teaching strategies, language, thinking, evaluation, employment (including letters of application, resume writing, and interviews), and continued professional growth. The course must be taken the semester before student teaching. Note: Elementary majors must successfully complete all methods courses prior to student teaching; secondary majors must successfully complete all methods courses and 80 percent of their content courses prior to student teaching. Prerequisites: ED 5100, ED 5110, ED 5140, ED 5350, and ED 5780.

**ED 5811 Preprimary Student Teaching (3-10 credits)**

Students integrate theory and practice through working as a member of a teaching team in a prekindergarten placement. Includes application of content and methods from ED 3670 and ED 3677, as well as documentation of attainment of BOT outcomes as specified in the syllabus. Prerequisites or Corequisites: ED 5670 and ED 5677.

**ED 5818 Field Experience In Instructional Technology (4 credits)**

The purpose of this course is to provide a capstone experience for the students in the Instructional Technology area of emphasis. Students will develop integrated instructional technology materials and field test them in actual educational settings.

**ED 5820 Student Teaching - Elementary (1-12 credits)**

Full-time teaching with guidance and supervision by University supervisors and assigned school personnel. Graded Satisfactory/Unsatisfactory only. Prerequisites: ED 5100, ED 5110, ED 5140, ED 5350, ED 5780, and ED 5799; Corequisite: ED 5800.

**ED 5830 Student Teaching - Secondary (1-12 credits)**

Full-time teaching with guidance and supervision by University supervisors and assigned school personnel. Graded Satisfactory/Unsatisfactory only. Prerequisites: ED 5110 and ED 5799; Corequisite: ED 5800.

**ED 5840 Student Teaching - Special Fields (1-12 credits)**

Full-time teaching with guidance and supervision by University supervisors and assigned school personnel (visual arts, business education, industrial arts education, instrumental music, vocal music, health and physical education.) Graded Satisfactory/Unsatisfactory only. Prerequisites: ED 5100, ED 5110, ED 5140, ED 5350, ED 5780, and ED 5799; Corequisite: ED 5800.

**ED 5917 DIS Tchg Assoc | (1-2 credits)**

Directed Independent Study | Teaching Associate

**ED 6100 Educational Research I (3 credits)**

Introduction to the fundamental principles of educational research, including the analysis and critique of quantitative, qualitative, and emerging research designs, data collection methods, and statistical approaches. This course should be taken early in a student's program of study to provide a sound basis for subsequent graduate-level coursework. Prerequisites: Admission to any BSU graduate program or consent of instructor.

**ED 6107 Advanced Educational Psychology (3 credits)**

Study of how individuals are alike and different in terms of development, learning, and motivation. Cognitive, intellectual, psychosocial, and moral developmental theories, and behavioral, information processing, and constructivist theories of learning are analyzed and transformed into effective teaching practices.

**ED 6108 The Learning Community (3 credits)**

Study of instructional policy, curriculum theory and development, and staff development. Addresses current educational issues -- national, state, and local educational standards; resources; parental and community involvement in educational decision making; and historical, gender-fair, multicultural, and international perspectives.

**ED 6110 Comparative Educational Philosophies (3 credits)**

Study of diverse views of education, including predominant educational philosophies of the United States and educational systems around the world. Topics to be considered are the relationship of philosophy, theory, and educational practice.

**ED 6115 Psychology of Learning (3 credits)**

A comprehensive study of the process of learning as it relates to behavior, cognition/intelligence, life-span development, motivation, and instructional practices. For practicing teachers in various educational settings, pre-K through post-secondary.

**ED 6117 Critical and Creative Thinking (3 credits)**

Analysis of learner capacities that are prerequisites for intellectual growth, including the ability to take multiple perspectives, be creative and take risks, and adopt an experimental and problem-solving orientation. Through an understanding of developmental and learning theories, accomplished teachers critically examine their teaching practices, seek to expand their repertoire, deepen their knowledge, and adapt their teaching to new ideas.

**ED 6118 Program Evaluation (3 credits)**

Focuses on philosophical foundations of program evaluation within the context of organizational renewal and school change initiatives. Case study methodology is used for curricula and delivery design in contemporary curricular issues.

**ED 6120 Critical Issues in Education (2 credits)**

Analyzes issues confronting American education. Specific and detailed study is given to selected issues by individual members of the class.

**ED 6140 Social Foundations in Education (2 credits)**

Past, present, and future social issues that influence the development of American education are examined.

**ED 6150 History of American Education (2 credits)**

Study of the development of public education in the United States with attention to the European background as it has influenced the expansion of education facilities in the United States, Canada, and Latin America.

**ED 6160 Educational Statistics (2 credits)**

The principles and foundations of statistical method as applied to educational measurement are examined.

**ED 6210 Recent Research in Elementary School Subjects (2 credits)**

A study of recent research in selected elementary school subjects.

**ED 6220 Modern Curricula in Elementary School Subjects (2 credits)**

Designed to develop basic understanding for individual in science methods for the elementary school. Emphasizes modern approaches and resource development in science curricula.

**ED 6230 Curriculum and Instruction in Developmental Reading in Elementary School (2 credits)**

The skills, methods and materials basic to the teaching of reading at the elementary level are studied.

**ED 6232 Children's Literature in the Classroom (2 credits)**

For in-service elementary and middle-level teachers. Expands teachers' background in the field of children's literature. Emphasis on methods and techniques to integrate children's literature into the language arts program as well as the use of literature across disciplines in school curriculums. Current research, relevant Internet resources, and recent publications in children's literature. Prerequisite: Undergraduate teaching degree or consent of instructor. Offered through Extended Learning.

**ED 6237 Diagnosis and Correction of Reading Difficulties (2 credits)**

Emphasizes theory and practice in diagnosing and correcting problems in reading. Requires an approved clinical experience in a high school (9-12) setting. Prerequisite: ED 5201 or ED 6230.

**ED 6238 Administration and Supervision of the Reading Program in the Field (3 credits)****ED 6240 Curriculum and Instruction in Elementary School Mathematics (1 credit)**

This course is intended to develop a more comprehensive understanding of the objectives, content materials, and processes of modern mathematics in elementary school.

**ED 6250 Curriculum and Instruction in Elementary School Social Studies (2 credits)**

An analysis of recent research in curricula design and pedagogical practice, overarching goals of the social studies, the sources of content through which those goals may be realized, and the theoretical basis for organizing the social studies curriculum in the elementary school. Efforts will be made to explain the interrelationships between history, social sciences, school social studies, and pedagogy.

**ED 6300 Key Concepts of Middle Level Education (2 credits)**

An opportunity for in-depth exploration of the components that make up contemporary middle schools. Prerequisite: ED 5160 or equivalent.

**ED 6307 Teaching the Young Adolescent (2 credits)**

Designed to improve participants' ability to deliver instruction to transescent (10 to 15 years old) students. Prerequisite: ED 5160 or equivalent.

**ED 6334 Curriculum and Instruction (3 credits)**

Study of how content knowledge is created, organized, and linked to other disciplines and applied to real-world settings. Focuses on how to convey and reveal content knowledge to students by creating multiple paths of learning.

**ED 6336 Instructional Design (3 credits)**

Examines a range of effective instructional techniques for elementary, middle-level, secondary, and post-secondary teachers. Reviews instructional design models that focus on selecting content knowledge, transforming content knowledge into instructional standards, selecting appropriate teaching strategies and media, managing the classroom environment, assessing learning, and reflecting on the effectiveness of instructional decisions.

**ED 6400 School Administration and Leadership (3 credits)**

Examine leadership theory within a school setting and provide application of theory to the daily responsibilities of a school administrator through simulations and case studies. Aspects of organizational behavior and learning, school culture, systems thinking, vision building and change are applied to school leadership processes. Critical issues of leadership and education are analyzed

**ED 6407 The Accomplished Teacher (3 credits)**

Assessment of individual leadership styles and their application to the organizational setting. Team building, change processes, strategic planning and leadership theory are analyzed.

**ED 6410 Public School Law (3 credits)**

Study of principles of law relating to public school in relationship to case law, torts, statutes and legal system of the United States. Relationships of federal, state and local governments are analyzed as well as the legal status of schools, administrators, teachers and students.

**ED 6420 School Finance (3 credits)**

Addresses the financial implications of the education program including theoretical foundations of educational finance, budgeting, management of funds, fiscal policies, and the business management function and facilities financing.

**ED 6430 Student Personnel Services (3 credits)**

Develop strategies for student services programs with attention to student personal and developmental needs, family profiles, social issues, and peer interaction. Counseling and guidance services, student management programs, activity programs, school safety and policy development are examined and applied to simulations and case studies.

**ED 6440 Supervision of Student Teachers (2 credits)**

Course designed for experienced teachers who supervise, or expect to supervise, students in a student teaching experience assigned to off-campus schools.

**ED 6446 Distance Education: History and Development (3 credits)**

Students learn about trends, issues, and theories in the field, as well as designing for distance delivery with different types of methods, media, and delivery tools. The course is offered only online. Students will participate in online discussion, including an exploration of their own experiences as distance learners. Other goals are individually defined and based on the needs and interests of students taking the course.

**ED 6447 Seminar in Online Teaching (2 credits)**

Specifically for in-service P-12 and post-secondary teachers seeking advanced preparation in online teaching. Shaped by participants in terms of critical needs, specific content areas and specialties, or changes in state and federal policies. Every effort is made to include expert guest discussants from the Minnesota Department of Education, other universities, teachers' unions, and other relevant leaders in online education.

**ED 6450 Education Supervision (3 credits)**

Focus is on the major problems of supervision in the context of a school viewed as a social organization. Issues examined are the process of change, initiation of innovations, and the improvement of teachers' in-service.

**ED 6460 Public Relations (3 credits)**

Basic knowledge needed by teachers and administrators to conduct or participate in a school public relations program.

**ED 6480 Personnel Administration (3 credits)**

Examines the historical evolution of personnel administration and focuses attention on school personnel tasks, staff selection, in service training, performance evaluation, and professional negotiations.

**ED 6750 Educational Research II (2 credits)****ED 6800 Practicum in Diagnosis of Reading Difficulties (2 credits)**

Practical experience in diagnosing children's learning difficulties in reading. Prerequisite: ED 6237.

**ED 6810 Practicum in Correction of Reading Difficulties (2 credits)**

Practical experience in correcting children's learning difficulties in reading. Prerequisite: ED 6237.

**ED 6840 Practicum in Parent and Family Education (3 credits)**

Students complete the practicum in an early childhood family education program. Working with a mentor parent educator in a group setting with adults, students participate in planning, implementation, and evaluation of a parent and family education program. Taken at the end of the Parent and Family Education licensure. Completion of a journal and weekly seminar is a part of the practicum.

**ED 6850 Capstone (2 credits)****All-University Courses**

The course numbers listed below, not always included in the semester class schedule, may be registered for by consent of the advisor, instructor, or department chair, or may be assigned by the department when warranted. Individual registration requires previous arrangement by the student and the completion of any required form or planning outline as well as any prerequisites.

1910, 2910, 3910, 4910 DIRECTED INDEPENDENT STUDY

1920, 2920, 3920, 4920 DIRECTED GROUP STUDY

1930, 2930, 3930, 4930 EXPERIMENTAL COURSE

1940, 2940, 3940, 4940 IN-SERVICE COURSE

1950, 2950, 3950, 4950 WORKSHOP, INSTITUTE, TOUR

1960, 2960, 3960, 4960 SPECIAL PURPOSE INSTRUCTION

1970, 2970, 3970, 4970 INTERNSHIP

1980, 2980, 3980, 4980 RESEARCH

1990, 2990, 3990, 4990 THESIS

**Special Education Courses****SPED 5105 Professional Practice in Special Education I (1 credit)**

This one-credit course is designed to augment the clinical experiences required throughout the Special Education Licensure Program and facilitate interaction with teacher coaches/mentors. This course is taken during the candidate's first semester in the program. Signature Assessment 1 is completed in this course. Prerequisites: Current teacher license or completion of a teaching degree or completion of ED 5100, ED 5110, enrolled in or completed ED 5350 or consent of instructor. Corequisite: SPED 5600.

**SPED 5106 Professional Practice in Special Education II (1 credit)**

This one-credit course is designed to augment the clinical experiences required throughout the Special Education Licensure Program and facilitate interaction with teacher coaches/mentors. The course is taken during the program's third semester. Signature Assessment 2 is completed in this course. Prerequisites: SPED 5600, SPED 5105, and consent of instructor.

**SPED 5107 Professional Practice in Special Education III (2 credits)**

This two-credit course is designed to augment the clinical experiences required throughout the Special Education Licensure Program and facilitate interaction with teacher coaches/mentors. The course is taken during the program's fifth semester together with the final courses in the program. Signature Assessment 3 is completed in this course. Ten hours of field work for consultation and discussion with the mentor teacher and other professionals in the schools regarding content in the course and tasks related to Signature Assessment 3, are required. Prerequisites: SPED 5105, SPED 5106, SPED 5600, and consent of instructor.

**SPED 5566 Survey of Mild Disabilities (3 credits)**

This is an introductory level survey course that studies the strategies, methods and materials for educational programming necessary when teaching students with mild disabilities. This course focuses on history, etiology, characteristics, and instructional needs for individuals with mild disabilities including Autism Spectrum Disorder, Learning Disabilities, and Emotional Behavior Disorders. This course addresses learner traits relevant to specific intervention methods and instructional strategies across content areas as well as the roles of educators in inclusive settings to successfully collaborate to meet the needs of individuals with exceptionalities.

**SPED 5567 Survey of Special Education Law (3 credits)**

The focus of this course is on a formal set of policies and procedures to be implemented by schools and districts for children in special education programs. This course introduces students to the referral, evaluation, planning, and programming process. This course will build an understanding of the role a teacher of special education has: being able to address academic and behavioral strategies, understands and applies principles of prevention and intervening early and procedures for referral, assessment, evaluation, individualized planning, programming, and placement specific to teaching students who have mild to moderate needs in the areas of academics, behavior, social, emotional, communication, and functional performance. 20 hours of field experience.

**SPED 5600 Study of the Learner with Special Needs (3 credits)**

This is a foundation course for special education. The course provides an introductory overview of special education and characteristics and learning needs of school-age children with exceptionalities. A 15-hour approved clinical experience at the Kindergarten through 12 grade (K-12) level is required. The course is taken simultaneously with SPED 5105. Prerequisites: Current standard teaching license or completion of a teaching degree or completion of ED 5100, ED 5110, enrolled in or completed ED 5350 or consent of instructor. Co-requisite: SPED 5105 (Exempt: Developmental Adaptive Physical Education (DAPE) program.) Consent of instructor.

**SPED 5620 Teaching the Learner with Specific Learning Disabilities I (3 credits)**

This course is designed to introduce the candidate to the field of learning disabilities. It is a study of learners whose learning problems inhibit their ability to meet academic performance standards and developmental expectations for their age. Emphasis is placed on historical foundations, current education definitions of learning deficits, federal and Minnesota eligibility criteria for services, etiology of learning disabilities, relationship between learning disabilities and other associated conditions, impact of information processing deficits on children with learning disabilities, and social or emotional aspects of children and youth with learning disabilities. A 20-hour approved clinical experience at the Kindergarten through 6 grade (K-6) level is required. Prerequisites: SPED 5600 and consent of instructor.

**SPED 5630 Teaching the Learner with Emotional Behavioral Disorders I (3 credits)**

The course is an introduction to the characteristics and needs of students with emotional and behavioral disorders within the context of school, family and community settings. A 20-hour approved clinical experience at the Kindergarten through 6 grade (K-6) level is required. Prerequisites: SPED 5600 and consent of instructor.

**SPED 5650 Collaborative Techniques for Special Educators (3 credits)**

A study of the importance of and techniques for collaboration with parent, caregivers, community services and other support services to enhance the learning outcomes for students with special needs. A 10-hour approved clinical experience at the Kindergarten through 12 grade (K-12) level is required. Prerequisites: Consent of instructor.

**SPED 5655 Due Process in Special Education I: Individual Education Plan (3 credits)**

The course focuses on a formal set of policies and procedures to be implemented by schools and districts for children in special education programs. This course concentrates on the creation of compliant Individualized Education Plans (IEP) to meet the academic and/or emotional and behavioral needs of students receiving special education services. A 10-hour approved clinical experience at the Kindergarten through 6 grade (K-6) level is required. Prerequisites: SPED 5600 and consent of instructor.

**SPED 5660 Teaching the Learner with Autism Spectrum Disorder I: Mild to Moderate (3 credits)**

This course presents a whole-person perspective of individuals with high-functioning Autism Spectrum Disorder and surveys research-based approaches to teaching, biological and neurological information necessary for assessment, genetic research, legislation, and the Council for Exceptional Children (CEC) Code of Ethics. The course material covers birth through the age of 21 and requires 20 hours of field experience with 10 hours dedicated to birth to Pre-Kindergarten and 10 hours dedicated to Kindergarten through Grade 6. Prerequisites: SPED 5600 and consent of instructor.

**SPED 5665 Social Skills (3 credits)**

This course is designed to explore evidence based social skill and communication skill interventions for students diagnosed with Autism Spectrum Disorder (ASD), Emotional Behavioral Disorders (EBD) and Specific Learning Disability (SLD). The course requires 20 hours of field experience with students in Grades 5-8. Prerequisites: SPED 5600 and consent of instructor.

**SPED 5715 Curriculum Techniques with Special Populations (3 credits)**

The focus of the course is curricular interventions and techniques for accommodating diverse learners within the general education setting. A 20-hour approved clinical experience at the 6-8 grade level is required. Prerequisites: SPED 5600 and consent of instructor.

**SPED 5917 DIS Tchg Assoc | (1-2 credits)**

Directed Independent Study | Teaching Associate

**SPED 6603 Math Difficulties: Diagnosis and Intervention (3 credits)**

The course is a study of the problems students with learning needs exhibit in mathematics and of explicit teaching practices that are proven to be successful. Diagnostic, remedial and instructional activities that meet state standards and reflect National Council of Teachers of Mathematics (NCTM) scope and sequence in mathematics are explored, developed and applied. A 10-hour approved clinical experience at the 5-8 level is required. Prerequisites: SPED 5600 and consent of instructor.

**SPED 6605 Due Process in Special Education II: Assessment and Reporting (3 credits)**

This course focuses on a formal set of policies and procedures to be implemented by schools and districts for children in special education programs. It concentrates on the assessment of students receiving special education services. A 20-hour approved clinical experience at the 9-12 grade level is required. Prerequisites: SPED 5600 and consent of instructor.

**SPED 6608 Reading Difficulties: Diagnosis and Intervention (3 credits)**

The course studies the problems students with learning needs may exhibit in the area of reading and explicit teaching practices that are successful with such learners. Diagnostic, remedial and instructional best-practice strategies and activities are explored and applied. Minnesota elementary reading standards are embedded in this course. A 20-hour approved clinical experience at the 5-8 grade level is required. Prerequisites: SPED 5600 and consent of instructor.

**SPED 6610 Current Issues In Special Education (3 credits)**

Designed to introduce the student to current issues in the field of special education including legislation, litigation, and current practices. Students complete CITI research modules and start work on the proposal for their Master in Special Education project. Prerequisites: Completed a minimum of 8 required courses in the Master of Special Education degree program or consent of instructor.

**SPED 6620 Teaching the Learner with Specific Learning Disabilities II (3 credits)**

The course is designed to provide continuing study into the field of learning disabilities. It is a study of learners whose learning problems inhibit their ability to meet academic performance standards and developmental expectations for their age. Emphasis is placed on designing individual education program plans to implement developmentally appropriate instruction for students with learning disabilities or learning deficits. Teaching strategies to assist students in developing lifelong skills to transfer into general education and transition areas are studied. A 15-hour approved clinical experience at the 9-12 grade level is required. Prerequisites: SPED 5600, SPED 5620 and consent of instructor.

**SPED 6630 Teaching the Learner with Emotional Behavioral Disorders II (3 credits)**

The course studies the assessment and management of behavior problems in the classroom. Techniques include functional behavioral assessments, cognitive strategies, behavior modification techniques and crisis prevention. A 20-hour approved clinical experience at the 9-12 level is required. Prerequisites: SPED 5600, SPED 5630 and consent of instructor.

**SPED 6640 Advanced Strategies with Special Populations (3 credits)**

This course uses scientifically based research strategies to identify the characteristics of teacher-student interactions and design curricular interventions that address socio-emotional interactions, classroom organization and management, as well as instructional support to accommodate diverse learners in reading, writing, mathematics, and social skills. This course requires a 20-hour approved field experience that includes developing an individual application project in collaboration with a supervising teacher licensed in the area the student is seeking licensure in. Prerequisite(s): Initial Special Education license already completed or instructor consent.

**SPED 6660 Teaching the Learner with Autism Spectrum Disorder II: Moderate to Severe (3 credits)**

This course presents a whole-person perspective of individuals with moderate to severe Autism Spectrum Disorder and surveys research-based approaches to teaching, biological and neurological information necessary for assessment, genetic research, legislation, transition and the Council for Exceptional Children (CEC) Code of Ethics. The course material covers birth through the age of 21 and requires 20 hours of field experiences with individuals from 9th grade to the age of 21. Prerequisites: SPED 5600, SPED 5660 and consent of instructor.

**SPED 6680 Single Subject Research in Special Education (3 credits)**

Study of single subject research analysis as used in special education. Includes strategic issues for conducting single subject research design, methodology, and interpretation of data. Students complete the proposal for the Master in Special Education project. Prerequisites: SPED 6610 or consent of instructor.

**SPED 6690 Summative Applications in Special Education (3 credits)**

Culminating experience where students demonstrate their development as reflective professionals within the field of special education. Students complete and present their Master in Special Education project. Prerequisites: SPED 6610 and SPED 6680, or consent of instructor.

**SPED 6921 Directed Group Study (3 credits)**

Arranged group study

department chair, or may be assigned by the department when warranted. Individual registration requires previous arrangement by the student and the completion of any required form or planning outline as well as any prerequisites.

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1970, 2970, 3970, 4970 INTERNSHIP

1980, 2980, 3980, 4980 RESEARCH

1990, 2990, 3990, 4990 THESIS

**All-University Courses**

The course numbers listed below, not always included in the semester class schedule, may be registered for by consent of the advisor, instructor, or



## Psychology Courses

### **PSY 5328 Behavioral and Cognitive Intervention (4 credits)**

Behavioral theory and the method of applied behavior analysis are explored. Therapeutic application of behavioral and cognitive/behavioral principles to human problems in various settings is practiced. Prerequisite: Consent of instructor.

### **PSY 5332 Counseling and Crisis Interventions (4 credits)**

A practical, skills-based introduction to the development of interpersonal awareness, beginning counseling techniques, and crisis intervention techniques.

### **PSY 5337 Group Processes (3 credits)**

The examination and practical application of principles and dynamics underlying group behavior from a psychological perspective. Prerequisite: Consent of instructor.

### **PSY 5347 Psychological Measurement (3 credits)**

This course is designed to provide a basic understanding of psychometric theory and methods of psychological test construction, and to effect familiarity with established measures of personality, interests, intelligence, and academic achievement.

### **PSY 5401 Basic Statistics for Research (4 credits)**

Measures of central tendency, variability, and shape; t-tests; correlation; linear regression; chi-square tests; and one-way analysis of variance. Emphasis is on the use of appropriate statistical procedures for research using SPSS statistical software.

### **PSY 5403 Advanced Statistics and Research Design (4 credits)**

Advanced statistics, focusing on factorial analysis of variance and multiple regression using SPSS, as well as associated research designs. Emphasis on logic, applications, and communication. Prerequisites: PSY 5401 or consent of instructor.

### **PSY 5408 Human Services Program Management (3 credits)**

Theories and techniques of managing human service agencies including planning, administration, evaluation, and grant writing.

### **PSY 5450 Behavioral Neuroscience (4 credits)**

A neurological study of behavior focusing on the neurons, neurotransmitters, neuronal circuits, and basic biology of the nervous system. The beginning of the course will focus on building an understanding of the structure and function of nerve cells, and neuro and hormonal chemical transmission within the nervous system. The rest of the course will focus on how these biological processes lead to normal and pathological behavior. Prerequisite(s): Consent of instructor.

### **PSY 5459 Sensation and Perception (4 credits)**

An in-depth introduction, including the topics of the nervous system, electrochemical and neurochemical bases of behavior, vision, audition, somatic and chemical senses, movement, emotion, and cognition. Prerequisite: Consent of instructor.

### **PSY 5467 Personality Theories (3 credits)**

Introduction to major theories of personality and related research.

### **PSY 5469 Family Systems (3 credits)**

An introduction to family systems theory and accompanying therapy. Prerequisite: Consent of instructor.

### **PSY 5487 History and Systems of Psychology (3 credits)**

Contemporary issues and theories in psychology and their historical developments. Prerequisite: Consent of instructor.

### **PSY 5587 Advanced Topics in Psychology (2-4 credits)**

In-depth study of topics of current interest in psychology. Prerequisite: Grad status in Counseling Psychology or consent of instructor.

### **PSY 6002 Counseling Research Methods (3 credits)**

The basic principles of designing, conducting, and reporting on psychological investigations concerning counseling issues. Prerequisite: PSY 5403.

### **PSY 6118 Counseling Theory and Practice (4 credits)**

This course reviews the theoretical foundations and supporting research for contemporary approaches to counseling. The course includes practice in practical skills for the development of effective counselor-client relationships.

### **PSY 6119 Psychopathology: Diagnosis and Treatment (3 credits)**

This course provides a framework for understanding the range of psychological disorders as presented in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR). Focuses on the description, etiology, assessment, and treatment of the major diagnostic categories based on an investigation of the current empirical literature. Prerequisite: PSY 6118.

### **PSY 6120 Developmental Psychopathology (3 credits)**

This course focuses on how child psychopathology is normal development gone awry. The study of normal development is an essential piece of understanding childhood disturbances. It presents the latest information on infant mental health and diagnostics utilizing the DC: 0-3 and covers appropriate treatment modalities for infants and children. Prerequisites: PSY 6118 and PSY 6119.

### **PSY 6229 Assessment and Career Development (3 credits)**

Overview of theories of career development, career choice, and decision making, emphasizing assessment (abilities, personality, and vocational interests), vocational guidance strategies, and sources of occupational information. Prerequisite: PSY 5347.

### **PSY 6331 Practicum I: Treatment Planning and Outcomes Assessment (3 credits)**

Using simulated sessions, this laboratory course trains students in basic counseling skills. Case conceptualization, treatment planning, outcomes assessment, and effective development of the counselor-client relationship are emphasized. Prerequisite: PSY 6118.

### **PSY 6332 Practicum II: Counseling, Ethics, and Diversity in Practice (3 credits)**

Students engage in 100 hours of supervised practice with clients in community settings. Areas emphasized include diagnostics, clinical intervention, professional ethics, and competencies with diverse client populations. Prerequisites: PSY 6331.

### **PSY 6337 Group Counseling (3 credits)**

An integrated approach to traditional theories and concepts of group counseling and psychotherapy. Emphasizes practical knowledge and techniques for effective group leadership. Prerequisite: Admission to Counseling Psychology M.S. program or special permission of instructor.

### **PSY 6407 Student Affairs Administration (3 credits)**

Introduction to the administration of student affairs in higher education, focusing on the history, philosophical foundations, professional ethics, and standards of the college student development profession. Also studies the functional areas of student affairs and special issues related to those.

### **PSY 6408 Issues in College Student Development (3 credits)**

Examination of theoretical frameworks and perspectives for understanding college student development. Also explores how to apply theory to practice in working with college students, and contemporary college student issues.

**PSY 6469 Family Therapy (3 credits)**

Introduction to the various theories of the family as a system. Along with the theoretical is a healthy dose of practical applications from the different perspectives, including assessment and therapy. Students conduct case analyses and participate in interviewing simulated families as part of the applied focus of the course. Prerequisite: Admission to Counseling Psychology M.S. program or permission of instructor.

**PSY 6777 Professional Ethics: Theory&Practice of Professional Conduct in Diverse Soc (2 credits)**

Introduction to theories of ethics, the application of ethical principles in the professional practice of counseling, and specific areas of ethical concern in practicing with diverse populations. Addresses relevant theory, research, and legal decisions regarding specific areas of professional conduct, such as informed consent, confidentiality, duty to warn and protect, dual relationships, value differences between counselor and client, and oppression of minority groups. Students utilize this information by researching an institutional implementation of a professional code of ethics.

**PSY 6778 Counseling in a Diverse Society (2 credits)**

Introduction to issues of human diversity relevant to counseling professionals. Explores the impact of differences in communication, values, social structures, and sense of personal identity; issues of discrimination, stereotyping, and lack of awareness of differences; research and theory relevant to multicultural practices; institutionalized practices that discriminate based on ethnic, cultural, gender, and physical differences; and institutionalized practices that attempt to decrease such discrimination. Students will apply this information to their own counseling experiences.

**PSY 6870 Research Proposal Seminar (1 credit)**

This course helps students develop an advisor-approved topic, problem statement, and research proposal based on the problem statement. Students also conduct a relevant literature review. Prerequisite: PSY 6002.

**PSY 6888 Personal Growth and Development (1 credit)**

Examination of the clinical implications of developmental processes, theories of development, and life transitions that pertain to students' growth as individuals and as counselors within the critical contexts of gender, culture, family relationships, and prior experiences.

**All-University Courses**

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1990, 2990, 3990, 4990 THESIS

# Science

## Graduate Faculty

Dr. John Truedson (Coordinator; jtruedson@bemidjistate.edu), Dr. Julie Larson, Dr. Elizabeth Rave

## Programs

- Science, M.S. *master*

## Science, M.S. *master*

**\*\*This program has been discontinued\*\***

**Students are no longer being admitted to this program**

### I. REQUIRED PROFESSIONAL EDUCATION CORE

Complete the following courses:

Note: ED 6108 has a pre-requisite not required in this program.

- ED 6100 Educational Research I (3 credits)
- ED 6107 Advanced Educational Psychology (3 credits)  
or ED 6108 The Learning Community (3 credits)

### II. REQUIRED SCIENCE EDUCATION CORE

Complete the following courses:

- SCI 6030
- SCI 6110 Science Technology and Society (2 credits)
- SCI 6920

### III. REQUIRED SCIENCE ELECTIVES

Select 18 credits from the following:

- BIOL6020
- BIOL6030
- BIOL6040
- BIOL6050
- GEOL6010
- PHYS 6030 Survey of Electronics (3 credits)
- PHYS 6040 Survey of Optics (3 credits)
- PHYS 6050 Modern Physics (3 credits)
- SCI 6040 Construction and Use of Demonstration Apparatus (2 credits)
- SCI 6120
- SCI 6130
- SCI 6210
- SCI 6220
- SCI 6250
- SCI 6300

### IV. RESEARCH REQUIREMENTS

Complete one of the following courses:

- SCI 6980
- SCI 6990

### COMPETENCY REQUIREMENT

A working knowledge of applied statistics is required. This requirement may be satisfied by successfully completing SCI 6350 Computer Applications in Statistics

All major programs require satisfactory completion of a final written examination, which needs to be successfully complete prior to scheduling the oral examination. Please consult with your academic advisor for requirements specific to your area of study.

## Science Courses

### SCI 6040 Construction and Use of Demonstration Apparatus (2 credits)

This course is designed to provide students with skills to develop apparatus which they may use in a classroom setting. The students will develop several projects for demonstration purposes or for laboratory use.

### SCI 6110 Science Technology and Society (2 credits)

Examines the role of science and technology in today's society. Although the problems and the solutions may be complex with significant politics involved, the focus of the course is to examine the role and responsibility of science in dealing with these issues.

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# Social Work

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## Social Work Courses

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### **SOWK 5760 Mental Health Social Work (2 credits)**

Designed to enable the student to develop a knowledge base for beginning social work practice in the field of mental health. Students are introduced to theories of mental health and concepts of: mental health-illness, determination of needs, service systems, scope and variety of interventive methods, role of interdisciplinary team, evaluation, supervision, and impact of discrimination.

### **SOWK 5830 Gerontology: Social Work Perspectives (2 credits)**

Enables students to understand adult development and aging and to apply this knowledge to social work practice. Theories of aging are examined and applied to practice assessment and intervention strategies. Focuses on areas of particular relevance to practice with older persons in terms of expected life transitions and accompanying challenges (retirement, family relationships, etc.) and life crises and problems (loss and dependency, addictions, abuse and neglect, Alzheimer's). Impact of ageism, diversity, and physical, psychological, and social issues and changes in the aging process. Accompanying health, social, and family needs; the relationship of public policy to meeting these needs; and the development and delivery of services.

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# Sociology

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## Sociology Courses

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### **SOC 5050 Environmental Sociology (3 credits)**

Examines the relationship between society and the environment. Emphasis on political and economic institutions and the consumer lifestyle and values. Considers how the treadmill of production affects ecosystems and discusses possible solutions to environmental problems.

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## Statistics Courses

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### **STAT 5610 Time Series Analysis (3 credits)**

Linear time models, seasonal models, stationary models, moving average, autoregressive and ARIMA models, model identification, confidence intervals and testing, forecasting and error analysis.

### **STAT 5631 Probability and Statistics I (4 credits)**

Probability of finite sample spaces, discrete and continuous probability distributions, exploratory data analysis, statistical models. Prerequisite: Consent of instructor.

### **STAT 5632 Probability and Statistics II (3 credits)**

Multivariable distributions, sampling distribution theory, estimation, hypothesis testing, regression and correlation. Prerequisite: STAT 5631.

### **STAT 5650 Probability and Statistics for Secondary Teachers (4 credits)**

Topics include descriptive statistics and graphical representations, basic probability and commonly encountered distributions, random variables, expectation and variance, sampling theory, and inferential statistics including univariate and bivariate data. Calculus is employed in the development of these concepts. Technology is used extensively to motivate and explain concepts and techniques. The course emphasizes and models exercises and pedagogy appropriate for the secondary school classroom.

### **STAT 5660 Statistics for the Health Sciences (3 credits)**

Introduction to descriptive and inferential statistics in the context of the health sciences. Covers data types, methods for summarizing and displaying data, measures of central tendency and variability, hypothesis testing including the analysis of variance and nonparametric techniques, correlation and regression. Students learn to use the statistical software package SPSS for data analysis.

## All-University Courses

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## Technology, Art and Design -Technology Courses

### **TADT 5700 Operations Planning and Control (3 credits)**

The concepts, tools, techniques, and quantitative methods used to plan for and control operations in the production of goods and services. Topics include, but are not limited to, traditional inventory management, just-in-time inventory, materials- and enterprise-resource planning, facilities location and layout, process strategies, aggregate planning, scheduling, maintenance and reliability, project management, and supply chain management. Prerequisite: Junior status or consent of instructor.

### **TADT 5778 Advanced Topics in Technology (3 credits)**

Current topics, or emerging research or exploration and assessment of topics in the applied engineering, industrial technology, and/or technology management fields, or any related field. Note: Graduate students will be required to participate in a more rigorous approach to the course.

### **TADT 5878 Quality Assurance (3 credits)**

The course teaches the theory and applications of statistical analysis, quality problem solving and implementation. Prerequisite(s): Junior status or consent of instructor.

### **TADT 6120 Studies In Quality (3 credits)**

Topics related to a variety of quality issues. Focuses on the application of quality planning and analysis.

### **TADT 6240 Advanced Skills in Industrial Technology (1 credit)**

Study of and practice in the skills encountered in the area of the student's choice, such as woods, metals, graphic arts, plastics, or other basic industrial technology area.

### **TADT 6870 Writing and Research in Technology (2 credits)**

In-depth writing and research in technology. Assists students in developing their research paper or thesis. Prerequisites: IT 6000, IT 6100, and IT 6117.

## **All-University Courses**

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