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## ACADEMIC POLICIES

### GRADUATE COORDINATORS

Graduate Coordinators are responsible for implementing the policies and facilitating the procedures of graduate study at Southeast Missouri State University within their respective units. They serve as an information resource for prospective and current graduate students with program specific questions and coordinate college graduate programs relative to the policies and procedures set forth by Graduate Studies. The most current listing of Graduate Coordinators may be found at <https://semo.edu/grad/coordinators.html>

### STUDENT RESPONSIBILITY

Graduate students are responsible for knowing and complying with the policies and procedures contained herein which govern all graduate students.

### APPEAL PROCESS

Students who, for cause, seek relief from institutional policies may appeal to the Graduate Council. A letter of petition clearly stating the reason for the appeal should be addressed to the Graduate Council. For issues which relate to the graduate program, the first level of appeal is the faculty member followed by the department chairperson.

### NONDISCRIMINATION

Admission decisions are made without regard to race, color, creed, gender, disability or national origin.

### CIVIL OR COLLEGE DISCIPLINE

Applicants for admission are asked to disclose details of previous civil or college discipline. The Office of Admissions and the Office of the Dean of Students will review information provided by the applicant and may request additional information and a personal interview with the applicant prior to reaching an admission decision. The University reserves the right to deny admission to an applicant or admit with restrictions based upon the review. Individuals with a felony/criminal background (pending charges and SIS included) are not allowed to live in campus housing facilities. Misrepresentation of the facts or failure to provide requested information could be cause for refusal of admission, cancellation of admission or suspension from the University.

### ADMISSION REQUIREMENTS FOR GRADUATE PROGRAMS

A student will be admitted to graduate study when the following admission requirements are satisfied:

1. Holds a baccalaureate degree from a regionally accredited college or university.
2. Has an undergraduate cumulative GPA of at least 2.5 on a 4.0 scale (except when superseded by specific program requirements which require a higher GPA).
3. Has met other specific requirements for applicable program (see Program Admission Policies)

### ADMISSION CLASSIFICATIONS

Students will be admitted to graduate study in one of seven admission categories:

1. Regular Admission-The student meets both the Graduate Studies and departmental standards for admission.
2. Provisional Admission-The student holds a baccalaureate degree but does not meet the course prerequisites for the program or is a senior in her/his last semester who is seeking admission for

a subsequent semester. Provisional admission will normally be granted for only one semester. Upon recommendation of the student's advisor, the provisional period may be extended. Students admitted provisionally to graduate studies who have undergraduate prerequisite courses to complete will be charged graduate fees for their coursework. If students have undergraduate coursework to complete prior to formal admission to a graduate program, they may wish to apply for admission as a second degree-seeking undergraduate student to complete prerequisites at the undergraduate fee rate. After completion of the coursework, students can apply for graduate admission.

3. Academic Probationary Admission-Students with at least a 2.25 undergraduate cumulative GPA and a 2.75 in the last 60 hours may be admitted on a probationary basis pending completion of 9 hours of 600-level work with a grade of 'B' or better. (See specific program requirements which may supersede these minimum standards.)
4. Conditional Admission - International students who need additional English language training may be conditionally admitted to participating graduate programs through the Intensive English Program (IEP). Applicants must meet all admission requirements except for test scores (i.e., TOEFL or IELTS, GRE, GMAT). Conditionally admitted students may not enroll in graduate-level classes until they satisfy all remaining graduate program admission criteria.
5. Non-degree-seeking Admission-Students who do not wish to pursue a degree but who are eligible for graduate study may take courses for graduate credit as non-degree-seeking students. This includes international students who participate in approved exchange programs at Southeast Missouri State University, and whose educational levels in their respective countries of origin are commensurate with graduate students at this institution. Non-degree-seeking students are not eligible for financial aid. Departmental approval is required to apply credits earned as a non-degree-seeking student to a degree program.  
A domestic applicant must submit an Application for Graduate Admission as a non-degree-seeking student and proof of citizenship permanent residency or lawful presence in the U.S. An international applicant must submit an Application for International Student Admission as a graduate non-degree-seeking student, passport copy, proof of finances, English proficiency verification, college or university transcripts and degree certificates and may be required to pay a \$40 non-refundable application fee.
6. Senior Admission -Senior Admission/Dual Enrollment -A degree-seeking undergraduate senior in his/her last semester at Southeast Missouri State University, not counting the student teaching or internship semester, may be admitted to pursue graduate studies if:
  - The student has a minimum 2.75 cumulative GPA.
  - The student meets both the Graduate Studies and departmental standards for admission.
  - The student will complete a bachelor's degree at the end of the semester, or the following semester if it is the student teaching/internship semester.

Students may not enroll in more than 6 graduate credit hours during the semester of dual enrollment.

7. Accelerated Programs – Southeast Missouri State University offers its eligible degree-seeking undergraduate students the opportunity to get both undergraduate and graduate credit for some 500-level courses. Please contact the department to ascertain what courses are acceptable for the Accelerated Program. Students can apply for the Accelerated Program upon the completion of 60 credit hours. The requirements for admission to this program are:
  - Have completed 75 credit hours prior to the semester in which a course is taken in the Accelerated Program.
  - Meet GPA requirements specified by the department.

- Complete Accelerated Program Application with department chair signature. All application documents must be submitted directly to the department for approval. The deadline for receipt of all materials by the department is the last working day prior to the beginning of each semester. Students who qualify for the accelerated program are limited to 12 credit hours of graduate-level coursework, and departments may set lower limits. No more than 6 credit hours of graduate-level coursework can be completed each semester. Courses will be initially recorded as undergraduate credit. Once final grades are available, graduate credit will be recorded.

#### ADMISSION PROCEDURES – REGULAR ADMISSION

The prospective student must submit an Application for Graduate Admission to the Office of Admissions. All transcripts and other required documentation must be sent directly to the Office of Admissions no later than May 15 for the summer semester, August 1 for the fall semester, November 21 for the spring semester (see specific program requirements which may supersede these deadlines). The applicant must also complete the following steps and meet the following requirements:

1. Request that an official transcript showing graduation from an accredited college and complete individual transcripts from all colleges attended be sent directly to the Office of Admissions (Southeast Missouri State University transcripts do not need to be sent).
2. Submit proof of citizenship, permanent residency, or lawful presence in the U.S. This is required to maintain compliance with Missouri House Bill 390. Acceptable documents include valid driver's license, state-issued non-driver's identification card, U.S. birth certificate, U.S. military identification card, U.S. passport, I-551 card (resident alien card), passport stamped "Approved I-551" or "Processed for I-551."
4. Comply with Graduate Studies and departmental standards for admission.

#### ADMISSION OF INTERNATIONAL STUDENTS

Applicants who are not citizens, asylees or permanent residents of the United States must apply through the Office of International Education and Services. The application process is outlined at <https://semo.edu/international/how-to-apply.html>.

The IEP assists multilingual learners at Southeast through coursework and services that help them understand and express academic ideas in English. Graduate applicants may request conditional admission and use IEP coursework to meet Southeast's English proficiency admission standards for participating departments. Please visit <https://semo.edu/international/iep/future.html> for further details. Any multilingual learner may request a consultation for language support at [international@semo.edu](mailto:international@semo.edu).

#### APPLICATIONS

Applications for admission can be obtained from the Graduate Studies web site at <http://www.semo.edu/grad/apply.html> or by contacting the appropriate office:

Domestic Students:

Office of Admissions  
MS 3550  
One University Plaza  
Cape Girardeau, MO 63701  
(573) 651-2590  
[admissions@semo.edu](mailto:admissions@semo.edu)

#### International Students:

International Education and Services  
MS 2000  
One University Plaza  
Cape Girardeau, MO 63701  
(573) 986-6863  
international@semo.edu

#### ACADEMIC STANDARDS

A grade point average of 3.0 or higher on a scale of 4.0 in all graduate work taken and a grade point average of 3.0 or higher on a scale of 4.0 in all graduate work taken at Southeast Missouri State University is required for a degree, unless otherwise required by a degree program.

- A student who accumulates a graduate grade point average below 3.0 will be placed on academic probation subject to the following provisions.
  - a. A student who has a cumulative GPA of less than 3.0 will be placed on beginning probation the first semester their GPA is below a 3.0. The student may continue in the program for one additional semester. During that semester, a student must raise their GPA to 3.0 or above or they will be placed on academic suspension and may not continue in a graduate degree program until obtaining the written approval from the appropriate college/department/program official(s) and the Dean of Graduate Studies. Failure to follow this procedure will result in academic suspension from the graduate school. To be removed from academic suspension status, the student must repeat or take additional coursework to achieve a cumulative grade point average of 3.0 or higher.
  - b. A student who receives a failing grade (F) in a graduate course may not continue in a graduate program until obtaining the written approval from the appropriate college/department/program official(s) and the Dean of Graduate Studies. Failure to follow this procedure will result in academic suspension from the graduate school. To be removed from academic suspension status, the student must successfully retake the failed course and have a cumulative grade point average of 3.0 or higher.
- Non-degree-seeking students are expected to meet the same standards as degree students with respect to maintaining a 3.0 or higher grade point average.
- Graduate courses are graded 'A,' 'B,' 'C,' and 'F.' There is no 'D' grade at the graduate level. Some courses may be graded on a credit/no credit (CR or F) basis.
- A grade of 'Incomplete' (I) must be removed during the next academic year, exclusive of the summer semester, or a grade of 'F' will be recorded, and the student will be placed on academic probation. For a final research project with a grade of 'I' assigned, that grade will remain on the permanent record for up to six years until the research project is completed. When completed, upon receipt of a signed grade change card in the Registrar's Office, the final grade will be recorded in place of the grade of 'I'. If, after six years, the grade of 'I' in the research project is not replaced, a grade of 'F' will be recorded in place of the 'I' grade.

#### GENERAL PROVISIONS

- All requirements for the master's degree must be completed within a six-year period.
- For the fall and spring semesters, a maximum of nine credit hours constitutes a full load. Students wishing to take additional hours will need to be in good academic standing and have approval from their advisor. The maximum number of graduate credit hours that a student may schedule during a

summer semester is 9 hours. Students wishing to take additional hours will need to be in good academic standing and have approval from their advisor. Such requests are considered on an individual basis, and the total number of hours allowed will be dependent on the length of the session in which they are taking those hours. Students will not be able to take over 6 hours in one 4-week session.

- One half of the hours required for the degree must be in courses numbered 600 or above. Workshop credit may not be used to fulfill this requirement.
- Dual-enrollment courses cannot be repeated for graduate credit if they appear on the student's undergraduate transcript. No coursework, including 500-level courses, applied to the undergraduate degree can count toward a graduate degree except those 500-level courses taken in approved accelerated degree programs.
- Students taking credit/no-credit courses must demonstrate "B" level work to receive "credit" for a graduate course.
- For each master's degree program, the student must produce a significant capstone work (e.g., thesis, non-thesis paper, internship paper, or creative work).
- Seniors in their last semester may apply for a special status that allows them to take a 600-level course.

#### ACADEMIC HONESTY

Academic honesty is one of the most important qualities influencing the character and vitality of an educational institution. Academic misconduct or dishonesty is inconsistent with membership in an academic community and cannot be accepted. Violations of academic honesty represent a serious breach of discipline and may be considered grounds for disciplinary action, including dismissal from the University.

Academic dishonesty is defined to include those acts which would deceive, cheat, or defraud so as to promote or enhance one's scholastic record. Knowingly or actively assisting any person in the commission of an above-mentioned act is also academic dishonesty.

Students are responsible for upholding the principles of academic honesty in accordance with "The University Statement of Student Rights" found in the Student Handbook and in accordance with "Academic Policy and Procedures" found in the Undergraduate or Graduate Bulletin. The University requires that all assignments submitted to faculty members by students be the work of the individual student submitting the work. An exception would be group projects assigned by the instructor; in this situation, the work must be that of the group. Academic dishonesty includes:

#### Plagiarism:

In speaking or writing, plagiarism is the act of passing someone else's work off as one's own. In addition, plagiarism is defined as using the essential style and manner of expression of a source as if it were one's own. If there is any doubt, the student should consult his/her instructor or any manual of term paper or report writing. Violations of academic honesty include:

1. Presenting the exact words of a source without quotation marks;
2. Using another student's computer source code or algorithm, or copying a laboratory report; or
3. Presenting information, images, judgments, ideas, or facts summarized from a source without giving credit.

### Cheating:

Cheating includes using or relying on the work of someone else in an inappropriate manner. It includes, but is not limited to, those activities where a student:

1. Obtains or attempts to obtain unauthorized knowledge of an examination's contents prior to the time of that examination.
2. Copies another student's work or intentionally allows others to copy assignments, examinations, source codes, or designs;
3. Works in a group when she/he has been told to work individually;
4. Uses unauthorized reference material during an examination; or
5. Have someone else take an examination or takes the examination for another.

### General Responsibilities for Academic Honesty:

It is the University's responsibility to inform both students and faculty of their rights and responsibilities regarding such important matters as cheating and plagiarism. Most of what is considered unethical or dishonest behavior can be avoided if faculty and students clearly understand what constitutes such practices and their consequences. The University community should also be aware of the procedures to be followed should a breach of academic honesty occur.

The faculty member is responsible for clarification to his/her class of those standards of honesty for class assignments or functions where such standards may be unclear or when such standards vary from the accepted norm. Further, some faculty may choose to utilize preventive measures (multiple exams, alternate seating, etc.) to help insure the maintenance of academic honesty. However, the use of such measures is the prerogative of the individual faculty member and is not a responsibility or requirement of faculty in general.

The fundamental responsibility for the maintenance of honesty standards rests upon the student. It is the student's responsibility to be familiar with the University policy on academic honesty and to uphold standards of academic honesty at all times in all situations.

### Procedure for Adjudicating Alleged Violations of Academic Honesty:

Faculty members who discover evidence of academic dishonesty should contact the student within five business days of discovering the alleged dishonesty to arrange to meet and discuss the allegation. Prior to this meeting the faculty member may consult with the Department Chairperson, the appropriate Dean, and the Office of Student Conduct. The following sections describe the procedures to be adhered to in each of the listed instances: the student acknowledges the violation, the student denies the violation, and the appeals process. If the faculty member is the Department Chairperson, a departmental designee will assume the Department Chairperson's role in this protocol and references to the Department Chairperson should be read as departmental designee. The procedures below should be followed with online, ITV or face-to-face classes.

### Informal Resolution When Student Acknowledges the Violation:

1. The faculty member will meet with the student suspected of engaging in academic dishonesty. Faculty for online courses will contact students via email with copies of the assignment under review attached.
2. If the student acknowledges the act of academic dishonesty, the faculty member will resolve the issue informally or move to the first step of the Procedure for Formal Resolution. Students enrolled in ITV or online courses who fail to respond to electronic correspondence

from the faculty within five (5) business days will either receive academic sanctions or be referred for a formal hearing.

3. The faculty member has the discretion to determine the course of action after conferring with the student and may either excuse the student based on the facts or impose an appropriate sanction. If the faculty member considers the student's actions not to be an egregious violation of the academic honesty policy or his/her action resolves the matter, then the matter is resolved.
4. In imposing a sanction or sanctions, faculty members must adhere to the grade sanction policy, if any, as described in the faculty member's course syllabus. A faculty member's grade sanction policy may not include permanent removal of the student from the course or suspension or expulsion from the University.
5. If a faculty member's course syllabus does not include a grade sanction policy, a faculty member may impose one or more of the following sanctions: require the student to redo the work, fail the student on the work, or require the student to receive additional instruction as provided by the University Library, Writing Center, or other University resources.

Informal Resolution When the Student Does Not Acknowledge the Violation or Does Not Accept Faculty's Sanctions:

1. If the student does not acknowledge the violation or believes the faculty's sanctions are excessive, he/she can request a formal hearing.
2. Upon requesting formal hearing the student will follow Procedure for Formal Resolution.

Formal Resolution When Student Acknowledges the Violation and Faculty Refers for Judicial Action:

1. Faculty member determines whether the violation warrants referral to the Department Chairperson for judicial action.
2. If the faculty member believes that the violation warrants judicial action, notification should be provided to the student and the faculty member's chairperson within five (5) business days following the initial faculty-student discussion.
3. The Department Chairperson shall submit written notification (utilizing the approved form) to the appropriate Dean and the Office of Student Conduct with a copy to the student, within five (5) business days of receiving the faculty notification.
4. Within five (5) business days after receiving notification from the Department Chairperson, the Office of Student Conduct will schedule a judicial conference to address the charge (assign sanctions) of academic dishonesty. The Office of Student Conduct will immediately initiate written contact with the student enrolled in online or ITV courses per electronic correspondence.
5. In addition to being required to complete the sanction or sanctions imposed by the faculty member in accordance with the guidelines in the Procedure for Informal Resolution When Student Acknowledges the Violation, the student will be placed on Disciplinary Probation at least through the next semester in which the student is enrolled at Southeast Missouri State University. If the student is not in good disciplinary standing, the Office of Student Conduct will follow the Code of Student Conduct to determine the appropriate disciplinary sanction.
6. In addition to the original faculty sanctions, the Chair can impose additional sanctions in accordance with the guidelines in the Procedure for Informal Resolution When Student Acknowledges the Violation.
7. The Department Chair may recommend failing the course, suspension or expulsion if he/she believes the incident warrants more severe action than Disciplinary Probation. These recommendations, along with supporting documentation, will be shared in writing with the

- appropriate Dean and Office of Student Conduct (with a copy to the Dean of Students).
8. The Office of Student Conduct will review documentation, meet with the student, and impose sanctions as warranted.

#### Formal Resolution When the Student Denies the Violation

In cases of alleged academic dishonesty where facts are disputed or denied by the student, the following procedures will be completed.

1. The faculty member will forward a written summary within five (5) business days of the initial discussion with the student to the Department Chairperson. This summary must contain copies of all relevant materials and the names of any witnesses. Student access to information about the alleged incident will be determined in accordance with the guidelines published in the "Code of Student Conduct" found in the Student Handbook.
2. Within five (5) business days after receiving the written summary of the incident from the faculty member, the Department Chairperson will contact the faculty member and the student to arrange a formal hearing. The formal hearing will be conducted within two weeks of notification. The Department Chairperson will also notify the Office of Student Conduct of the formal hearing as soon as it is scheduled.
3. For online or ITV courses, the Department Chairperson will notify the student of the formal hearing via email. The student will be given five (5) business days to respond to the Department Chairperson's notification.
4. The Office of Student Conduct will immediately initiate written contact with the student to review the student's rights in the judicial process, the allegations against the student, and the hearing procedures. The Office of Student Conduct will inform the student that he or she may select a person of the student's choosing to accompany him or her to the formal hearing. Such a person may act only in an advisory capacity during the formal hearing. Students in online or ITV courses may have this advisory person review the evidence and the student's response.
5. The Department Chairperson shall consult with the Office of Student Conduct or the Dean of Students regarding the student's due process rights before proceeding with the formal hearing.
6. The hearing will be conducted by the Department Chairperson in accordance with the standards provided in the University's "Code of Student Conduct" found in the Student Handbook. For students enrolled in online or ITV courses, the Department Chair will send the evidence to the student electronically. The student will be given five (5) business days to respond to the email. The Department Chair will review the evidence presented by the faculty and the student's response.
7. After the hearing (or review of evidence and online student response), the Department Chairperson will submit written notification of the result of the formal hearing to the appropriate Dean and the Office of Student Conduct with a copy to the student within five business days.
8. If the student is found not in violation of the academic honesty policy, then the case will be dismissed.
9. If the student is found in violation of the academic honesty policy, then the student will be required to complete the sanction or sanctions imposed by the faculty member in accordance with the guidelines in the Procedure for Informal Resolution When Student Acknowledges the Violation.
10. The Department Chair will refer the student to the Office of Student Conduct who will place the student on disciplinary probation at least through the next semester in which the student is

enrolled at Southeast Missouri State University. If the student is not in good disciplinary standing, the Office of Student Conduct will follow the Code of Student Conduct to determine the appropriate disciplinary sanction.

11. In addition to the original faculty sanctions, the Chair can impose additional sanctions in accordance with the guidelines in the Procedure for Informal Resolution When Student Acknowledges the Violation.
12. The Department Chair may recommend failing the course, suspension, dismissal or expulsion if he or she believes the incident warrants more severe action than disciplinary probation. These recommendations, along with supporting documentation, will be shared in writing with the appropriate Dean and Office of Student Conduct (with a copy to Dean of Students).
13. The Office of Student Conduct will review documentation, meet with the student, and impose sanctions as warranted.

#### Appeals:

Either the student or the faculty member may appeal the result of the formal hearing.

1. An appeal must be made within five (5) business days after the decision is rendered.
2. Appeals must be in writing through e-mail, local mail or personal delivery.
3. There are two levels of the appeals process. The All University Judicial Board is the first level and the Provost is the second and final level of appeal.

The appeals process is not for retrying or rehearing a case. At each level, an appealed case merits being heard based on the following conditions.

1. An excessive sanction when compared with previous sanctions for similar violations under similar circumstances. \*
2. The discovery of significant new information relevant to the case.
3. Procedural error regarding the student's rights involving error in the administration of judicial procedures by the faculty, Department Chair or Office of Student Conduct.

Decisions made during the appeals process can result in one of the following.

1. The sanction being altered based on a finding that the sanction is not consistent with past practice.
2. A new hearing being granted based on new information.
3. A new hearing being granted because the Protocol for Adjudicating Alleged Violations of Academic Honesty was not applied appropriately.

No grade penalty should be assigned by the faculty member until the judicial process determines that an act of academic dishonesty has occurred. If the charges cannot be resolved prior to the end of the current semester, a grade of 'I' should be assigned pending the outcome of the hearing. The 'I' will remain on the student's transcript until the charges are resolved. If the charges are still not resolved before the time frame for the 'I' expires, the faculty member will request from the Registrar's Office an extension of the grade of 'I'. The faculty member and the Department Chair will be notified of the outcome of the disciplinary case in order to assign a grade for the course. If the student is found not to be in violation of the Academic Honesty Policy, neither the faculty member nor any other member of the University community may take any other action against the student.

\*Specific sanctions in syllabus are not subject to appeal.

## ADVISING

Each student admitted to a degree program is assigned an advisor by the department in which the student plans to major. Once the major is declared, the student may refer to their Degree Works audit at any time to evaluate progress toward the degree. It is recommended that students review their audits with their advisors at least once per semester.

Students should not assume that courses taken at Southeast or elsewhere without advisor approval will apply to the degree. With advisor approval, a maximum of 12 semester hours of graduate level course work completed prior to admission may be applied to a degree program unless prohibited by program regulations. In some departments, students may need to choose electives approved by the advisor. The advisor will notify the Registrar's Office of such choices so that the approved electives will appear on the student's degree audit.

## CORRESPONDENCE COURSES

No correspondence work will be accepted for graduate credit.

## COURSE NUMBERING

500-level classes are advanced undergraduate classes. Most are open to graduate students. To earn graduate credit, additional course requirements must be met.

600-level courses are open to graduate students only.

700-level classes are reserved for Ed.S. students.

900-level classes are reserved for Ed.D. students.

Workshops numbered 834-866 are open to both graduate and undergraduate students. Those numbered 867-899 are open to graduate students only. Workshop credit may not be used to satisfy the 600-level course requirement.

To accommodate the needs of students, 600 and 400 level courses maybe simultaneously delivered in a classroom. There are, however, differences in requirements, expectations and evaluation of graduate students.

## ENROLLMENT/CANCELLATION/WITHDRAWAL

Enrollment:

Registration/Enrollment. All currently enrolled students register for classes using the web registration system located at <http://portal.semo.edu>. Web registration instructions can be accessed on the Registrar's website, [www.semo.edu/registrar](http://www.semo.edu/registrar).

Controlled Classes: Controlled classes are not available for enrollment through the web. Students should contact the department to enroll in controlled classes.

Change of Schedule. Students may add or drop classes until the deadlines listed on the Semester Calendar which can be accessed on the Registrar's website, [www.semo.edu/registrar](http://www.semo.edu/registrar).

Late Enrollment. Students are expected to enroll prior to the start of classes. They may enroll during the first week of the fall or spring semester. Late enrollment dates for the summer semester can be accessed on the Registrar's website, [www.semo.edu/registrar](http://www.semo.edu/registrar). A fee may be charged for late enrollment.

Cancellation/Withdrawal from the University:

Students can cancel their enrollment prior to the start of classes using the web registration system to drop all classes or by notifying the Office of the Registrar in writing. Such notification must be RECEIVED by the first day of the semester. Students can withdraw from the University until the "Last Day to Drop a Class," listed on the Registrar's website, [www.semo.edu/registrar](http://www.semo.edu/registrar), using the web registration system or

by notifying the Office of the Registrar in writing. After that date and until the official withdrawal date which is listed on the Registrar's website, students must contact the Office of the Registrar to complete the withdrawal process. All financial obligations to the University must be fulfilled. Grades of 'F' are recorded for students who do not withdraw officially from the University.

**Deadline for Refund.** Students who cancel enrollment before the semester begins are eligible for a refund of 100 percent of any incidental fees that they have paid. Students who withdraw from classes after the semester begins are eligible for a refund of incidental fees based on the sliding scale available through Student Financial Services, Academic Hall, 1st level.

**Deadline for Withdrawing Without Penalty.** Students may not withdraw during the three weeks preceding final examinations without the approval of the Registrar. The time period for withdrawing is reduced proportionately for terms of fewer than 15 weeks.

## FEES

Student Financial Services (SFS) administers all fees, billing, and financial aid. SFS operates as a single service center for all your financial needs. The SFS website ([www.semo.edu/sfs](http://www.semo.edu/sfs)) provides extensive information for most of your general questions. All fees and policies are established by the Board of Regents and available through Student Financial Services website ([www.semo.edu/sfs/fee-schedule.htm](http://www.semo.edu/sfs/fee-schedule.htm)). Fees are set annually by the Board of Regents and are subject to change without written notice.

### Application Fee

International applicants for regular admission must submit a nonrefundable application fee of \$40. There is no domestic application fee.

### Graduation Fee

Degree candidates are required to pay a graduation fee during the semester in which they plan to complete their degree requirements.

### Late Enrollment Fee

Students enrolling on or after the first day of classes for the semester are subject to a \$15 late enrollment fee.

### Special Course Fees

Special course fees are assessed for certain courses to cover the costs of consumable supplies, specialized equipment, and/or other expenses unique to the course. These fees are published and available online at <http://www.semo.edu/sfs/fees.htm>. Please note that all fees are subject to change by the Board of Regents without prior written notice.

### Oral/Written Comprehensive Examination Fee

Enrollment in GR698, GR699, or GR799 requires a \$100 fee.

## FINAL MASTER'S EXAMINATION

Departments may offer thesis or non-thesis degree options. Each candidate who elects the thesis option will be required to pass an oral examination in either GR699 or GR799 during the final semester. Each candidate who elects the non-thesis option will be required during the final semester to satisfactorily complete a course-embedded capstone or summative requirement and may also be required to pass a written comprehensive examination in GR698. Incomplete grades are not allowed in GR698, GR699 or GR799.

The following courses (GR) are common to all departments:

GR698. Master's Final Comprehensive Examination. Written comprehensive examination over the degree program. Students must enroll in GR698 during the final semester. \$100 fee applied. (0)

GR699. Master's Oral Examination. The oral examination will be conducted for students writing a thesis or internship paper in lieu of the comprehensive examination. \$100 fee applied. (0)

GR799. Education Specialist Oral Examination. \$100 fee applied. (0)

#### FINANCIAL AID

Graduate students enrolled at least half-time are eligible to borrow through the Federal Direct Unsubsidized Loan Program. Graduate students who are borrowing for a loan period beginning after July 1, 2012 are not eligible for a subsidized loan. There are a limited number of endowed scholarships available to graduate students. All students are automatically reviewed for endowed scholarships. There is no general scholarship application. If a student meets the minimum requirements for an endowed scholarship which requires supplemental information, information will be emailed to the Southeast email address.

#### GRADUATE ASSISTANTSHIPS

Teaching, research, and administrative assistantships are available for qualified students in most areas in which degrees are offered. To be eligible for an assistantship, students must meet one of the following criteria:

- cumulative undergraduate GPA of at least 2.7
- a previous master's degree
- 9 hours of completed graduate level coursework in his/her degree program with at least a 3.5 graduate GPA

The assistantship provides a stipend plus a fee waiver for approved degree plan courses. Graduate Assistant fee waivers are available for up to 9 credits of graduate level coursework in both the fall and spring semesters and up to 6 credits during the summer semester. Students having an assistantship must be enrolled in a minimum of six credit hours per semester (Fall and Spring). However, in order to meet full-time graduate enrollment for FAFSA, SEVIS, or other purposes, a minimum of nine (9) hours is required. In most instances, the time limit for a student to hold an assistantship is two years. Interested persons should apply to the chairperson of the department providing the degree they wish to pursue. Additional information related to the assistantship can be found in the Graduate Assistant Handbook at the Graduate Studies web site.

#### GRADUATION

Students who plan to complete all graduation requirements should enroll for their final classes, internships, oral and/or comps, and apply for graduation immediately. The deadline to apply is the last day of finals week in the semester preceding the student's last semester of enrollment.

Students normally participate in commencement in the semester in which they plan to graduate. Since there is no commencement during the summer semester, students graduating in the summer may choose to participate in the preceding spring commencement provided they are enrolled in all requirements, or in the fall commencement following their graduation. Specific dates and information are available on the commencement website: <http://www.semo.edu/commencement>.

Students are solely responsible for knowing and meeting degree requirements. Students cannot graduate with any incomplete classes, including elective courses which may or may not be required for the completion of the degree, on their record.

#### INCOMPLETE GRADES

An incomplete ("I") may be given when the graduate student is doing passing work but is unable to complete all requirements because of unusual or unique circumstances acceptable to the instructor. In no case may an "I" be agreed to by an instructor prior to the drop date. An "I" may not be used to permit a student to repeat a course or to improve a grade. **An 'I' is never awarded because of poor work.** The 'I' must be removed by a date agreed to by the faculty member and student. At the time the

'I' is awarded, the faculty member will complete a form indicating the reason for awarding the incomplete, the work that must be completed and the deadline for completing the work. Copies of the form will be retained by the student, faculty member and department. In all cases, the 'I' must be removed within one year unless an extension has been granted by the faculty member with the concurrence of the Dean of the appropriate college. Incompletes not removed within one year will be converted to a grade of 'F.' All incompletes must be satisfied four weeks prior to the student's intended graduation date. This policy does not apply to research and experiential work such as thesis, internship, and practicum, which may be in progress more than one semester.

#### INDEPENDENT STUDY

Independent study offers the student an opportunity for study in an area not addressed by the curriculum of a department. The student wishing to pursue an independent study is responsible for identifying and obtaining the approval of the faculty member under whom the study is to be done and, for degree-seeking students, the approval of the major advisor. To gain approval, the student should prepare an outline of the proposed study. When the outline is approved by the faculty member, an Independent Study Approval form must be presented to the department chairperson. Except in unusual circumstances, the content of an independent study may not duplicate that of an existing course. Independent study may never be used to grant graduate credit for completion of an undergraduate course. No more than 12 credit hours may be applied to a degree program.

#### REQUEST FOR EXTENSION TO COMPLETE A GRADUATE PROGRAM

All requirements for the master's degree must be completed within a six-year period. If an extension is requested:

1. Student must address the request to the Dean of Graduate Studies (letter or email attachment) in which they give the reason for failure to complete on time, projected plan to complete, and projected semester to finish.
2. Advisor or Graduate Program Coordinator must endorse the request by submitting a letter or email of support to the Dean of Graduate Studies.
3. Dean of Graduate Studies must approve the request, including the anticipated timeline for completion.
4. Dean of Graduate Studies submits information to Registrar for final approval and notation of extension in student record.

#### RESEARCH REQUIREMENT

A course in research methods or its equivalent is required on all degree programs. The student should plan to take the appropriate course within the first 12 hours.

#### RESIDENCE REQUIREMENT/TRANSFER CREDIT

In all cases, over one-half of the coursework required in a degree program must be completed at the Cape Girardeau campus, the university's Regional Campuses and Center, or through Southeast Online. Students must work carefully with their advisor to ensure that the residence requirement is met. Transfer courses and credit awarded for prior learning do not count toward meeting the residence requirements.

No more than 12 hours of transfer credit or credit older than 6 years may be applied to a graduate program. Transfer credit must be accepted by the major advisor and is applied to a program at candidacy. Before enrolling for credit at another institution, prior approval must be obtained from the major advisor. Only credit in which a 'B' or better was earned will be accepted for transfer. Credit for

transfer is only acceptable if earned from a regionally accredited institution. For programs in education, off-campus credit earned from a non-NCATE accredited institution will not be accepted.

#### SECOND MASTER'S DEGREE

With approval of the advisor and the Dean of Graduate Studies, 12 hours from the first master's degree may be applied to a second degree. Prior credit is subject to the six year time limit.

#### THESIS OPTIONS

##### Thesis

The student who elects the thesis plan must complete the following steps:

1. Achieve candidacy status for the program if required.
2. The student should prepare a brief outline (some departments require a more extensive proposal) which serves as a preliminary document for approval.
3. The student must obtain the Topic Approval Sheet from the Graduate Studies website.
4. The student will identify a chair and an additional committee member from the major area to serve on the thesis committee. The student will work with their committee chair to identify a third committee member from outside of their specific discipline. The third member can be from the same department but must have a different primary discipline. in the major area to serve on the thesis committee. Signing of the Topic Approval Sheet by these members will signal preliminary approval of the concept. (The M.N.S. has slightly different procedures; students should check with their advisors.)
5. Upon appointment of the third member, the student should arrange a meeting of the committee to discuss and approve the proposal. It is after this meeting that the Topic Approval Sheet is signed by the department chairperson, third member of the committee and emailed to the Office of Graduate Studies at [graduatestudies@semo.edu](mailto:graduatestudies@semo.edu) for approval by the Dean of Graduate Studies.
6. The student may at this point enroll for three hours of thesis credit. If deemed appropriate by the student's committee, the student may enroll for additional hours in a subsequent semester. A minimum of 3 hours credit is required in thesis with a maximum of six hours credit earned in no less than two semesters.
7. The student must be enrolled in GR699 Master's Oral Examination during the final semester.
8. The thesis examining committee usually consists of the thesis committee and is normally scheduled for not more than two hours.
9. The oral examination should be scheduled by the thesis advisor in accordance with the deadlines announced in the class schedule for the appropriate term.
10. At the successful conclusion of the oral examination, all members of the committee and the department chairperson sign the Acceptance Sheet for Graduate Thesis. Copies of the form and thesis guidelines are available on the Graduate Studies website.
11. The student must submit an electronic copy of the thesis and signed Acceptance Sheet to the Office of Graduate Studies via email by the deadline posted on the Graduate Studies website (at least 4 weeks before graduation). The thesis should be submitted in portable document format (pdf). A thesis reader will examine the thesis for proper English usage, format, and readability, and suggest any changes to the student within three weeks. The student then has 7-10 days to make suggested corrections or changes, and submit the final copy of the thesis in portable document format (pdf) to the Office of Graduate Studies. The student will then receive instructions on uploading the electronic thesis in pdf format to ProQuest.
12. Students may request bound copies of their thesis for personal or departmental/programmatic use through ProQuest. The thesis is available to the professional community via the ProQuest

service, and an electronic copy will be stored and publicly viewable through the Kent Library online catalog.

13. The student must assume the binding costs as per ProQuest requirements. The thesis must follow the style sheet appropriate to the discipline in which it is written as well as the requirements of Graduate Studies.

#### Creative Project in Lieu of Thesis

Some students may choose a significant creative project as a demonstration of personal artistic accomplishment. The creative project is particularly useful as a vehicle for students in the humanities. Such theses may include production of original literary or musical compositions, paintings, film, sculpture or other art forms. The creative project is created and executed under the supervision of a two or three person committee as determined by the department, similar to that used in the thesis model. The creative project is a credit-bearing project that follows the steps outlined for the thesis, with a main-body structure devised by each department. The creative project shall include a researched introduction by the student to the student's work, the length and medium of which is determined by each department. The introduction may be, for example, an exploration of an influence or influences on the student work, a theme inherent in the work, a pedagogical focus for which the work was developed, or the treatment of an historical period(s) to which the work relates.

#### Non-Thesis Option

Instead of a thesis, a student may elect to produce another significant capstone work (e.g., non-thesis paper, internship paper, or creative work). **NO CREDIT IS ALLOWED FOR SUCH WORK.** Students electing this option **MAY** be required to take a comprehensive examination.

1. The student obtains approval from his/her advisor and the instructor for whom the paper or other capstone work will be written prior to beginning work on the paper.
2. Non-thesis paper or other capstone work may only be completed under the direction of a regular member of the graduate faculty. Associate or adjunct graduate faculty may direct non-thesis or capstone work if granted approval by the department chair, dean of the college, and dean of Graduate Studies.
3. The supervising instructor and advisor will be responsible for certifying the completion of each paper or other capstone work by submitting via email, a pdf copy of the acceptance sheet with Graduate Studies no later than the deadline specified in the semester class schedule.
4. In all cases, the paper or other capstone work must be approved and the acceptance sheet filed with Graduate Studies prior to taking the comprehensive examination.
5. Any paper submitted as a capstone work must follow the style guide appropriate to the discipline in which it is written.

#### WORKSHOPS, INSTITUTES, PROBLEM COURSES AND INDEPENDENT STUDY

A maximum of 12 semester hours earned through workshops, institutes, problem courses, and independent study may be applied on a degree program providing the work is approved by the advisor. Only six hours of "credit-no credit" work may be applied to a degree. (Exceptions are made for students in Community Counseling.) Workshop credit may not be used to satisfy the 600-level requirement.

#### GENERAL INFORMATION

## CAREER SERVICES

Career Services staff assist students with exploring career opportunities, finding internships and other pre-professional practice opportunities, and exploring opportunities for further graduate study. The staff provides assistance with resume preparation and job search strategies.

## HOUSING

Residence Life at Southeast provides excellent living and learning accommodations for students in a variety of residence halls. Each residence hall is staffed by a Hall Director who works with the student staff members to assist residents in addressing problems, present programs, and assist in a student's success at Southeast. The Residence Life Central Office provides full services for students who have questions about their meal plans, rooms, or other living arrangement concerns.

After a student has been admitted to the University, he/she may contact the Office of Residence Life to request a Contract for University Housing. The contract should be completed, signed, and returned to the Office of Residence Life with a \$150 deposit. Students are strongly encouraged to return their contracts quickly. Hall, room, and roommate assignments are generally distributed during the middle of June.

For more information about on-campus housing, contact the Office of Residence Life at or visit its web site:

Office of Residence Life  
Tower Complex Room 102, MS 0055  
Cape Girardeau, MO 63701  
(573) 651-2274  
E-mail: [residencelife@semo.edu](mailto:residencelife@semo.edu)

## TESTING SERVICES

Testing Services offers standardized examinations on campus. Graduate students needing information about various entrance and aptitude exams should contact the Testing Services office or visit its web site.

## TEXTBOOKS

Textbooks are available for purchase through Southeast Bookstore in the University Center. Graduate students purchase all books necessary for courses numbered 600 and above. Graduate Students enrolled in 500 level courses and 600 level courses that are cross-listed with 400 level courses, will be allowed to rent their primary textbook found in Textbook Rental. If you would like to see if there is a rental textbook for your class, after you sign into your portal, go to 'Registration Tools'.

## VEHICLE REGISTRATION

All persons who wish to park on the campus must purchase a parking permit.

## VETERANS

Veterans are required to meet standards of federal laws regarding progress and attendance, under supervision of the Veterans Administration. Information regarding these regulations is available from the Office of the Registrar or online at [www.semo.edu/veterans](http://www.semo.edu/veterans). Students who expect to receive benefits must complete the certification paperwork with the Office of Military and Veteran Services each semester as soon as they enroll for a given semester.

## PROGRAM ADMISSION POLICES – CERTIFICATE PROGRAMS

### ADMISSION TO GRADUATE CERTIFICATE IN AUTISM SPECTRUM DISORDER

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

- An undergraduate GPA of 2.75 on a 4.0 scale

### ADMISSION TO GRADUATE CERTIFICATE IN CLOUD COMPUTING

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

- An undergraduate GPA of 2.5 on a 4.0 scale

### ADMISSION TO GRADUATE CERTIFICATE IN CYBERSECURITY

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

- An undergraduate GPA of 2.5 on a 4.0 scale

### ADMISSION TO GRADUATE CERTIFICATE IN HEALTHCARE MANAGEMENT

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

1. An undergraduate GPA of 3.0 on a 4.0 scale (overall or in the last 60 credit hours)
2. GRE/GMAT or proof of active healthcare practitioner licensure (e.g., RN, PT, LPN, MD)

### ADMISSION TO GRADUATE CERTIFICATE IN NURSE EDUCATOR

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

- An MSN degree from a program accredited by the Accreditation Commission for Education in Nursing (ACEN) or the Commission on Collegiate Nursing Education (CCNE)
- Evidence of a minimum GPA of 3.25 on a 4.0 scale
- Current unencumbered license as a registered nurse (RN) in the state in which they intend to practice
- Graduate-level course in statistics with a grade of “B” or higher
- Current CPR (professional level) certification
- Statement of academic goals and objectives for post-graduate study
- Two years of clinical experience within the past five years prior to admission
- Current Resume/CV
- Three professional references

### ADMISSION TO GRADUATE CERTIFICATE IN SCHOOL PSYCHOLOGICAL EXAMINER

The preferred deadline for submission of all application materials is:

- Fall semester - August 1
- Spring semester - December 1
- Summer semester - May 1

The Department of Psychology and Counseling will determine if they will accept specific applicant materials after the deadlines.

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

- A master's degree from a college or university meeting approval of the department in one of the following areas: Counseling Psychology; Educational Psychology; School Counseling; and Education
- Evidence of a minimum GPA of 3.5 on a 4.0 scale
- Four letters of recommendation (submitted directly to department after admission)

#### Probationary Admission

Students with a cumulative GPA below a 3.5 on a 4.0 scale may be admitted on a probationary basis pending completion of up to 9 credit hours in the program area their first semester. Students must complete the 9 credit hours with a GPA of 3.66 with a minimum grade of "B" in each course.

#### ADMISSION to GRADUATE CERTIFICATE IN SPECIAL READING K-12 LICENSURE

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

1. An undergraduate GPA of 2.75 on a 4.0 scale
2. A valid professional teaching certificate

### PROGRAM ADMISSION POLICES – MASTER'S DEGREES

#### ADMISSION TO APPLIED BEHAVIOR ANALYSIS PROGRAM (Master of Arts)

The deadline for submission of all application materials to the Office of Admissions is February 1 of the year in which admission is desired. Admission is considered only for the summer and fall semesters. In addition to the criteria established for general admission to graduate studies, applicants must have the following:

1. An undergraduate GPA of 3.25 on a 4.0 scale or 6 hours of graduate-level coursework a 3.0 equivalent in each course
2. Letter of intent addressing preparation for graduate study, ability to succeed at the graduate level and professional goals and objectives. The letter should address what the applicant expects to achieve through graduate level study. The letter of intent should be typed and a maximum of 750 words in length.
3. Two letters of recommendation
4. Identification of potential site to obtain supervised experience.

International applicants must also have a minimum IELTS score of 7.0 OR TOEFL score of 95. *This requirement is for non-United States citizens who are not native English speakers. Students from the United Kingdom, Canada, Australia and New Zealand are exempt from English proficiency verification.*

#### ADMISSION TO APPLIED COMPUTER SCIENCE PROGRAM (Master of Science)

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

1. A bachelor's degree in computer science, computer information systems or a related field\*
2. An undergraduate GPA of 3.0 on a 4.0 scale
3. Six completed hours of science and six completed hours of mathematics in the undergraduate degree

\* Students with a bachelor's degree from other fields will be required to take up to two prerequisites related to Fundamentals of Computing and Programming (provisional admission)

### Probationary Admission

Applicants who do not meet the general and/or program's admission requirements may be considered for probationary admission upon approval by the graduate program coordinator. Students admitted on probation must complete nine credit hours that count towards the degree with a grade of "B" or better to continue in the program.

### ADMISSION TO APPLIED NUTRITION (Master of Science)

The deadline for submission of all application materials is January 1 of the year in which admission is desired. Admission is considered for summer semesters only. In addition to the criteria established for general admission to graduate studies, applicants must have the following:

- Bachelor's or advanced degree from a regionally accredited college or university or a foreign degree evaluated as equivalent to a U.S. bachelor's degree
- Evidence of a minimum cumulative grade point average of 3.0 on a 4.0 scale
- Verification statement from a Didactic Program in Dietetics (DPD) accredited by Accreditation Council for Education in Nutrition and Dietetics (ACEND)
- Evidence the applicant has accumulated a minimum of 750 hours experience from any combination of the following:
  - Volunteer experience (unaffiliated with course requirements)
  - Paid work experience
  - Collegiate athletics
  - Student organizations
  - Leadership experiences
  - Other extracurricular experiences
  - Completed department application and all required templates (Found on the MSAN website)

### ADMISSION TO COMMUNICATION DISORDERS PROGRAM (Master of Arts)

All applications for admission will be reviewed by a departmental admissions committee. The deadline for submission of all application materials to the Office of Admissions is January 15 of the year in which admission is desired. Admission is considered only for the fall semester. Applicants should be aware that the number of admissions may be limited.

The application procedures are detailed on the departmental website at <http://www.semo.edu/commdisorders/admissions/graduate.html>. The department requires submission of application materials to the Communication Sciences and Disorders Computerized Application System (CSDCAS). In addition, an online application, university application fee, and proof of citizenship must be submitted to the Office of Admissions at Southeast Missouri State University. Applicants should adhere carefully to the application instructions available on the department website to insure that all materials are submitted in a timely manner. In addition to the application materials and steps required by the CSDCAS and Southeast Missouri State University applications, an interview is required for prospective graduate students. Potential graduate students may be contacted by the Admissions Committee members for a 15-minute web-based interview prior to being selected for admission to the program.

In addition to the criteria established for general admission to graduate studies, all candidates for admission to the graduate program in Communication Disorders must meet the following departmental criteria:

1. Hold an undergraduate degree in communication disorders (or equivalent area) from a regionally accredited college or university
2. Have a minimum overall undergraduate GPA of 3.0 OR a minimum GPA of 3.0 during the last 2 semesters of undergraduate study during which at least 30 credit hours was earned

Applicants with undergraduate majors in disciplines other than communication disorders must meet the same criteria for all graduate students indicated above; in addition, they must complete a required core of undergraduate courses prior to applying for admission to the program. The following courses must be completed or in progress at time of the application:

- CD211 Anatomy and Physiology of the Speech Mechanism (4)
- CD225 Phonetics (3)
- CD230 Introduction to Communication Disorders (4)
- CD340 Normal Speech and Language Development (3)
- CD371 Anatomy and Physiology of the Hearing Mechanism (3)
- CD406 Service Delivery in Communication Disorders (4)
- CD426 Hearing Disorders: Audiologic Assessment (3)
- CD480 Neuroanatomy and Neurophysiology for Speech and Hearing (3)
- CD512 Speech and Hearing Science (3)

Applicants with undergraduate majors in disciplines other than communication disorders should contact the department for a meeting with a department advisor.

Admission to the graduate program in communication disorders implies that the applicant will be able to perform the functions critical for professional practice in speech-language pathology. The department has adopted official guidelines entitled "Essential Functions of Speech-Language Pathologists," and applicants should review this document at <http://www.semo.edu/commdisorders/admissions/graduate.html> prior to application.

Admission to the program implies that the applicant will have sufficient mastery of English in order to effectively communicate in professional practice. Students who are non-native speakers of English must submit scores from the Test of English as a Foreign Language (TOEFL). Scores must be earned within two years of the application deadline. Applicants must earn a minimum score of 20 in each subsection and minimum overall score of 100 to be considered for admission. The department has adopted official guidelines entitled "Guidelines for Students with Limited English Proficiency." Applicants with limited English proficiency should review this document at <http://www.semo.edu/commdisorders/admissions/graduate.html> prior to application.

#### ADMISSION TO MENTAL HEALTH COUNSELING AND SCHOOL COUNSELING PROGRAMS (Master of Arts)

The process of admission to the Counseling Program does not begin until a student has made application and been accepted into graduate studies.

The deadline for submission of all application materials is February 1 of the year in which admission is desired. Admission is considered for fall and summer semesters only. In addition to the criteria established for general admission to graduate studies, applicants must have the following:

1. An undergraduate GPA of 3.0 on a 4.0 scale
2. Submit one letter of recommendation directly to the Office of Admissions prior to admission. The letter should be addressed to the Director of Admissions.
3. Mental health counseling applicants must also have 9 total credit hours in the social sciences, including, psychology, counseling, sociology or appropriately focused university studies courses.

4. For the areas of emphasis in Elementary School Counseling and Secondary School Counseling, applicants must either hold teaching certification at the appropriate level or provide evidence of competency in the Missouri Department of Elementary and Secondary Education's required areas of teaching methods, teaching practices, classroom management, and psychology of the exceptional child by completing two specific education courses.
5. For the post master's emphasis for School Psychological Examiner students must have a master's degree approved by the Missouri Department of Elementary and Secondary Education and have teacher's certification.

International applicants must also have a minimum IELTS score of 7.0 OR TOEFL score of 95. *This requirement is for non-United States citizens who are not native English speakers. Students from the United Kingdom, Canada, Australia and New Zealand are exempt from English proficiency verification.*

#### Provisional and Regular Admission

A one semester provisional admission will be considered for applicants with the appropriate prerequisite coursework and a 3.0 undergraduate GPA. In addition to the above requirements, applicants for admission into the Counseling Programs must complete the following procedures to become fully admitted:

1. The class CP610 Counseling Orientation and Ethics must be taken during the first semester in the counseling program. During this class the student will be exposed to a variety of experiences that will assist both the student and the faculty in determining if this is the program for the student. During the first semester, students are strongly encouraged to limit their efforts to no more than 9 credit hours.
2. Submit two additional letters of recommendation directly to their advisor.
3. An interview with members of the Counseling Program Faculty will be arranged prior to admission into the program.
4. Students must complete a Personal Statement Essay describing their decision to pursue counseling as a career prior to the scheduled interview with Counseling Program Faculty.
5. In making its admission decision, the faculty uses multiple factors including undergraduate GPA, progress in CP610, the Personal Statement Essay, and the interview. Following the interview, the faculty will either offer provisional admission, probationary admission, or deny admission.
6. If admission is offered, students will be required to complete a Counseling Program Commitment Form in order to retain a position in the cohort for which they applied.
7. Following the offer of admission and completion of the Program Commitment Form, an advisor will assist the applicant in planning a program of courses to be taken (detailed Initial Study Plan); this complete plan will be filed with the student's advisor and the applicant may commence taking courses as outlined in the plan.

#### Probationary Admission

Probationary admission will be considered by the program admissions committee if the applicant has a 2.75 to 2.99 undergraduate GPA or if the applicant has achieved a GPA of 3.25 during the last 60 hours of undergraduate work. Students admitted to the counseling program on probation must attain a 3.5 GPA for the first 9 hours of graduate work. Unless authorized by the advisor, probationary students must include the following courses in the first 9 hours of coursework: CP610 Counseling Orientation and Ethics, CP 612 Counseling Theories, and GR691 Methods of Research: Qualitative and Quantitative Designs. A student earning any grade less than a "B" in any of the first nine hours, but still maintaining a 3.0 GPA, will be allowed to repeat the course one time and must earn a grade of "B" or better.

#### Appeals Process

Applicants who are denied admission have the opportunity to appeal to the Counseling Program Admission Committee.

#### Program Retention

The counseling faculty reserves the right to review students at any stage of the student's coursework. A review process will automatically be triggered by any grade less than a 'B' or equivalent in any of the following courses: CP610 Counseling Orientation and Ethics, CP614 Counseling Skills, CP616 Group Counseling, and all practica and internships. This review has the potential to terminate the student's degree program.

#### ADMISSION TO CRIMINAL JUSTICE PROGRAMS (Master of Science)

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

1. An undergraduate degree in criminal justice, criminology, or a closely related field prior to enrollment. A student without the necessary undergraduate degree may be required to complete up to 12 hours of background courses in criminal justice prior to taking graduate-level courses. Coursework that must be completed includes Introduction to Criminal Justice, Theories of Crime, Methods of Social Research, and Statistics in Social Research or their equivalent at the undergraduate level. Based on previous undergraduate courses taken, the requirement to take background courses may be waived by either the Director of the Criminal Justice Graduate Program or the Chair of the Department of Criminal Justice, Social Work, and Sociology.
2. A minimum undergraduate GPA of 3.0 on a 4.0 scale.
3. A minimum graduate GPA of 3.0 on a 4.0 scale (if applicable).
4. A letter of intent addressing (a) preparation for graduate study, (b) ability to succeed at the graduate level, (c) explanation of any special circumstances/considerations, and (d) professional goals. The letter should be well written, typed, a maximum of 750 words in length, and addressed to the Director of the Graduate Program in Criminal Justice.

All documents should be submitted directly to the Office of Admissions.

#### Probationary Admission

Applicants with an undergraduate GPA of 2.50 to 2.99 or a graduate GPA of 2.75 to 2.99 (if applicable) may be admitted on probation with a personal statement outlining an explanation for the lower academic performance and evidence of commitment to graduate education in criminal justice. Applicants must earn a 3.0 GPA in the first 9 hours of graduate-level course work in the core area of study to continue in the program.

#### ADMISSION TO CYBERSECURITY PROGRAM (Master of Science)

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

1. A bachelor's degree in cybersecurity or related field\*
2. An undergraduate GPA of 3.0 on a 4.0 scale
3. Six completed hours of science and six completed hours of mathematics in the undergraduate degree

\*Students with bachelor's degrees from other fields will be required to take up to two prerequisites related to Fundamentals of Computing and Programming (provisional admission).

#### Probationary Admission

Applicants who do not meet the general and/or program's admission requirements may be considered for probationary admission upon approval by the graduate program coordinator. While under probation, students must complete nine credit hours that count toward the degree with a grade of "B" or better to continue in the program.

#### ADMISSION TO EDUCATIONAL LEADERSHIP (Master of Arts)

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

1. An undergraduate GPA of 2.75 on a 4.0 scale
2. A valid professional teaching certificate.
3. A resume showing two years of classroom teaching experience.

An applicant having the prerequisite GPA of 2.75 may be given provisional admission prior to completion of all steps in the admissions process.

International applicants must have a minimum IELTS score of 7.0 OR TOEFL score of 95. *This requirement is for non-United States citizens who are not native English speakers. Students from the United Kingdom, Canada, Australia and New Zealand are exempt from English proficiency verification.*

#### Probationary Admission

Probationary admission will be considered by an admissions committee in a program area under the following conditions:

If the applicant presents a GPA that is 2.5 to 2.749, or, if the applicant has achieved a GPA of 3.0 during the last 60 hours of undergraduate work, the admissions committee may permit the student to take up to nine hours in the program area. The student will be required to achieve a grade of no less than 'B' in these nine hours of coursework to continue in the program.

#### Appeals Process

Applicants who are denied admission have the option to appeal to the College of Education, Health, and Human Studies Admission Appeals Committee, which is composed of one representative from each program area offering a graduate program.

#### Graduation Requirement

The student must attain an overall GPA of 3.25 in order to graduate from the program.

#### ADMISSION TO THE ELEMENTARY EDUCATION & EXCEPTIONAL CHILD PROGRAMS (Master of Arts)

*Note: program for individuals with an undergraduate degree in education who already possess teaching certification*

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

1. An undergraduate GPA of 2.75 on a 4.0 scale
2. A valid professional teaching certificate OR a qualifying score on the state content exam appropriate for that certificate OR be in the 50th percentile verbal and analytic components of the Graduate Record Examination (GRE). Please note this program will not lead to an initial teacher license.

An applicant having the prerequisite GPA of 2.75 may be given provisional admission prior to completion of all steps in the admission process. The program admission process must be completed within one calendar year. Failure to do so will result in reclassification as a non-degree student. Reinstatement to degree-seeking status will require a new application for admission. Courses taken prior to full admission will not necessarily be accepted toward meeting degree requirements.

International applicants must have a minimum IELTS score of 7.0 OR TOEFL score of 95. *This requirement is for non-United States citizens who are not native English speakers. Students from the United Kingdom, Canada, Australia and New Zealand are exempt from English proficiency verification.*

#### Graduation Requirement

The student must attain an overall GPA of 3.0 in order to be graduated from the program.

#### ADMISSION TO ENGLISH and TESOL PROGRAMS (Master of Arts)

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

1. An undergraduate GPA of 2.5 on a 4.0 scale
2. Applicants to the Master of Arts in English: English Studies must have 24 semester hours of undergraduate credit in the field.
3. Applicants to the Master of Arts in English: Professional Writing must have 15 semester hours of undergraduate credit in the field.

#### ADMISSION TO ENVIRONMENTAL SCIENCE PROGRAM (Master of Science)

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

1. An undergraduate GPA of 2.5 on a 4.0 scale
2. 20 credit hours in science with a 3.0 GPA
3. Letter of intent addressing preparation for graduate study, ability to succeed at the graduate level and professional goals and objectives. The letter should address what the applicant expects to achieve through graduate level study. The letter of intent should be typed and a maximum of 750 words in length.
4. Two letters of recommendation

Scores for the general portion of the Graduate Record Exam (verbal, quantitative, and analytical) are required for probationary admission consideration.

Letters should be addressed to the Director of Admissions. All documents must be submitted directly to the Office of Admissions.

#### ADMISSION TO HEALTHCARE MANAGEMENT (Master of Science)

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

1. An undergraduate GPA of 3.0 on a 4.0 scale (overall or in the last 60 credit hours)
2. Proof of an active healthcare professional or practitioner license OR one of the following:
  - Graduate Record Exam (GRE) score of 147 for both Verbal and Quantitative Reasoning
  - GMAT score  $\geq$  500

##### Probationary Admission

Applicants who do not meet the general and/or program's admission requirements (degree, GPA, or GMAT/GRE scores) may be considered for probationary admission upon approval by the graduate program coordinator. While under probation, students may enroll in nine credit hours of course work in their program area. The nine hours must be completed with 3.33 GPA or higher.

#### ADMISSION TO THE HIGHER EDUCATION ADMINISTRATION PROGRAM (Master of Arts)

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

- An undergraduate GPA of 2.75 on a 4.0 scale

International applicants must also have a minimum IELTS score of 7.0 OR TOEFL score of 95. *This requirement is for non-United States citizens who are not native English speakers. Students from the United Kingdom, Canada, Australia and New Zealand are exempt from English proficiency verification.*

##### Probationary Admission

Probationary admission will be considered by the Office of Admissions under the following conditions: If the applicant presents a GPA that is 2.5 to 2.749, or, if the applicant has achieved a GPA of 3.0 during the last 60 hours of undergraduate work, the student may take up to nine hours in the program area.

The applicant will be required to achieve a grade of no less than "B" in this nine hours of work to continue in the program.

#### Appeals Process

Applicants who are denied admission will have the opportunity to appeal to the College of Education, Health, and Human Studies Admission Appeals Committee, which will be comprised of one representative from each program area offering a graduate program.

#### ADMISSION TO INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY (Master of Arts)

The priority deadline for submission of all application materials to the Office of Admissions is February 1 for the fall semester and October 1 for the spring semester. Applications received after those deadlines will be considered but may not be given priority in the admission process. In addition to the criteria established for general admission to graduate studies, applicants with the following characteristics will be given the highest consideration:

1. An undergraduate GPA of 3.0 on a 4.0 scale
2. A combined score of 310 on the verbal and quantitative sections of the Graduate Record Examination (GRE)
3. Letter of intent addressing preparation for graduate study, ability to succeed at the graduate level and professional goals and objectives. The letter should address what the applicant expects to achieve through graduate level study. The letter of intent should be typed and a maximum of 750 words in length.
4. Three letters of recommendation

Applicants who do not meet one or more of these criteria are encouraged to apply as they will still be considered on a case-by-case basis.

#### ADMISSION TO MANAGEMENT PROGRAM (Master of Science)

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

1. An undergraduate GPA of 2.75 on a 4.0 scale (overall or in the last 60 hours of undergraduate work)
2. At least 3 years of appropriate full-time post-bachelors work experience

In addition, applicants must submit the following:

1. Current resume/vita including names and contact information of three professional/business references
2. Letter of intent addressing preparation for graduate study, ability to succeed at the graduate level and professional goals and objectives. The letter should address what the applicant expects to achieve through graduate level study. The letter should be typed, a maximum of 750 words in length, and be addressed to the Director of Admissions.
3. Official GRE, GMAT, LSAT, or MCAT score. Applicants may request a waiver based upon significant work experience.

All documents should be submitted directly to the Office of Admissions.

#### ADMISSION TO MASTER OF BUSINESS ADMINISTRATION PROGRAM (MBA)

Individuals admitted to the MBA program must have an undergraduate degree from an AACSB accredited business program or have satisfactorily completed the equivalent course work from an accredited institution. Students without the foundation knowledge base in business and economics, yet meeting other admission requirements, may receive provisional admission to the MBA program. Regular admission status may be granted upon completion of prerequisite coursework. All students must provide a GMAT or GRE test score (unless they qualify for a waiver).

In addition to the criteria established for general admission to graduate studies are the following departmental criteria:

Regular Admission

1. GPA on a 4.0 scale (overall or in the last 60 hours of college credit) multiplied by 200 plus GMAT equal to at least 1000 AND GMAT score of at least 500,  
OR  
GPA of 3.0 on a 4.0 scale (overall or in the last 60 hours of college credit) with a Graduate Record Exam Score (GRE) of 147 for both Verbal Reasoning and Quantitative Reasoning and Analytical Writing of 3.5 or higher.  
(When it is not possible to interpret academic eligibility by way of transcript, the graduate business program reserves the right to request further evidence of academic eligibility.)
2. Minimum grade of 'C' on all undergraduate foundation (prerequisite) courses.

Probationary Admission

All applicants must have the following:

1. GPA on a 4.0 scale (overall or in the last 60 hours of college credit) multiplied by 200 plus GMAT score equal to at least 1000 AND GMAT score of at least 430,  
OR  
GPA of 3.0 on a 4.0 scale (overall or in the last 60 hours of college credit) with a Graduate Record Exam Score (GRE) of 144 for both Verbal Reasoning and Quantitative Reasoning and Analytical Writing of 3.5 or higher.  
(When it is not possible to interpret academic eligibility by way of transcript, the graduate business program reserves the right to request further evidence of academic eligibility.)
2. Minimum grade of 'C' on all undergraduate foundation (prerequisite) courses.
3. Students admitted on probation must complete their first 9 hours of graduate course work with a grade "B" or better. Students not meeting this requirement are subject to dismissal from the program.

International students applying with a three-year degree must have their transcripts evaluated by an outside agency endorsed by AICE ([www.aice-eval.org](http://www.aice-eval.org)) or that is a member of NACES ([www.naces.org](http://www.naces.org)).

All undergraduate requirements for admission must be satisfied before enrolling in the MBA required core or MBA elective courses. Students without an undergraduate degree in business may need to complete the following required foundation course work\* prior to taking courses for which there are prerequisites:

- Principles of Accounting I or Graduate Business Accounting Essentials
- Microeconomics or Graduate Business Microeconomics Essentials
- Financial Management or Graduate Business Finance Essentials
- Management Information Systems or Graduate Business Information Systems Essentials
- Business Statistics or Introductory Behavioral Statistics or Graduate Business Statistics Essentials

Additional foundation coursework for Accounting option:

- Principles of Accounting II
- Financial Accounting and Reporting I
- Financial Accounting and Reporting II

Students must earn a grade of "C" or better in all of the above classes.

\*Proficiency in these areas may be demonstrated through any of the following alternatives:

1. A CLEP or DANTES exam if available. Credit will not be given for these courses with a passing grade on the exam, but a passing score will indicate proof of course knowledge.

2. Applied knowledge of a given domain in the work environment. The extent to which relevant work experience demonstrates proficiency will be determined by the program director. Applicants who would like their work experience to be considered must submit a resume with their application.

Students wishing to enter the accounting track should have completed an undergraduate degree in accounting at a regionally accredited institution or have satisfactorily completed two intermediate accounting courses from a program that teaches these courses using USA GAAP standards.

#### Waiving the GMAT/GRE Exam

Applicants for the MBA degree program are required to provide GMAT or GRE scores as part of their application package. Under certain circumstances, an applicant may petition to waive the GMAT or GRE requirement. A waiver of the GMAT or GRE exam may be considered if the applicant meets any of the following criteria:

1. Has at least three years of significant professional work experience with evidence of profit and loss, managerial, or leadership responsibility as determined by the MBA program director
2. Holds a terminal degree (e.g., Ph.D., M.D., J.D., D.D.S.) from an accredited institution deemed appropriate by the MBA program director
3. Holds a master's degree from an accredited institution deemed appropriate by the MBA program director, with a cumulative GPA of at least 3.0 (on a 4.0 scale)
4. Holds a bachelor's degree or higher from a recognized HCBC international exchange partner institution and receives the endorsement of the partner institution's exchange coordinator and the MBA program director
5. Holds a bachelor's degree from an AACSB accredited program, with a GPA of at least 3.5 on a 4.0 scale overall or at least a 3.25 on a 4.0 scale in the last 60 hours of college credit
6. Holds a bachelor's degree from an accredited institution, with a cumulative GPA of 3.0 or better (on a 4.0 scale) and can provide an acceptable converted GMAT score from other standardized entrance exams such as the GRE, MCAT, or LSAT

The decision to grant the GMAT waiver rests with the director of Graduate Business Studies and is determined in joint consideration with the rest of the candidate's application materials. Satisfaction of the above criteria does not constitute an automatic waiver.

#### ADMISSION TO MASTER OF NATURAL SCIENCE PROGRAM (Master of Natural Science)

In addition to the criteria established for general admission to graduate studies are the following departmental criteria for the programs in Biology and Mathematics:

1. An undergraduate GPA of 2.5 on a 4.0 scale (Mathematics) or an undergraduate GPA of 2.75 on a 4.0 scale (Biology)
2. Minimum GPA of 2.75 on a 4.0 scale for the last 30 semester hours of undergraduate science and math courses
3. Two letters of recommendation addressing the applicant's potential for academic success in the respective area of emphasis. Letters should be addressed to the Director of Admissions.
4. Additional requirements for each area of emphasis:
  - a. Biology
    - i. Submission of a Faculty Sponsor Agreement
    - ii. Submission of a letter of intent that details the applicant's interests in biology and future goals after obtaining a graduate degree in biology
  - b. Mathematics
    - i. Completion of a major in mathematics or completion of the following courses with a grade of 'C' or better in each course and a 3.0 GPA on a 4.0 scale for these courses:

Standard calculus sequence; Linear Algebra; Abstract Algebra; Nine additional hours of post-calculus courses. (An applicant who is no more than two courses short of meeting these requirements may be admitted on a provisional basis.)

- ii. Students must demonstrate a basic level of competency in a modern scientific programming language, e.g., C, C++, Python, R/RStudio.

Mathematics follows the Graduate Studies application deadlines.

The biology program has application deadlines that vary from Graduate Studies' application deadlines.

All documents must be submitted to the Office of Admissions by the following semester deadlines:

Biology

Fall – April 1

Spring – October 1

Summer – April 1

Chemistry

Fall – April 1

Spring – October 1

ADMISSION TO MIDDLE AND SECONDARY EDUCATION STEM CONTENT PROGRAM (Master of Arts in Teaching)

*Note: program for individuals with an undergraduate degree in non-education major, seeking an initial teaching certificate*

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

1. For certification grades 9-12: BA or BS degree in the content area or closely related field that meets the required core competencies for the license.  
For certification grades 5-9: BA or BS degree in the content area or 24 credit hours of completed courses that meet the required content competences for that license:
  - Math – 24 hours of math including courses in College Algebra, Geometry and Applied or Pre-Calculus.
  - Science – 24 hours of science with a minimum of 8 hours of physical and 8 hours of life science courses.
2. An undergraduate GPA of 2.5 on a 4.0 scale and specific content GPA of 3.0
3. Passage of the Missouri Content Assessment in an appropriate area as defined by the Department of Leadership, Middle, and Secondary Education
4. Completion of PY222 Adolescent Development or similar to the Child and Adolescent Psychology
5. Completion of EX390/635 Psychology and Education of Children with Exceptionalities

International applicants for either certification must also have a minimum IELTS score of 7.0 OR TOEFL score of 95. *This requirement is for non-United States citizens who are not native English speakers.*

*Students from the United Kingdom, Canada, Australia and New Zealand are exempt from English proficiency verification.*

Provisional Admission:

Provisional admission will be considered if prerequisites are partially filled and GPA and testing criteria are met.

#### ADMISSION TO NURSING PROGRAM (Master of Science in Nursing)

The deadline for submission of all application materials is April 1 of the year in which admission is desired. Admission is considered only for the fall semester. In addition to the criteria established for general admission to graduate studies, applicants must have the following:

##### Regular Admission Requirements

1. A baccalaureate degree with an upper division major in nursing from a program accredited by the Accreditation Commission for Education in Nursing (ACEN) or the Commission on Collegiate Nursing Education (CCNE)
2. A minimum GPA of 3.25 on a 4.0 scale
3. Current licensure as a registered professional nurse that allows practice within the state of Missouri
4. A graduate course in statistics within the last five years with a grade of B or higher
5. Current CPR (professional level) certification
6. Statement of academic goals and objectives for graduate study/advanced practice
7. Clinical experience as a registered nurse prior to admission is strongly recommended

#### ADMISSION TO NUTRITION AND EXERCISE PROGRAM (Master of Science)

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

1. An undergraduate GPA of 3.0 on a 4.0 scale
2. A 3.0 average in the following college-level classes 1.) nutrition science 2.) exercise physiology with a laboratory 3.) anatomy and physiology and 4.) chemistry

#### ADMISSION TO PUBLIC ADMINISTRATION PROGRAM (Master of Public Administration)

In addition to the criteria established for general admission to graduate studies are the following departmental criteria. Application materials must demonstrate the student's commitment to a career in governmental or nonprofit organizations.

1. An undergraduate GPA of 2.7 on a 4.0 scale
2. Resume
3. Two letters of recommendation addressing the student's potential for a career in public service
4. A letter of intent addressing professional goals and objectives. The letter should address what the applicant expects to achieve through graduate level study. The letter should be typed and a maximum of 750 words in length.

GRE, LSAT or GMAT scores are not required but may be submitted to strengthen application.

Letters should be addressed to the Director of Admissions. All documents should be submitted directly to the Office of Admissions.

#### ADMISSION TO PUBLIC HISTORY PROGRAM (Master of Arts)

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

1. Undergraduate GPA of 2.75 on a 4.0 scale.
2. A letter of intent which indicates how the applicant's past experiences have prepared him or her for a graduate degree in Public History and to succeed at the graduate level.
3. Two letters of recommendation which attest to the applicant's academic and/or professional achievement and ability to succeed in the graduate program
4. An academic or professional writing sample

Letters should be addressed to the Director of Admissions. All documents should be submitted directly to the Office of Admissions.

#### Provisional and Probationary Admission

An applicant lacking any of the above requirements may, under certain circumstances, be admitted provisionally or on probation.

#### ADMISSION TO SECONDARY EDUCATION PROGRAM (Master of Arts)

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

- An undergraduate GPA of 2.75 on a 4.0 scale

International applicants must also have a minimum IELTS score of 7.0 OR TOEFL score of 95. *This requirement is for non-United States citizens who are not native English speakers. Students from the United Kingdom, Canada, Australia and New Zealand are exempt from English proficiency verification.*

#### Probationary Admission

Probationary admission will be considered by the Office of Admissions if the applicant presents a GPA that is 2.5 to 2.749. The applicant must complete six hours of graduate level course work in the core area of study with a grade of 'B' or higher to continue in the program.

#### Appeals Process

Applicants who are denied admission have the opportunity to appeal to the College of Education, Health, and Human Studies Admission Appeals Committee, which is composed of one representative from each program offering a graduate program.

#### Graduation Requirement

The student must attain an overall GPA of 3.25 in order to graduate from the program.

#### ADMISSION TO TEACHER LEADERSHIP PROGRAM (Master of Arts)

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

1. An undergraduate GPA of 2.75 on a 4.0 scale
2. A valid professional teaching certificate

An applicant having the prerequisite GPA of 2.75 may be given provisional admission prior to completion of all steps in the admissions process.

International applicants must also have a minimum IELTS score of 7.0 OR TOEFL score of 95. *This requirement is for non-United States citizens who are not native English speakers. Students from the United Kingdom, Canada, Australia and New Zealand are exempt from English proficiency verification.*

#### Probationary Admission

Probationary admission will be considered by an admissions committee in a program area under the following conditions:

If the applicant presents a GPA that is 2.5 to 2.749, or, if the applicant has achieved a GPA of 3.0 during the last 60 hours of undergraduate work, the admissions committee may permit the student to take up to 9 hours in the program area. The student will be required to achieve a grade of no less than 'B' in this 9 hours of work to continue in the program.

#### Appeals Process

Applicants who are denied admission have the option to appeal to the College of Education, Health, and Human Studies Admission Appeals Committee, which is composed of one representative from each program area offering a graduate program.

#### ADMISSION TO TECHNOLOGY MANAGEMENT PROGRAM (Master of Science)

All application materials must be submitted to the Office of Admissions by the following semester deadlines:

- a. Fall – August 1 (domestic students); July 1 (international students)
- b. Spring – November 1

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

1. A bachelor's degree in engineering, technology or closely related field
2. An undergraduate GPA of 3.0 on a 4.0 scale and few repeated courses

#### Probationary Admission

Applicants must have an undergraduate GPA of 2.5 on a 4.0 scale and submit official GRE scores. While under probation, students may enroll in nine credit hours of course work in their program area. The nine hours must be completed with 3.0 GPA or higher.

### PROGRAM ADMISSION POLICES – SPECIALIST DEGREES

#### ADMISSION TO THE COUNSELING PROGRAM

In addition to the criteria established for general admission to graduate studies are the following departmental criteria:

#### Minimum Admission Criteria

1. A graduate GPA of 3.5 on a 4.0 scale
2. A master's degree in counseling or education from a regionally accredited institution of higher education. If not, the student will be required to take additional graduate work (admission under provisional status) before regular admission is granted.

In addition, international applicants must have a minimum IELTS score of 7.0 OR TOEFL score of 95. *This requirement is for non-United States citizens who are not native English speakers. Students from the United Kingdom, Canada, Australia and New Zealand are exempt from English proficiency verification.*

#### Probationary Admission

Probationary admission will be considered when the applicant presents a GPA that is less than 3.5 on a 4.0 scale, the admissions committee may permit the student to take nine hours in the program area. The student will be required to achieve a 3.66 GPA with a minimum grade of 'B' in each course.

#### Full Admission

Applicants who possess the requisite GPA will be admitted to graduate study and allowed to complete a maximum of six semester hours of prerequisite coursework, if applicable. If no prerequisite courses are needed, the student may complete a maximum of six semester hours applicable to program requirements prior to admission to the program by the Counseling Admissions Committee. The Committee will act only on applications that are complete. The admissions process may require an interview with the program coordinator and faculty. In addition, two letters of recommendation must be submitted directly to the Specialist Program Coordinator.

#### Denial of Admission

Applicants denied admission to graduate study based on a GPA of less than 3.5 on a 4.0 scale may apply for probationary admission. A letter of request, along with the three letters of recommendation and GRE or MAT scores should be sent to the Coordinator of the Specialist Program. Students denied admission may not enroll for coursework applicable to the degree program until such time as explicit permission, along with any stipulations, is granted by the Counseling Admissions Committee.

#### Appeals Process

Applicants who are denied admission will have the opportunity to appeal to the Counseling Program Admission Committee. Appeals must be in writing and should address any extenuating circumstances. Appeal letters should be addressed to the Counseling Program Coordinator.

#### ADMISSION TO THE EDUCATIONAL ADMINISTRATION PROGRAM

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

1. A graduate GPA of 3.5 on a 4.0 scale
2. A master's degree from a regionally accredited institution of higher education. The master's degree must be appropriate to the student's educational objective. If not, the student will be required to take additional graduate work before regular admission is granted.
3. A valid professional teaching certificate

In addition, international applicants must have a minimum IELTS score of 7.0 OR TOEFL score of 95. *This requirement is for non-United States citizens who are not native English speakers. Students from the United Kingdom, Canada, Australia and New Zealand are exempt from English proficiency verification.* Applicants who are in the process of completing a master's degree may be admitted to graduate study on a provisional basis and be allowed to complete a maximum of six semester hours of prerequisite coursework, if applicable, prior to graduation. If no prerequisite courses are needed, the student may complete a maximum of six semester hours applicable to program requirements prior to full admission to the program.

#### Probationary Admission

Probationary admission will be considered when the applicant presents a GPA that is less than 3.5 on a 4.0 scale. The admissions committee may permit the student to take nine hours in the program area. The student will be required to achieve a 3.66 GPA with a minimum grade of 'B' in each course.

#### Denial of Admission

Applicants denied admission to graduate study based on a GPA of less than 3.5 may apply for probationary admission. A letter of request should be sent to the Coordinator, Specialist Program. Students denied admission may not enroll for coursework applicable to the degree program until such time as explicit permission, along with any stipulations, is granted by the program admissions committee.

#### Appeals Process

Applicants who are denied admission will have the opportunity to appeal to the College of Education, Health, and Human Studies Admission Appeals Committee. Appeals must be in writing and should address any extenuating circumstances. Appeal letters should be addressed to Chairperson, Department of Leadership, Middle and Secondary Education.

#### ADMISSION TO TEACHER LEADERSHIP PROGRAM

In addition to the criteria established for general admission to graduate studies, applicants must have the following:

1. A graduate GPA of 3.5 on a 4.0 scale
2. A master's degree from a regionally accredited institution of higher education. The master's degree must be appropriate to the student's educational objective. If not, the student will be required to take additional graduate work before regular admission is granted.
3. A valid professional teaching certificate

In addition, international applicants must have a minimum IELTS score of 7.0 OR TOEFL score of 95. *This requirement is for non-United States citizens who are not native English speakers. Students from the*

*United Kingdom, Canada, Australia and New Zealand are exempt from English proficiency verification.*

Applicants who are in the process of completing a master's degree may be admitted to graduate study on a provisional basis and be allowed to complete a maximum of six semester hours of prerequisite coursework, if applicable, prior to graduation. If no prerequisite courses are needed, the student may complete a maximum of six semester hours applicable to program requirements prior to full admission to the program.

#### Probationary Admission

Probationary admission will be considered when the applicant presents a GPA that is less than 3.5 on a 4.0 scale. The admissions committee may permit the student to take nine hours in the program area. The student will be required to achieve a 3.66 GPA with a minimum grade of 'B' in each course.

#### Denial of Admission

Applicants denied admission to graduate study based on a GPA of less than 3.5 may apply for probationary admission. A letter of request should be sent to the Coordinator, Specialist Program. Students denied admission may not enroll for coursework applicable to the degree program until such time as explicit permission, along with any stipulations, is granted by the program admissions committee.

#### Appeals Process

Applicants who are denied admission will have the opportunity to appeal to the College of Education, Health, and Human Studies Admission Appeals Committee. Appeals must be in writing and should address any extenuating circumstances. Appeal letters should be addressed to Chairperson, Department of Educational Leadership and Counseling.

## DEGREES AND CERTIFICATES

NOTE: The graduate coordinator (as of June 1, 2021) for each major/program is listed with the major requirements. The most current listing of Graduate Coordinators may be found at <https://semo.edu/grad/coordinators.html>

### MASTER OF ARTS

#### APPLIED BEHAVIOR ANALYSIS (MA)

Department of Psychology and Counseling

Dr. Eric Billington, Graduate Coordinator

(573) 651-2414

E-mail: [ebillington@semo.edu](mailto:ebillington@semo.edu)

#### 42 Hours Required

AB531 Basic Principles in Applied Behavior Analysis (3)

AB532 Methods for Studying the Behavior of Individuals (3)

AB533 Applied Behavior Analysis I: Assessment and Skill Acquisition (3)

AB534 Applied Behavior Analysis II: Functional Assessment and Behavior Reduction (3)

AB535 Principles in Psychopharmacology (3)

AB537 Behavioral Consultation & Management (3)

AB601 Conceptual Topics in Behavior Analysis (3)

AB603 Ethics, Disciplinary Systems, and Professionalism in Applied Behavior Analysis (3)

AB605 Research & Practice in Applied Behavior Analysis – I (6)

AB607 Research & Practice in Applied Behavior Analysis – II (6)

AB608 Research & Practice in Applied Behavior Analysis – III (3)

GR698 Master's Final Comprehensive Examination (0)

Choose one course:

CE614 Family/School Partnerships in Early Childhood (3)

CF520 Professional Ethics and Practice (3)

CF630 Family Systems Application in Human Services (3)

DS618 Environmental Design for Human Services (3)

EX507 Family and Child with Exceptionalities (3)

EX555 Introduction to Autism Spectrum Disorder (3)

EX601 Educational Assessment Techniques (3)

EX693 Special Education and the Law (3)

HE601 Sustainable Environments in Human Services (3)

PY525 Maturing and Aging (3)

PY555 Health Psychology (3)

#### COMMUNICATION DISORDERS (MA)

Department of Communication Disorders

573-651-2155

#### 57 Hours Required

Required Courses:

CD603 Advanced Communication Disorders Clinical Practicum (3 enrollments) (9)  
CD608 Clinical Methods in Speech Language Pathology (2)  
CD616 Literacy Essentials for Speech Language Pathologists (3)  
CD620 Developmental Articulatory & Phonological Disorders (2)  
CD625 Research Methodology in Communication Disorders (3)  
CD629 Neuroscience of Communication Disorders (2)  
CD630 Language and Cognitive Communication Disorders in Adults (2)  
CD634 Language and Cognitive Disorders in Infants and Preschool Children (2)  
CD635 Language, Cognitive and Social Communication Disorders in School-Aged Children (3)  
CD641 Voice Disorders (3)  
CD642 Fluency Disorders (2)  
CD643 Augmentative/Alternative Communication Systems (2)  
CD651 Neurogenic Speech Disorders (2)  
CD652 Swallowing Disorders (3)  
CD653 Pediatric Feeding and Swallowing (1)  
CD656 Craniofacial Anomalies and Resonance Disorders (2)  
CD659 Speech and Language Services for Special Populations (3)  
CD669 Externship in Communication Disorders (2 enrollments) (6)  
CD685 Professionals Issues in Communication Disorders (2)

Choose One of the Following Options:

NON-THESIS OPTION

CD683 Research in Communication Disorders (2 enrollments) (3)

GR698 Master's Final Comprehensive Examination (0)

THESIS OPTION

CD695 Thesis in Communication Disorders (2 enrollments) (3)

GR699 Master's Oral Examination (0)

Additional requirements:\*

CD510 Multicultural Issues in Communication Disorders (3)

CD512 Speech & Hearing Science (3)

CD525 Aural Rehabilitation (3)

\* If the student did not have CD510, CD512, and/or CD525 or equivalent courses as an undergraduate, the student must take these courses as a graduate student.

EDUCATIONAL LEADERSHIP (MA)

Department of Leadership, Middle and Secondary Education

Dr. Lisa Bertrand, Graduate Program Coordinator

(573) 651-2137

E-mail: lbertrand@semo.edu

30 Hours Required

3.25 GPA Required

EA610 Diversity and Equity in Schools (3)

EA625 Foundations of Educational Leadership (3)

EA634 School Supervision (3)

EA651 School Law (3)

EA653 Curriculum for Leaders in Education (3)

EA654 The Principalship (3)  
EA655 Leadership for Effective School Operations (3)  
EA660 Leadership in Special Education (3)  
EA663 Internship I: Leadership for Research in Action (3)  
EA664 Internship II: Leadership for Experiential Learning (3)  
GR698 Master's Final Comprehensive Examination (0)

#### ELEMENTARY EDUCATION (MA)

Department of Elementary, Early and Special Education

Dr. Shonta Smith, Chairperson

(573) 651-2444

E-mail: smsmith@semo.edu

Graduate Contact:

Dr. Min Zou

(573) 651-2122

E-mail: mzou@semo.edu

30 Hours Required

Core Requirements

EL615 Research in Action (3)

EX601 Education Assessment Techniques (3)

GR698 Master's Final Comprehensive Examination (0)

Choose One Area of Emphasis:

EMPHASIS IN EARLY CHILDHOOD

CE605 Issues and Trends in Early Childhood Education (3)

CE610 Curriculum, Methods and Program Management in Early Childhood (3)

CE634 Assessing Young Children's Learning and Development (3)

EL606 Curriculum Construction (Elementary) (3)

Choose one course:

EX556 Communication Interventions and Strategies for Individuals with Autism Spectrum Disorder (3)

EX602 Language Acquisition for the Child with Exceptionalities (3)

Choose one course:

CE614 Family/School Partnerships in Early Childhood (3)

EX507 Family and Child with Exceptionalities (3)

Choose 6 Hours of Electives

EMPHASIS IN MATH/SCIENCE

EL 603 Teaching Elementary School Mathematics (3)

EL 604 Techniques of Teaching Science and Mathematics in the Elementary School (3)

EL606 Curriculum Construction (Elementary) (3)

EL608 Diagnosis and Remediation of Difficulties in Learning Mathematics (3)

Choose one course:

CE614 Family/School Partnerships in Early Childhood (3)

EX507 Family and Child with Exceptionalities (3)

Choose 9 Hours of Electives - Suggested electives in math/science

EMPHASIS IN MATHEMATICS SPECIALIST

EL667 Mathematical Leadership for Elementary Mathematics Specialists: Foundations (2)

EL668 Mathematical Leadership for Elementary Mathematics Specialists: Influencing and Facilitating (3)

MD611 Internship in Numbers and Operations (1)  
MD612 Internship in Rational Numbers and Proportional Thinking (1)  
MD616 Internship in Geometry and Measurement (1)  
MD617 Internship in Algebraic Reasoning (1)  
MD621 Number and Operations (3)  
MD622 Rational Numbers and Proportional Thinking (3)  
MD624 Data and Probability (3)  
MD626 Geometry and Measurement (3)  
MD627 Algebraic Reasoning (3)

EMPHASIS IN READING

EL611 Emergent Literacy Learners Practicum (3)  
EL623 Intermediate and Upper-Level Literacy Learners Practicum (3)  
EL624 Literacy Leadership (3)  
EL644 Understanding and Applying the Multi-dimensional Process of Literacy (3)  
EL646 Inquiry and Research Models to Improve Literacy Instruction (3)  
EL647 Diagnosis and Correction of Reading Difficulties (3)  
EL648 Dyslexia and Reading Disabilities (3)

Choose one course:

EL629 Integrating Children's Literature in the Curriculum (3)  
SE602 Effective Literacy Instruction at the Middle and Secondary Level (3)

ENGLISH (MA)

Department of English

Dr. Susan Kendrick, Chairperson

(573) 651-2156

E-mail: skendrick@semo.edu

Program Coordinator

Dr. Sandra Cox

(573) 651-2156

E-mail: scox@semo.edu

30 Hours Required

CORE: One course from each category

Category I: Literature, Linguistics, Rhetoric, Pedagogy

EN606 Topics, Issues, and Trends in English (3)

EN623 Visual Rhetoric (3)

EN686 Sociolinguistics (3)

LI605 Anglophone Literature/Contemporary Theory (3)

LI542 Literature for the Young Adult (3)

LI565 Southern Literature (3)

LI568 Masculinities in the 19th Century American Novel (3)

LI570 Modern and Contemporary Novel (3)

LI576 American Fiction of the 21st Century (3)

LI577 Studies in Early English Literature (3)

LI578 Studies in Later British & Postcolonial Literature (3)

LI582 Topics in Literature (3)

LI6xx Focus on the Author (3)

LI6xx Studies in Early British Literature (3)  
LI674 Studies in Modern American Literature (3)  
LI676 Early Twentieth Century British Literature (3)  
TL585 Methods and Techniques for TESOL (3)  
TL620 Approaches to the Teaching of Grammar (3)  
TL625 Materials Development and Assessment Tools for TESOL (3)  
TL630 Special Problems in TESOL (3)  
TL648 Foundations in Linguistics (3)  
TL650 Approaches to Second Language Literacy Instruction (3)  
Category II: Broadened and Contemporary Perspectives in English Studies  
LI612 Native American Literature (3)  
LI617 Writing Race and Gender in the South (3)  
LI626 Gender and Sexuality in Literary Studies (3)  
LI634 African-American Literature before 1900 (3)  
LI636 African-American Literature after 1900 (3)  
LI670 Immigration in Literature and Film (3)  
TL525 ESL/EFL Learning and Teaching (3)  
TL610 Developing Intercultural Awareness and Competence (3)  
Category III: Professionalization and Career Readiness (3)  
EN600 Orientation Seminar for Teaching Assistants (3)  
EN601 Research in English Studies (3)  
EN535 Rhetorical Theory and Written Discourse (3)  
EN550 Style in Writing (3)  
EN572 Creative Nonfiction (3)  
EN624 Editing and Research in Professional Writing (3)  
EN6xx Internship (3)  
EN645 Advanced Literary Publishing (3)  
EN6xx Composition Theory and Pedagogy (3)  
EN670 Advanced Creative Writing: Poetry (3)  
EN678 Advanced Creative Writing: Fiction (3)  
TL601 Research Methods in TESOL (3)  
Electives: Choose 21 hours  
EN, LI, TL 5xx-6xx  
EN694 Thesis (may be taken for 3 credit hours only (for those opting to write a thesis)  
Capstone – choose one:  
Thesis w/ Critical Introduction, including reflection  
Comprehensive Exam including reflection question  
Portfolio (qualifying paper including reflection essay  
Teaching Portfolio including reflection essay

EXCEPTIONAL CHILD EDUCATION (MA)  
Department of Elementary, Early and Special Education  
Dr. Shonta Smith, Chairperson  
(573) 651-2444  
E-mail: smsmith@semo.edu  
Graduate Contact:  
Dr. Dixie McCollum

(573) 651-2122

E-mail: dgmccollum@semo.edu

30 Hours Required

Core Requirements:

CE614 Family/School Partnerships in Early Childhood (3)

OR

EX507 Family and Child with Exceptionalities (3)

EL615 Research in Action (3)

EX601 Educational Assessment Techniques (3)

GR698 Master's Final Comprehensive Examination (0)

Choose One Area of Emphasis:

AUTISM EMPHASIS

EX555 Introduction to Autism Spectrum Disorder (3)

EX556 Communication Interventions and Strategies for Individuals with Autism Spectrum Disorder (3)

EX557 Behavior Management and Interventions for Individuals with Autism Spectrum Disorder (3)

EX558 Research Autism Spectrum Disorders (3)

EX691 Transition Planning for Individuals with Exceptional Learning Needs (3)

EX693 Special Education and the Law (3)

Choose 3 hours:

EX618/EX619 Introduction to Children with Exceptionalities (2)/Introduction to Mild Moderate Cross Categorical Internship (1)

EX621/EX622 Behavior Intervention Strategies (2)/ Behavior Intervention Strategies Internship (1)

EARLY CHILDHOOD SPECIAL EDUCATION EMPHASIS

CE530 Foundation of Early Childhood and Special Education (3)

CE605 Issues and Trends in Early Childhood Education (3)

CE634 Assessing Young Children's Learning and Development (3)

EX693 Special Education and the Law (3)

Choose three hours:

EX555 Introduction to Autism Spectrum Disorder (3)

EL648 Dyslexia and Reading Disabilities (3)

Choose three hours:

EX556 Communication Interventions and Strategies for Individuals with Autism Spectrum Disorder (3)

EX602 Language Acquisition for the Child with Exceptionalities (3)

Choose three hours:

EX557 Behavior Management and Interventions for Individuals with Autism Spectrum Disorder (3)

OR

EX621 Behavior Intervention Strategies (2)

AND

EX622 Behavior Intervention Strategies Internship (1)

MILD/MODERATE CROSS-CATEGORICAL EMPHASIS

EL606 Curriculum Construction (Elementary) (3)

EX602 Language Acquisition for the Child with Exceptionalities (3)

EX618 Intro to Children with Exceptionalities (2)

EX619 Introduction to Mild Moderate Cross Categorical Internship (1)

EX621 Behavior Intervention Strategies (2)

EX622 Behavior Intervention Strategies Internship (1)

EX652 Techniques of Teaching the Mild/Moderate Cross-Categorical (3)

EX691 Transition Planning for Individuals with Exceptional Learning Needs (3)  
EX693 Special Education and the Law (3)

HIGHER EDUCATION ADMINISTRATION (MA)  
Department of Leadership, Middle and Secondary Education  
(573) 651-2137

36 Hours Required

2.75 GPA

Core Requirements:

EA619 Research in the College Context (3)  
EA620 Foundations of Higher Education I (3)  
EA623 Principles and Practices in Higher Education (3)  
EA624 Theories of Collegiate Student Development (3)  
EA629 Internship in Higher Education (3)\*  
EA633 Legal Aspects in Higher Education (3)  
PY571 Introductory Behavioral Statistics (3)

Choose 15 hours:

EA507 School and Campus Safety (3)  
EA615 Wellness Issues in Higher Education (3)  
EA616 Enrollment Management in Higher Education (3)  
EA621 Finance and Assessment in Higher Education (3)  
EA622 Foundations of Higher Education II: Leadership (3)  
EA626 Introduction to Student Personnel (3)  
EA628 Teaching in Higher Education (3)  
EA629 Internship in Higher Education (3)\*+  
EA632 The Community College (3)  
EA638 Women in Higher Education (3)  
EA639 Ethics in Higher Education (3)  
EA643 Current Issues in Higher Education (3)  
EA670 Higher Education Capstone (3)  
SM540 Legal Aspects of Sport and Physical Activity (3)  
SM570 Management and Leadership in Sport Organization (3)  
SM610 Principles and Practice of Sport Management (3)  
SM612 Topics, Issues, and Trends in Sport (3)  
SM655 Design and Operation of Sport Related Facilities (3)

\*Course is repeatable

+Second internship in higher education

INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY (MA)  
Department of Psychology and Counseling  
Dr. Jeremy Heider, Graduate Program Coordinator  
(573)651-2437

E-mail: [jheider@semo.edu](mailto:jheider@semo.edu)

42 Hours Required

PY526 Consumer Psychology (3)  
PY540 Personnel Psychology (3)  
PY556 Organizational Psychology (3)  
PY557 Psychometrics (3)  
PY561 Advanced Social Psychology (3)  
PY571 Introductory Behavioral Statistics (3)  
PY575 Theories of Leadership (3)  
PY657 Psychology of Stereotyping and Prejudice (3)  
PY670 Job Analysis and Compensation (3)  
PY671 Design and Analysis II (3)  
PY675 Legal and Ethical Considerations in Industrial-Organizational Psychology (3)  
PY681 Program Design and Evaluation (3)  
Choose one six hour option:  
PY696 Thesis Research (3)  
    AND  
PY697 Thesis Writing (3)  
    OR  
PY699 Internship in Industrial-Organizational Psychology (6)

MENTAL HEALTH COUNSELING (MA)  
Department of Psychology and Counseling  
Dr. Kirsten LaMantia, Graduate Program Coordinator  
(573) 651-2138  
E-mail: [klamantia@semo.edu](mailto:klamantia@semo.edu)

60 Hours Required

3.00 GPA Required

Core Requirements:

CP610 Counseling Orientation and Ethics (3)  
CP611 Developmental Theories (3)  
CP612 Counseling Theories (3)  
CP613 Social and Cultural Counseling (3)  
CP614 Counseling Skills (3)  
CP615 Career Development (3)  
CP616 Group Counseling (3)  
CP617 Assessment in Counseling (3)  
CP631 Crisis Intervention and Consultation (3)  
CP640 Foundations of Mental Health Counseling (3)  
CP641 Mental Health Systems (3)  
CP643 Psychodiagnostics and Treatment (3)  
CP645 Marriage and Family Counseling (3)  
CP661 Addictions Counseling (3)  
CP680 Counseling Practicum (3)  
CP686 Internship – Mental Health (3)  
CP687 Internship – Mental Health (3)  
CP688 Internship - Mental Health (3)  
CP691 Research Methods and Program Evaluation in Counseling (3)

### 3 Hours of Electives

#### PUBLIC HISTORY (MA)

Department of History and Anthropology

Dr. Vicky McAlister Graduate Program Coordinator

(573) 651-2763

E-mail: vmcalister@semo.edu

#### 36 Hours Required

##### Required Courses:

GH600 Introduction to Public History (3)

GH610 Methods of Research in History (3)

US635 American Material Culture (3)

GH695-697 Thesis (6)

OR

HP640 Internship (3)

AND

HP645 Advanced Project in Applied History (3)

GR698 Master's Final Comprehensive Examination (0)

Choose One of the Following Option Areas:

##### DIGITAL HERITAGE OPTION

GG563 Advanced Topics in Geography (3)

GH550 Heritage Outreach (3)

HP575 Collections Management (3)

Choose one 12 hour track:

Computer Science track – 12 hours

CS500 Fundamentals of Programming (3)

CS533 Mobile Computing (3)

CS630 Current Topics in Human Computer Interaction (3)

3 hours of departmentally approved electives (3)

Educational Technology track – 12 hours

SE600 Multimedia in Education (3)

SE617 Foundations of Educational Technology (3)

SE683 Instructional Design & Technology (3)

3 hours of departmentally approved electives (3)

Multidisciplinary track – 12 hours

Select 3-9 hours from list of approved CS prefix or SE prefix courses

Select 3-9 hours from list of departmentally approved electives

Departmentally Approved Electives:

GH520 Techniques of Oral History (3)

GH550 Heritage Outreach (3)

HP525 Living History (3)

HP540 Topics in Historic Preservation (3)

HP552 Historic Preservation Field School (3)

HP575 Collections Management (3)

HP580 History of American Building Materials and Techniques (3)

HP585 History of American Architecture (3)

HP588 Legal and Economic Principles of Historic Preservation (3)  
HP589 Hist Preservation Based Econ Revitalization (3)  
HP630 Issues in HP: Archives, Museums, Hist Site Admin (3)  
HP640 Internship (3)  
HP645 Advanced Project in Applied History (3)  
HP650 Problems in Historic Preservation (3)  
EH620/US620/WH630 Seminar in History (3)  
HISTORIC PRESERVATION OPTION  
HP585 History of American Architecture (3)  
HP588 Legal and Economic Principles of Historic Preservation (3)  
EH620/US620/WH630 Seminar in History (3)  
Choose 12 hours from departmentally approved electives:  
Departmentally Approved Electives:  
GH520 Techniques of Oral History (3)  
GH550 Heritage Outreach (3)  
HP525 Living History (3)  
HP540 Topics in Historic Preservation (3)  
HP552 Historic Preservation Field School (3)  
HP575 Collections Management (3)  
HP580 History of American Building Materials and Techniques (3)  
HP589 Hist Preservation Based Econ Revitalization (3)  
HP630 Issues in HP: Archives, Museums, Hist Site Admin (3)  
HP640 Internship (3)  
HP645 Advanced Project in Applied History (3)  
HP650 Problems in Historic Preservation (3)  
EH620/US620/WH630 Seminar in History (3)

#### SCHOOL COUNSELING (MA)

Department of Psychology and Counseling  
Dr. Janice Ward, Graduate Program Coordinator  
(573) 651-2402  
E-mail: [jward@semo.edu](mailto:jward@semo.edu)

60 Hours Required

3.00 GPA Required

Required Courses:

CP610 Counseling Orientation and Ethics (3)  
CP611 Developmental Theories (3)  
CP612 Counseling Theories (3)  
CP613 Social & Cultural Aspects of Counseling (3)  
CP614 Counseling Skills (3)  
CP615 Career Development (3)  
CP616 Group Counseling (3)  
CP617 Assessment in Counseling (3)  
CP630 Foundations of School Counseling (3)  
CP631 Crisis Intervention and Consultation (3)  
CP632 Applications of School Counseling (3)

- CP643 Psychodiagnostics and Treatment (3)
- CP652 Introduction to Therapy (3)
- CP658 Advanced Play Therapy (3)
- CP661 Addictions Counseling (3)
- CP680 Counseling Practicum (3)
- CP682 Internship Elementary (3)
- CP683 Internship Secondary (3)
- CP684 Internship School Counseling (3)
- CP691 Research Methods and Program Evaluation in Counseling (3)

#### SECONDARY EDUCATION (MA)

Dr. Shannon Clapsaddle, Graduate Program Coordinator  
 (573) 651-2137  
 E-mail: sclapsaddle@semo.edu

30 Hours Required

3.25 GPA Required

Core Requirements – 15 hours:

- GR691 Methods of Research (3)
- GR698 Master's Final Comprehensive Examination (0)
- SE600 Multimedia in Education (3)\*
- SE638 Improvement of Instruction and Assessment (3)
- SE641 Multicultural Education (3)
- SE642 Secondary Curriculum Development (3)

\*May not be required for Educational Studies option, depending on content area chosen

Choose One of the Following Options

EDUCATIONAL STUDIES OPTION – 15-18 hours

15-18 hours in subject specialty area\*\*

- SE500 Technology in Instruction (3)
- SE602 Effective Literacy Instruction at the Middle and Secondary Level (3)

\*\*Specialty area to be chosen from: Art, Autism, English, Science

EDUCATIONAL TECHNOLOGY OPTION – 15 hours

- SE500 Technology in Instruction (3)
- SE617 Foundations of Educational Technology (3)
- SE618 Assessment Using Technology (3)
- SE683 Instructional Design and Technology (3)
- SE685 Planning for Tech in the School District/Organization (3)

#### TEACHER LEADERSHIP (MA)

Department of Leadership, Middle and Secondary Education  
 Dr. Margaret Noe, Graduate Program Coordinator  
 (573) 651-2137  
 E-mail: mnoe@semo.edu

30 Hours Required

3.0 GPA Required

Required Courses:

EA606 Intro to Teacher Leadership/Peer Coaching (3)

EA607 Leading with Data (3)

EA610 Diversity and Equity in Schools (3)

EA651 School Law (3)

EA655 Leadership for Effective School Operations (3)

EA660 Leadership in Special Education (3)

GR691 Methods of Research (3)

9 Hours of the Following:

CE614 Family/School Partnerships in Early Childhood (3)

EA507 School and Campus Safety (3)

EA625 Foundations of Educational Leadership (3)

EA634 School Supervision (3)

EA653 Curriculum for Leaders in Education (3)

ED506 Education, Law and Society (3)

EF690 Foundations of Curriculum Development (3)

EL624 Effective Literacy Leadership (3)

EX602 Language Acquisition for the Child with Exceptionalities (3)

EX618/619 Introduction to Children with Exceptionalities (2)/Introduction to Mild Moderate Cross  
Categorical Internship (1)

EX621/622 Behavior Intervention Strategies (2)/ Behavior Intervention Strategies Internship (1)

EX691 Transition Planning for Individuals with Exceptional Learning Needs (3)

SE600 Multimedia in Education (3)

SE617 Foundations of Educational Technology (3)

SE641 Teaching in a Multicultural Society (3)

SE683 Instructional Design & Technology (3)

SE685 Planning for Tech in the School District/Organization (3)

TESOL (MA)

Department of English

Dr. Irina Ustinova, Graduate Program Coordinator

(573) 986-6872

E-mail: iustinova@semo.edu

33 Hours Required

Core Requirements:

EN686 Sociolinguistics (3)

TL525 Theories of ESL/EFL Learning (3)

TL530 Practicum in TESOL (3)

TL585 Methods of Techniques of TESOL (3)

TL601 Research Methods in TESOL (3)

TL620 Approaches to the Teaching of Grammar (3)

TL625 Materials Dev & Assess Tools for TESOL (3)

TL630 Special Problems in TESOL (3)

TL648 Foundations in Linguistics (3)

Choose 6 Hours From the Following:

EN606 Topics, Issues and Trends in English (3)  
TL610 Developing Intercultural Awareness and Competence (3)  
TL650 Strat/Tech Teaching Acad Lang Skills to ELLs (3)  
TL652 Computer Asstd Language Learning (3)  
XXxxx Appropriate course in field of interest, chosen with advisor approval

#### MASTER OF ARTS IN TEACHING

##### STEM CONTENT (MAT)

Department of Leadership, Middle and Secondary Education  
Dr. Trudy Giasi, Graduate Program Coordinator  
(573) 651-5017  
E-mail: [tgiasi@semo.edu](mailto:tgiasi@semo.edu)

##### 33 Hours Required

SE602 Effect Lit Instr Mid/Sec Levels (3)  
SE612 Respon Lit Mid/High Schl Stu w/ Acad Challenges (3)  
SE650 Intro to Teach Mthds Mid/Sec Schools (3)  
SE651 Intro Prac 1 in Mid/Sec Schools (3)  
SE654 Adv Mthds Teach Mid/Sec Schools (3)  
SE655 Tech of Teach STEM Content (3)  
SE660 Interm Prac 2 in Mid/Sec Schools (3)  
SE670 Internship Middle/Secondary Schools (8)  
Choose 4 hours:  
SE652 Interm Mthds of Teach in Middle Schools (4)  
SE653 Interm Mthds of Teach in Sec Schools (4)

#### MASTER OF BUSINESS ADMINISTRATION

##### MASTER OF BUSINESS ADMINISTRATION (MBA)

Harrison College of Business and Computing  
Director of Graduate Programs in Business  
Dr. Gillian Nicholls  
(573) 651-5116  
[mba@semo.edu](mailto:mba@semo.edu)

##### 33 Hours Required

##### Common Course Requirements:

BA600 Organizational Behavior in Practice (3)  
BA620 Quantitative & Qualitative Research Methods (3)  
BA630 Integrated Decision Information Systems (3)  
BA650 Strategic Decision Making (3)\*  
BA651 Strategic Marketing (3)  
BA660 Strategic Cost Analysis & Financial Applications (3)\*\*  
BA668 The Financial Environment (3)

\*Must complete 18 hours prior to completing the capstone course

\*\*Choose an alternative course taught using USA GAAP standards from among the electives with advice of advisor if undergraduate Accounting major was completed.

Choose One of the Following Options:

ACCOUNTING OPTION

Choose 3 hours from:

- AC534 Financial Accounting/Reporting III (3)
- AC537 Advanced Auditing/Assurance Services (3)
- AC545 Taxation of Business Entities (3)

Choose 9 hours from:

- AC534 Financial Accounting/Reporting III (3)
- AC537 Advanced Auditing/Assurance Services (3)
- AC540 International Perspectives Accounting (3)
- AC545 Taxation of Business Entities (3)
- AC548 Government & Not-for-Profit Accounting (3)
- AC550 Fraud Exam & Forensic Accounting (3)
- AC555 Forensic Accounting Analytics (3)
- BA657 Applied Research Project (3)#
- AC5xx Course not chosen above (3)

#Must be in the accounting area

ENTREPRENEURSHIP OPTION

Choose 12 hours from:

- BA641 Entrepreneurship (3)
- BA657 Applied Research Project (3)@
- ER521 Topics in Entrepreneurship (3)
- ER531 Creative Problem Solving in Business (3)
- ER551 Managing & Growing New Ventures (3)
- ER561 Business Planning for New Ventures (3)

@Must be in the entrepreneurship area

ENVIRONMENTAL MANAGEMENT OPTION

- EV661 Business Strategies for Corporate Environmental Management (3)

Choose 9 hours from:

- BA657 Applied Research Project (3)%
- EV551 Hazardous Material Assessments (3)
- EV653 Occupational Health (3)
- EV654 Risk Assessment Applications (3)
- EV655 Industrial Hygiene (3)
- EV660 Introduction to Toxicology (3)

%Must be in the environmental management area

FINANCIAL MANAGEMENT OPTION

Required courses:

- BA665 Financial Institutions, Credit Markets, and Regulatory Policy (3)
- FI540 International Finance (3)
- FI568 Portfolio Seminar (3)
- FI5xx Financial Policy (3)

OR

- BA657 Applied Research Project (3)^

^Must be in the financial management area

#### GENERAL MANAGEMENT OPTION

Choose 12 Hours From:

XXxxx Any AC, BA, EC, ER, FI, MG, MI, MK course at the 500-600 level\*

\*Minimum of 18 hours in degree program must be at 600 level

#### HEALTH ADMINISTRATION OPTION

Choose 12 hours from:

BA657 Applied Research Project (3)+

EC585 Healthcare Economics (3)

HA510 Healthcare Operations (3)

HA520 Intro to Healthcare Quality (3)

HA540 Healthcare Informatics (3)

HA580 Healthcare Strategy (3)

HA582 Healthcare Budgeting and Reimbursement (3)

HA585 Marketing for Health Services Organizations (3)

HA681 Health Administration Policy (3)

+Must be in the health administration area

#### INDUSTRIAL MANAGEMENT OPTION

Choose 12 hours from:

BA657 Applied Research Project (3)&

FM504 Facilities Management (3)

FM554 Facilities Operation and Supervision (3)

IM600 Managing Technology Innovation (3)

IM601 Industrial Safety and Ergonomics (3)

IM602 Advanced Quality Concepts (3)

IM603 Technology Supervision in a Diverse Workplace (3)

IM606 Knowledge Management (3)

&Must be in the industrial management area

#### INTERNATIONAL BUSINESS OPTION

BA663 International Business Strategies (3)

Choose 3-6 hours from:

AC540 International Perspectives in Accounting (3)

EC580 International Economics (3)

FI540 International Finance (3)

Choose 3-6 hours from:

BA657 Applied Research Project (3)<

BL560 International Business Law (3)

MG560 International Management (3)

MK560 International Marketing (3)

9 Hours of University foreign language or equivalent proficiency

<Must be in the international business area

#### MASTER OF NATURAL SCIENCE

##### BIOLOGY (MNS)

Department of Biology

Dr. Timothy Judd, Department Chairperson

(573) 651-2170

E-mail: tjudd@semo.edu

32 Hours Required

Required Courses:

BI689 Graduate Seminar I (1)

BI690 Graduate Seminar II (1)

Complementary Area:

6 Hours from any one department outside of Biology

Choose One of the Following Options

THESIS OPTION:

Choose 3-6 hours from the following:

BI694 Thesis (3)

BI696 Thesis (2)

BI697 Thesis (1)

13-16 Hours of Biology Electives

2-8 Hours of Electives

NON-THESIS OPTION:

16 Hours of Biology Electives

8 Hours of Electives

## MASTER OF PUBLIC ADMINISTRATION

MASTER OF PUBLIC ADMINISTRATION (MPA)

Department of Political Science, Philosophy and Religion

Dr. Jeremy Walling, Graduate Program Coordinator

(573) 651-2691

E-mail: jwalling@semo.edu

36 Hours Required

Core Requirements:

PS502 Fundamentals of Public Administration (3)

PS505 Organizational Theory and Behavior (3)

PS518 Public Policy Analysis (3)

PS545 Research Methods (3)

PS603 Public Personnel Administration (3)

PS615 Government Budgeting Process (3)

PS655 Federalism (3)

PS697 Internship (3)

OR

3 Hours Thesis

Choose 12 Hours From:

AC548 Government/Not-for-Profit Accounting (3)

EC525 Public Policy Economics (3)

PS625 Administrative Law (3)

PS689 Independent Study in Political Science (3)

PS691-696 Topics in Political Science (3)

PY571 Introductory Behavioral Statistics (3)

PY650 Organizations as Open Systems (3)

SC560 Organizational Communication (3)

## MASTER OF SCIENCE

### APPLIED COMPUTER SCIENCE (MS)

Department of Computer Science

(573) 651-2244

#### 30 Hours Required

##### Core Requirements

CY501 Introduction to Cybersecurity (3)

CS506 Distributed Cloud Computing (3)

CS591 Advanced Artificial Intelligence (3)

CS605 Research Methods (3)

CS609 Advanced Programming Languages (3)

CS630 Current Topics in Human Computer Interaction (3)

Choose one thesis option:

THESIS OPTION - 12 hours

Electives - Choose courses with advisor

CS/CY5xx-6xx – choose 6 hours\*

CS697 Thesis Research I (3)

CS698 Thesis Research II (3)

GR699 Master's Oral Examination (0)

NON-THESIS OPTION - 12 hours

CS/CY5xx-6xx – choose 12 hours\*

CS690 Graduate Project (0)

GR698 Master's Final Comprehensive Examination (0)

Electives may be chosen from the following with the advice of advisor:

CS505 Data Mining (3)

CS533 Mobile Computing (3)

CS560 Computer Architecture (3)

CS575 Advanced Web Development (3)

CS580 Advanced Robotics (3)

CS581 Advanced Network Programming (3)

CS585 Formal Systems and Modeling (3)

CS603 Introduction to Data Analytics (3)

CS612 Simulation and Modeling for Computing (3)

CS631 Advanced Software Engineering (3)

CS632 Emerging and Converging Technologies and Computing (3)

CS633 Digital Signal and Image Processing (3)

CS634 Machine Learning (3)

CS640 Advanced Database Systems (3)

CS645 Internet of Things (3)

CS650 Theory of Computation (3)

CS653 Special Topics (3)

CS693 Independent Study (3)

CS699 Internship (3)

CY510 Info Security and Assurance (3)  
CY520 Info Security in System Admin (3)  
CY610 Web Application Security (3)  
CY620 Advanced Computer Forensics (3)  
XX5xx/6xx Any relevant course from other departments and listed as electives – up to 6 hours

#### APPLIED NUTRITION (MS)

Department of Kinesiology, Nutrition, and Recreation  
Joel Ramdial, Graduate Program Coordinator  
(573) 986-2919  
E-mail: jramdial@semo.edu

#### 36 Hours Required

FN600 Advanced Application of Medical Nutrition Therapy (3)  
FN607 Food Science and Technology (3)  
FN610 Strategic Management of Food Service Operations (3)  
FN611 Foundations in Dietetics Practice (3)  
FN615 Culinary Nutrition (3)  
FN617 Applied Statistics in Health Sciences (3)  
FN619 Metabolic Considerations in Performance and Wellness Nutrition (3)  
FN620 Community Nutrition Programming: Advanced Concepts and Application (3)  
FN622 Nutrition Counseling and Education: Advanced Concepts and Application (3)  
FN624 Research Methodology (3)  
FN628 Applied Nutrition Field Experience I (1)  
FN629 Applied Nutrition Field Experience II (1)  
FN645 Capstone Project in Applied Nutrition (1)  
FN650 Professional Skills and Emerging Trends in Dietetics Practice (3)

#### ATHLETIC TRAINING (MS)

Department of Kinesiology, Nutrition, and Recreation  
Kyle Schneider, Program Director  
(573)651-5193  
E-mail: kschneider@semo.edu

#### 49 Hours Required

FN637 Research Design and Evaluation (3)  
PY571 Introductory Behavioral Statistics (3)  
TX521 Foundations in Athletic Training (2)  
TX530 Current Research in Athletic Training (1)  
TX535 Principles of Injury Prevention (1)  
TX550 Principles of Emergency Care (2)  
TX551 Procedures in Athletic Training (2)  
TX580 Clinical Experience in Athletic Training 1 (1)  
TX581 Clinical Experience in Athletic Training (2)  
TX640 General Medical Concerns in Athletic Training (3)  
TX621 Musculoskeletal Assessment I (3)

TX622 Musculoskeletal Assessment II (3)  
TX650 Therapeutic Interventions I (3)  
TX651 Therapeutic Interventions II (3)  
TX660 Administration & Professional Responsibility in Athletic Training (3)  
TX670 Applied Research in Athletic Training (2)  
TX680 Clinical Experience in Athletic Training III (1)  
TX681 Immersive Clinical Experience (3)  
TX682 Clinical Experience in Athletic Training IV (3)  
TX683 Clinical Experience in Athletic Training V (3)  
TX699 Seminar in Athletic Training (2)

#### CRIMINAL JUSTICE (MS)

Department of Criminal Justice, Social Work and Sociology  
(573) 651-2541

E-mail: cjsws@semo.edu

36 Hours Required

Core Requirements

CJ505 Social Inequality (3)  
CJ520 Law & Social Control (3)  
CJ601 Research Methodology in Criminal Justice (3)  
CJ615 Theories of Crime (3)  
CJ626 Statistical Analysis in Criminal Justice (3)

Choose 15 hours from the following:

CJ510 Comparative Criminal Justice Systems (3)  
CJ519 Restorative Justice (3)  
CJ525 Crime and Criminal Justice Policy (3)  
CJ540 Ethics in Criminal Justice (3)  
CJ610 Seminar in Law Enforcement (3)  
CJ625 Adult Correctional Org and Admin (3)  
CJ630 Contemporary Juvenile Justice (3)  
CJ635 Civil Law and Liability (3)  
CJ641 Death Penalty in America (3)  
CJ693 Independent Study in Criminal Justice (3)  
CJ651 Special Topics in Criminal Justice (3)  
CJ645 Policy Analysis & Evaluation (3)  
CJ699 Criminal Justice Internship (3-6)  
CJ834 Field Experience in Correctional Institutions (3)

Choose One of the Capstone Options:

Option 1

CJ694 Thesis in Criminal Justice (3)  
CJ695 Thesis in Criminal Justice Second Semester (3)

Option 2

CJ696 Internship Capstone I (3)  
CJ697 Internship Capstone II (3)

Option 3

CJ650 Seminar Criminal Justice Leadership & Practice (3)

Choose one course:

CJ525 Crime and Criminal Justice Public Policy (3)  
CJ645 Policy Analysis and Evaluation (3)

CYBERSECURITY (MS)  
Department of Computer Science  
(573) 651-2244

30 Hours Required

Core Requirements

CY501 Introduction to Cybersecurity (3)  
CY510 Information Security and Assurance (3)  
CY520 Info Security in System Admin (3)  
CY530 Computer Network Security and Defense (3)  
MA664 Computational Cryptography (3)

Choose one option:

THESIS OPTION

CY655 Research Methods in Cybersecurity (3)  
CY691 Thesis Research I (3)  
CY692 Thesis Research II (3)

GR699 Master's Oral Examination (0)

Choose 6 hours of electives from the list below; at least 3 hours must be at the 600 level (6)

NON-THESIS OPTION

CY690 Graduate Project (0)  
GR698 Master's Final Comprehensive Examination (0)

Choose 15 hours of electives from the list below; at least 2 hours must be at the 600 level (15)

Electives may be chosen from the following:

CS506 Distributed Cloud Computing (3)  
CY610 Web Application Security (3)  
CY620 Advanced Computer Forensics (3)  
CY643 Independent Study (3)\*  
CY650 Legal, Risk and Compliance for Security (3)  
CY653 Special Topics in Cybersecurity (3)\*  
CY660 Cyber Operations (3)  
CY662 Ethical Hacking (3)  
CY670 Secure Operating Environments (3)  
CY699 Internship (3)\*

MA510 Mathematical Foundations (3)

TN562 Introduction to Networks (3)

TN564 Routing and Switching Essentials (3)

\*May be taken once for credit on program

ENVIRONMENTAL SCIENCE (MS)  
College of Science, Technology, Engineering, & Mathematics  
Environmental Science Program  
Dr. John C. Kraemer, Graduate Coordinator  
(573) 651-2355,  
Email: jkraemer@semo.edu

32 Hours Required

COURSE REQUIREMENTS

12 Hours of Environmental Science Electives

14 Hours of Electives

Choose One of the Following Options:

THESIS RESEARCH OPTION

EV697-EV699 Thesis (6)

NON-THESIS OPTION

EV681-EV683 Environ Science Internship (6)

RESEARCH OPTION

EV691-EV693 Environ Science Research (6)

HEALTHCARE MANAGEMENT (MS)

Harrison College of Business and Computing

Director of Graduate Programs in Business

Dr. Gillian Nicholls

(573) 651-5116

E-Mail: mshcm@semo.edu

30 Hours Required

Core Requirements:

BA600 Organizational Behavior in Practice (3)

BA656 Applied Human Resource Management (3)

HA620 Research Methods in Healthcare (3)

HA681 Health Admin Policy (3)

Choose 3 hours:

HA657 Applied Research Project in Healthcare (3)

HA658 Internship in Healthcare (3)

Choose One of the Following Options:

ADMINISTRATION

EC585 Healthcare Economics (3)

OR

HA550 Healthcare Risk Management (3)

HA510 Healthcare Operations (3)

HA582 Healthcare Budgeting and Reimbursement (3)

HA585 Marketing for Health Services Organizations (3)

HA5xx-6xx – choose 3 hours

INFORMATICS

BA630 Integrated Decision Information Systems (3)

HA520 Introduction to Healthcare Quality (3)

HA540 Healthcare Informatics (3)

HA545 Healthcare Database Systems (3)

HA5xx-6xx – choose 3 hours

QUALITY & PATIENT SAFETY

HA520 Introduction to Healthcare Quality (3)

HA525 Advanced Healthcare Quality (3)

HA530 Introduction to Patient Safety (3)

HA535 Advanced Patient Safety (3)

HA5xx-6xx – choose 3 hours

GENERAL

Choose 5 courses from options above. At least 3 options must be represented.

MANAGEMENT (MS)

Harrison College of Business and Computing

Director of Graduate Programs in Business

Dr. Gillian Nicholls

(573) 651-5116

msm@semo.edu

30 Hours Required

Core Requirements:

BA600 Organizational Behavior in Practice (3)

BA620 Quantitative and Qualitative Research Methods (3)

BA641 Entrepreneurship (3)

BA656 Applied Human Resource Management (3)

BA664 Organizational Leadership (3)

BA667 Liability Risks in Products and Services (3)

MG562 Organizational Theory and Design (3)

Choose 9 hours:

BA657 Applied Research Project (3)

BA661 External Environment of Business (3)

BA662 Contemporary Issues in Business (3)

BA671 Business Topics Seminar (1-3)

ER521 Topics in Entrepreneurship (3)

ER531 Creative Problem Solving in Business (3)

ER551 Managing and Growing the New Venture (3)

ER561 Business Planning for New Ventures (3)

MG5xx Management 500 level course (3)

NUTRITION AND EXERCISE SCIENCE (MS)

Department of Kinesiology, Nutrition, and Recreation

Dr. Jeremy Barnes, Graduate Program Coordinator

(573) 651-2782

E-mail: jbarnes@semo.edu

39 Hours Required

Core Requirements:

FN530 Pathophysiology: Implications for Nutrition and Exercise Science (3)

FN550 Vitamin Metabolism (3)

FN637 Research Design and Evaluation (3)

FN/HL690 Seminar in Nutrition and Exercise Science (3)

HL601 Physiology of Exercise (3)  
HL603 Cardiovascular Exercise Physiology (3)  
HL621 Exercise in Health and Disease (3)  
PY571 Introductory Behavioral Statistics (3)  
3 Hours of HL/FN Electives  
Choose either thesis or non-thesis option:  
NON-THESIS OPTION:  
HE694 Thesis (3)  
HE695 Thesis (3)  
6 hours of electives  
NON-THESIS OPTION:  
FN/HL699 Internship in Nutrition and Exercise Science (3)  
9 Hours of Electives

TECHNOLOGY MANAGEMENT (MS)  
Department of Engineering and Technology  
Dr. Brad Deken, Chairperson and Graduate Program Coordinator  
(573) 651-2104  
E-Mail: bdeken@semo.edu

33-36 Hours Required

FM504 Facilities Management (3)  
IM600 Managing Technology Innovation (3)  
IM602 Advanced Quality Concepts (3)  
IM603 Technology Supervision in a Diverse Workplace (3)  
IM605 Innovation for a Lean Enterprise (3)  
IM606 Knowledge Management (3)  
IM691 Understanding Graduate Research (3)

CHOOSE ONE TRACK:

Class Track:

IM692 Modeling and Simulation (3)  
GR698 Master's Final Comprehensive Examination (0)  
Electives, chosen from list below (12)

Project Track:

IM693 Applied Research Project (3)  
GR698 or GR699 Master's Final Comprehensive or Oral Examination (0)  
Electives, chosen from list below (9)

Thesis Track:

IM694 Thesis (3)  
GR698 or GR699 Master's Final Comprehensive or Oral Examination (0)  
Electives, chosen from list below (9)

Choose 9-12 hours:

Any course with a CM, ET, FM, IM, MN, TN prefix at the graduate level (500 or higher). A limited number of courses outside of these prefixes may be allowed with departmental approval. Possible elective courses include:

CM510 Building Information Modeling (3)  
ET568 Industrial Controls (3)

ET570 Energy Management (3)  
EV551 Hazardous Material Assessment (3)  
EV653 Occupational Health (3)  
EV654 Risk Assessment Applications (3)  
EV655 Industrial Hygiene (3)  
EV660 Introduction to Toxicology (3)  
EV661 Business Strategies for Corporate Environmental Management (3)  
IM506 Projects in Industrial & Engineering Technology (3)  
IM515 Advanced Technical Communication (3)  
IM516 Documenting & Presenting Technical Instructions and Proposals (3)  
IM517 Software in Technical Documents (3)  
IM518 Advanced Technical Document Design, Organization and Graphics (3)  
IM520 Technical Training & Development (3)  
IM521 Technical Change & Human Resource Development (3)  
IM522 Technical Leadership in Training & Development (3)  
IM523 Training & Development of Technical Teams (3)  
IM555 Sustainable & Green Manufacturing (3)  
IM585 Independent Study in Industrial Management (3)  
IM617 Manufacturing Resource Analysis (3)  
MN512 Advanced Manufacturing Systems (3)  
TN562 Networking I (3)  
TN563 LAN Switching (3)  
TN564 Telecommunications & Networking II (3)  
TN565 Network Management (3)  
TN566 IP Telephony (3)  
TN625 Wireless Communications & Mobile Data Networks (3)  
TN635 Network Security (3)

#### MASTER OF SCIENCE IN NURSING

#### MASTER OF SCIENCE IN NURSING (MSN)

Department of Nursing  
(573)651-986-6413

41-43 Hours Required

Core Requirements:

NS601 Informatics for Advanced Nursing Roles (3)  
NS602 Quality & Safety in Advanced Nursing Roles (3)  
NS603 Advanced Diagnostics & Reasoning for Primary Care (3)  
NS604 Evidence-Based Practice: Synthesis & Translation (3)  
NS610 Public Policy & Issues in Health Care (3)  
NS625 Advanced Pharmacology (4)  
NS628 Advanced Health Assessment (3.5)  
NS627 Advanced Health Assessment Practicum (0.5)  
NS636 Advanced Pathophysiology (4)  
NS642 Advanced Roles Seminar I (1)  
NS645 Advanced Roles Seminar II (1)

Choose One of the Following Options:

FAMILY NURSE PRACTITIONER OPTION

NS637 Primary Care I Practicum (4)

NS638 Primary Care I (3)\*

NS647 Primary Care II Practicum (4)

NS648 Primary Care II (3)

\*Requires an exam average of 80% or higher in NS625, NS628, NS636, NS638 and NS648. Requires a minimum grade of B in NS627, NS637, and NS647.

SPECIALIST DEGREES

SPECIALIST IN COUNSELING (Ed.S)

Department of Psychology and Counseling

Dr. Travis Smith, Graduate Program Coordinator

(573) 651-2137

E-mail: tsmith1@semo.edu

Requirements for a Specialist Degree

Counseling Core Required Prerequisites:

CP610 Counseling Orientation & Ethics (3)

CP611 Developmental Theories (3)

CP612 Counseling Theories (3)

CP613 Social & Cultural Aspects of Counseling (3)

CP614 Counseling Skills (3)

CP615 Career Development (3)

CP616 Group Counseling (3)

CP617 Assessment in Counseling (3)

CP631 Crisis Intervention and Consultation (3)

CP643 Psychodiagnostics and Treatment (3)

CP680 Counseling Practicum (3)

CP68X Internship (6)

Choose one course:

CP691 Research Methods and Program Evaluation in Counseling (3)

GR691 Methods of Research (3)

Education Specialist Core

CP733 Advanced Educational Processes (3)

CP771 Counselor Supervision (3)

CP788 Advanced Internship (6)

GR799 Specialist Oral Examination (0)

Electives:

CP630 Foundations of School Counseling (3)

CP640 Foundations of Mental Health Counseling (3)

CP 641 Mental Health Systems (3)

CP645 Marriage & Family Counseling (3)\*

CP652 Introduction to Play Therapy (3)\*

CP 661 Addictions Counseling (3)

CP664 Religion & Spirituality in Counseling (3)\*

CP735 Intelligence Testing (3)  
CP739 Testing Practicum (3)  
EA625 Foundations of Educational Leadership (3)  
EA651 School Law (3)  
EX601 Educational Assessment Techniques (3)  
EX635 Psychology & Education of Students with Special Needs (3)  
\*Recommended electives

Specialist Students also must have completed the requirements of a counseling major-school, community, or an acceptable counseling major from another master's program.

All students must have a minimum, including the Master's, of 72 credit hours to graduate from the Educational Specialist program.

#### TRANSFER OF CREDITS

A student with regular admission status may transfer up to 48 of the 72 semester hours required for the specialist's degree from other regionally-accredited institutions if the courses are a) appropriate, b) part of master's level work, c) on-campus courses, and d) approved by the student's advisor.

If the student earned his/her master's degree from Southeast Missouri State University, up to nine semester hours of such work may be transferred from regionally accredited institutions. Transfer, workshop, and independent study credit may not exceed nine semester hours. The last 16 hours toward the specialist degree must be taken from Southeast or receive prior permission from the advisor. This is required in order for Southeast to act as certifying agency or endorse the student for certification or licensure.

#### GRADUATION REQUIREMENTS

1. Has satisfactorily completed the program of study (a minimum of 72 hours of graduate credit including the master's degree with a GPA of at least 3.25),
2. Has passed a final comprehensive oral examination administered by the specialist's degree faculty, and
3. Has been approved for graduation by his/her advisor, Coordinator of the Specialist Program, and the Office of the Registrar.

SPECIALIST IN EDUCATIONAL ADMINISTRATION (Ed.S.)  
Department of Leadership, Middle and Secondary Education  
Dr. Margaret Dalton, Graduate Program Coordinator  
(573) 651-2137  
E-mail: mdalton@semo.edu

30 Hours Required

3.25 GPA Required

Choose One of the Following Specialty Areas:

#### SUPERINTENDENCY:

- EA707 Personnel Management in Education (3)
- EA709 Leadership and Communications (3)
- EA710 Leading District Improvement (3)
- EA737 Administration of Curriculum (3)
- EA743 Data for Continuous Improvement (3)
- EA755 Ethics, Law, and Policy (3)
- EA756 Financial Management and Leadership (3)

EA760 Internship I: Specialist Level (3)  
EA761 Internship II: Specialist Level (3)  
EA785 School Plant Planning and Operation (3)

ADVANCED PRINCIPALSHIP:

Required Courses:

EA707 Personnel Management and Leadership (3)  
EA709 Leadership & Communications (3)  
EA710 Leading District Improvement (3)  
EA737 Administration of Curriculum (3)  
EA743 Data for Continuous Improvement (3)  
EA755 Ethics, Law, and Policy (3)  
EA756 Financial Management & Leadership (3)  
EA785 School Plant Planning and Operation (3)  
Choose 6 hours from the following:  
EA718 Instructional Leadership Strategies (3)  
EA722 Equity in Educational Leadership Practices (3)  
EA727 Curriculum Development & Alignment (3)

SPECIALIST IN TEACHER LEADERSHIP (Ed.S.)

Department of Leadership, Middle and Secondary Education

Dr. Sherry Copeland, Graduate Program Coordinator

(573) 651-2137

E-mail: slcopeland@semo.edu

30 Hours Required

Required Courses:

EA709 Leadership & Communications (3)  
EA710 Leading District Improvement (3)  
EA718 Instructional Leadership Strategies II (3)  
EA721 Data Driven Leadership for School Improvement (3)  
EA722 Equity in Educ Leadership Practices (3)  
EA727 Curriculum Develop & Alignment (3)  
EA730 Internship for Teacher Leadership I (3)  
EA731 Internship for Teacher Leadership II (3)  
EA737 Administration of Curriculum (3)  
EA755 Ethics, Law & Policy (3)

NOTE: This program does not lead to administrative certification.

CERTIFICATE PROGRAMS

AUTISM SPECTRUM DISORDER

Department of Elementary, Early and Special Education

Dr. Shonta Smith, Chairperson

(573) 651-2444

E-mail: smsmith@semo.edu

Program Coordinator

Dr. Dixie McCollum  
(573) 651-2122  
E-mail: dgmccollum@semo.edu

12 Hours Required

EX555 Introduction to Autism Spectrum Disorder (3)  
EX556 Communication Interventions and Strategies for Individuals with Autism Spectrum Disorder (3)  
EX557 Behavior Management and Interventions for Individuals with Autism Spectrum Disorder (3)  
EX558 Research Autism Spectrum Disorders (3)

CLOUD COMPUTING CERTIFICATE  
Department of Computer Science  
(573) 651-2244

12 Hours Required

Required Courses:

CS500 Fundamentals of Programming (3)  
CS503 Fundamentals of Computing (3)  
CS506 Distributed Cloud Computing (3)  
Choose one of the following  
CS533 Mobile Computing (3)  
CS603 Introduction to Data Analytics (3)

CYBERSECURITY CERTIFICATE  
Department of Computer Science  
(573) 651-2244

12 Hours Required

Required Courses:

CS500 Fundamentals of Programming (3)  
CS503 Fundamentals of Computing (3)  
CY501 Introduction to Cybersecurity (3)  
CY520 Information Security in Systems Administration (3)

HEALTHCARE MANAGEMENT: ADMINISTRATION OPTION CERTIFICATE  
Harrison College of Business and Computing  
Director of Graduate Programs in Business  
Dr. Gillian Nicholls  
(573) 651-5116  
mshcm@semo.edu

12 Hours Required

Required Courses:

EC585 Healthcare Economics (3)  
HA510 Healthcare Operations (3)

HA582 Healthcare Budgeting and Reimbursement (3)  
HA585 Marketing for Health Services Organizations (3)

HEALTHCARE MANAGEMENT: GENERAL OPTION CERTIFICATE

Harrison College of Business and Computing

Director of Graduate Programs in Business

Dr. Gillian Nicholls

(573) 651-5116

mshcm@semo.edu

15 Hours Required

Required Courses:

HA510 Healthcare Operations (3)

HA580 Healthcare Strategy (3)

Choose one course from each of the four structured option areas:

Administration – choose one course

EC585 Healthcare Economics (3)

HA582 Healthcare Budgeting and Reimbursement (3)

HA681 Health Administration Policy (3)

Communication – choose one course

HA585 Marketing for Health Services Organizations (3)

HL672 Health Promotion Programs (3)

PY555 Health Psychology (3)

SC560 Organizational Communication (3)

Quality and Patient Safety – choose one course

HA520 Introduction to Healthcare Quality (3)

HA530 Introduction to Patient Safety (3)

HEALTHCARE MANAGEMENT: INFORMATICS OPTION CERTIFICATE

Harrison College of Business and Computing

Director of Graduate Programs in Business

Dr. Gillian Nicholls

(573) 651-5116

mshcm@semo.edu

12 Hours Required

Required Courses:

BA630 Integrated Decision Information Systems (3)

HA520 Introduction to Healthcare Quality (3)

HA540 Healthcare Informatics (3)

HA545 Healthcare Database Systems (3)

HEALTHCARE MANAGEMENT: QUALITY & PATIENT SAFETY OPTION CERTIFICATE

Harrison College of Business and Computing

Director of Graduate Programs in Business

Dr. Gillian Nicholls

(573) 651-5116

mshcm@semo.edu

15 Hours Required

Required Courses:

HA520 Introduction to Healthcare Quality (3)

HA525 Advanced Healthcare Quality (3)

HA530 Introduction to Patient Safety (3)

HA535 Advanced Patient Safety (3)

HA580 Healthcare Strategy (3)

NURSE EDUCATOR

Department of Nursing

(573)651-986-6413

12 Hours Required

NS681 Nursing Curriculum: Development, Assessment and Evaluation (3)

NS682 Assessment and Evaluation in Nursing Education (3)

NS683 Foundation of Teaching and Innovative Learning Strategies (3)

NS684 Synthesis of Nurse Educator Role Practicum (3)

SCHOOL PSYCHOLOGICAL EXAMINER CERTIFICATE

Department of Psychology and Counseling

Dr. Janice Ward, Graduate Program Coordinator

(573) 651-2402

E-mail: jward@semo.edu

24 Hours Required

Required Courses:

CP611 Developmental Theories (3)

CP617 Assessment in Counseling (3)

CP643 Psychodiagnostics & Treatment (3)

CP733 Adv Educational Processes (3)

CP735 Intelligence Testing (3)

CP739 Testing Practicum (3)

EX601 Educational Assessment Techniques (3)

PY571 Introductory Behavioral Statistics (3)

SPECIAL READING K-12 LICENSURE CERTIFICATE

Department of Elementary, Early and Special Education

Dr. Shonta Smith, Chairperson

(573) 651-2444

E-mail: smsmith@semo.edu

Program Coordinator

Dr. Debra Porter

E-mail: dporter@semo.edu

36 Hours Required

Required Courses:

EL623 Practicum II-Older Literacy Learners (3)

EL624 Literacy Leadership (3)

EL644 Understanding and Applying the Multidimensional Process of Literacy (3)

EL647 Diagnosis and Correction of Reading Difficulties (3)

EL648 Dyslexia and Reading Disabilities (3)

EX601 Educational Assessment Techniques (3)

SE602 Effect Literacy Instr Middle/Sec Level (3)

Choose one course:

EX390 Psych/Educ of Child w/ Exceptionalities (3)

EX635 Psych/Educ of Students w/ Special Needs (3)

Choose one course:

EL646 Inq/Research Models to Improve Rdg Instr (3)

EL680 Small Group Intervention Instruction (3)

EL681 Differ Literacy Instr for Classroom Teachers (3)

Choose one course:

EX302 Lang Development of Children w/ Exceptionalities (3)

CE370 Language Acquisition of the Young Child (3)

EX602 Language Acquisition for the Child with Exceptionalities (3)

Choose three hours:

EX304 Classroom & Behavior Management (3)

OR

EX621 Behavior Intervention Strategies (2)

AND

EX622 Behavior Intervention Strategies Internship (1)

Choose from the following:

EL611 Emergent Literacy Learners Practicum (3)

OR

EL630 Reading Recovery Seminar I (3)

AND

EL631 Reading Recovery Seminar II (3)

Additional requirement:

CF/PY120 The Child: Dev from Concept to Adolescent (3)

OR

PY222 Development of the Adolescent (3)

TRAUMA AND RESILIENCY STUDIES CERTIFICATE

Department of Child and Family Studies

Dr. Victor Wilburn, Chairperson

(573) 651-2109

E-mail: [vwilburn@semo.edu](mailto:vwilburn@semo.edu)

Program Coordinator

(573) 986-6814

E-mail: [afaber@semo.edu](mailto:afaber@semo.edu)

9 Hours Required

Required Courses:

CD602 Trauma-Informed Care (3)

ED535 The Trauma-Informed Professional (3)

Choose 3 hours:

CJ630 Contemporary Juvenile Justice (3)

CP631 Crisis Intervention & Consultation (3)

EA709 Leadership & Communication (3)

EX621 Behavior Intervention Strategies (3)

PS518 Public Policy Analysis (3)

## COURSE DESCRIPTIONS

### ACCOUNTING (AC)

- AC534. Financial Accounting & Reporting III. Business combinations, consolidated statements, partnerships, and not-for-profit accounting. Prerequisite: AC332 with minimum grade of C. (3)
- AC537. Advanced Auditing & Assurance Services. An in-depth examination of auditor legal liability, ethics, audit procedures, statistical sampling, & audit research using electronic databases & the Internet. Prerequisite: AC437 with minimum grade of C or consent of instructor. (3)
- AC540. International Perspectives in Accounting. An examination of accounting rules & practices of multinational enterprises throughout the world with special emphasis on harmonization, standardization, & disclosure requirements. Prerequisite: AC222 with a minimum grade of C. (3)
- AC545. Taxation of Business Entities. An examination of federal tax laws with emphasis on corporate taxpayers, partnerships, and fiduciaries. Prerequisite: Minimum grade of C in AC435 or consent of instructor. (3)
- AC548. Governmental and Not-for-Profit-Accounting. An introduction to the accounting principles and reporting practices of governments and not-for-profit organizations. Prerequisite: Minimum grade of C in AC222 (3)
- AC550. Fraud Examination and Forensic Accounting. In-depth study of fraud examination with focus on causes of fraud, controls to prevent fraud, company management and the accountant's role in deterring and detecting fraud. Prerequisites: AC 222 and AC 321 with minimum grade of C. (3)
- AC555. Forensic Accounting Analytics. Study of data analytics, with a focus on organizational data, to detect fraud and errors. Prerequisites: AC 222; MI 101; QM 257; with minimum grades of C. (3)
- AC631. Advanced Cost Analysis. Introduction & application of strategic cost/managerial accounting concepts & procedures. Prerequisites: AC331 with a minimum grade of C; BA660; or consent of instructor. (3)
- AC647. Emerging Issues in Accounting. Study and application of accounting theory to current and emerging issues in accounting practice. Prerequisite: AC331 with minimum grade of C. (3)

### AGRICULTURE (AG)

- AG515. Agribusiness Communication. Use of multimedia and emerging technology to engage customers and producers. Prerequisite: Admission to the MS Agribusiness program or consent of instructor. (3)
- AG550. Agribusiness Analysis. Organizational appraisal methods of maximization of human resource potential, capital efficiency and growth, and program outcomes. Prerequisite: Admission to the MS Agribusiness program or consent of instructor. (3)
- AG551. Water Management. Soil, Water, and Plant Relationships. Design and layout of farm drainage and irrigation systems. Prerequisite: AO215. (3)
- AG601. Contemporary and Emerging Issues in Agriculture. Examination of current and emerging issues in Agribusiness. Prerequisite: Admission to the MS Agribusiness program or consent of instructor. (3)
- AG608. Liability and Agribusiness Risk. Study of contracts, statutes, regulations and policies concerning agribusiness and entrepreneurial activity. Prerequisite: graduate student status. (3)
- AG633. Agricultural and Food Policy. Results and outcomes of policies and regulations related to farm, food quality and processing, natural resources trade and development. Prerequisites: AG245 or EC215; admission to the MS Agribusiness program. (3)
- AG647. Agribusiness Marketing. Examination of margins, derived demand applied to processing wholesale and retail; analysis, coordination, elasticity; forecasting and competition policies. Prerequisite: admission to a graduate program. (3)

#### AGRONOMY (AO)

AO555. Soil Classification and Resource Management. Classification of soils in terms of their physical, chemical and mineralogical composition. Interpretation of soils in terms of proper land use, with special attention to soil erosion. Two lectures; two-hour lab. Prerequisites: AO215 or GO110; CH181 or CH185. (3)

AO627. Soil Fertility and Plant Nutrition. Fundamentals and concepts of soil fertility and its evaluation related to soil management, plant nutrition, and maintenance. Two lectures; two-hour laboratory. Prerequisites: 1 year of general chemistry and concurrent enrollment in BI689/690 or equivalent. (3)

AO640. Agroecosystems Analysis Field Course. Whole-system approach to agriculture production, ecology, economics and food systems applied in a real-world field course experience. (3)

#### ANTHROPOLOGY (AN)

AN550. Historic Archaeology. Intensive examination of major issues in the development of historical archaeology, theoretical and methodological issues, and major areas of research. (3)

AN551. Historic Archaeology Field School. Historic archeological survey and excavation; intensive instruction in recovery and documentation of cultural remains; public interpretation of an excavation; practice in archival research. (6)

#### APPLIED BEHAVIOR ANALYSIS (AB)

AB531. Basic Principles in Applied Behavior Analysis. Survey of the concepts and principles of operant and respondent conditioning, and applications and research from the science of Applied Behavior Analysis. Prerequisite: Junior standing (60 undergraduate hours) or consent of instructor. (3)

AB532. Methods for Studying the Behavior of Individuals. Introduction to the fundamentals of single-case and behavior analytic research methods, including designing, conducting, and evaluating Applied Behavior Analysis research. Pre- or co-requisite: AB531. (3)

AB533. Applied Behavior Analysis I: Assessment and Skill Acquisition. ABA intervention course that reviews assessment and intervention methods used to select appropriate behavioral goals, define targets, and teach new skills. Prerequisite: AB532. (3)

AB534. Applied Behavior Analysis II: Functional Assessment and Behavior Reduction. ABA intervention course that reviews functional assessment and intervention methods for reducing behaviors when treating individuals with developmental disabilities. Prerequisite: AB532. (3)

AB535. Principles in Psychopharmacology. Survey of psychopharmacology principles and applications as it pertains to drug abuse and addiction as well as psychiatric disorders. (3)

AB537. Behavioral Consultation and Management. Principles and procedures for implementation and supervision of behavior analytic procedures at the individual and systems levels. (Required for BCBA certification). Prerequisites: AB 533; AB 534. (4)

AB601. Conceptual Topics in Behavior Analysis. Exploration of Skinner's writings and the foundations of radical behaviorism while considering issues of broad scientific, philosophic, and social significance. Prerequisite: AB531. May be repeated for up to 6 hours of credit. (3)

AB603 Ethics, Disciplinary Systems, and Professionalism in Applied Behavior Analysis. Introduction to the Professional and Ethical Compliance Code for Behavior Analysts, resolving ethical dilemmas, and professionalism in the workplace. Prerequisites: AB531; AB532; AB533; AB534; AB535; AB601. (3)

AB605. Research and Practice in Applied Behavior Analysis I. Principles, practices, and procedures for professional practice as a behavior analyst with an emphasis on critical thinking and synthesis of the behavior analytic literature. Corequisite: AB603. Prerequisites: AB533; AB534; AB535; AB601. (6)

AB607. Research and Practice in Applied Behavior Analysis II. Principles, practices, and procedures for professional practice as a behavior analyst with an emphasis on independent professional practice. Prerequisites: AB603; AB605. (6)

AB608. Research and Practice in Applied Behavior Analysis III. Principles, practices, and procedures for professional practice as a behavior analyst with an emphasis on independent professional practice. Prerequisite: AB607. (3)

#### ART (AR, AW)

AR501. Intaglio Printmaking. Introduction to basic yet diverse intaglio techniques and the development of a portfolio of prints using built, hand-drawn and photo plates. May be repeated for up to 9 hours of credit. (3)

AR502. Lithography. Techniques of stone and plate lithography and development of personal expression. (3)

AR541. Ceramics V. Preparation for a career as a ceramic artist: personal research and development of techniques, historical relevance, and concepts are emphasized. May be repeated for up to 9 hours of credit. Prerequisite: AR443 or consent of instructor. (3)

AR679. Independent Study in Art. This course is available to students only in selected circumstances where deemed appropriate by the Chair of the Department of Art and Design. May be repeated for up to 9 hours of credit. Prerequisites: Permission of chair with the consent of the faculty member of record. (3)

AR841. Raku Pottery Workshop. Workshop in the ancient tradition of Japanese Raku. Participants will experience the creation of Raku pottery from preparation of clay bodies through the exciting, sudden firing process. May be repeated for up to 12 hours of credit. (3)

AR847. Fibers Workshop. Introductory course to off loom fiber construction techniques. May be repeated for up to 6 hours of credit. (3)

AW841. Welded Sculpture Workshop. Introduction to arc welding of metal as a sculptural medium and the design and production of sculpture. May be repeated for up to 9 hours of credit. (3)

AW845. Computer Art. Explores creative digitally based art works using Adobe Photoshop, Adobe Illustrator and various scanning software. Use of Macintosh computer desirable, but not required. Basic skills and interest in creating art mandatory. May be repeated for up to 6 hours of credit. (3)

AW851. Painting Workshop. Investigation of painting mediums, techniques, and varying surfaces for pictorial creation. Imagery derived from a variety of themes including but not limited to: still life, plein air, portraiture, and found imagery. May be repeated for up to 6 hours of credit. (3)

#### ART HISTORY (AH)

AH510. Non-Western Art. Survey of historical and contemporary culture in Central Africa, India, Japan, China, the Middle East and Meso-America. (3)

AH511. American Art. Study of the major contributions of artists living in the U.S. from the time of the Native Americans to the present. (3)

AH512. Issues in Contemporary Art and Culture. Movements in painting, sculpture and architecture as developed in Europe and America beginning with the Armory Show of 1913 and including present trends. Prerequisite: AH 210 or AH 311; or consent of instructor. (3)

AH513. Northern Renaissance Art. Survey of the history of Northern Renaissance Art from 1350-1575. Pre- or co-requisite: AH 110 or EH 101 or LI 311. (3)

#### ATHLETIC TRAINING (TX)

TX521. Foundations in Athletic Training. Introduction into the history and profession of athletic training. Emphasis on becoming familiar with roles, functions, and professional preparation of Athletic Trainers. Prerequisite: Admission into MSAT program. (2)

TX530. Current Research in Athletic Training. In-depth analysis into current research topics in athletic training. Emphasis on evaluating research utilizing evidence-based principles. Prerequisite: Admission into MSAT program. (1)

TX535. Principles of Injury Prevention. Concepts of delivering and implementing injury prevention principles emphasis on taping, bracing and other prevention programs. Prerequisite: Admission into the MSAT program. (1)

TX550. Principles of Emergency Care. Concepts of treating and managing emergency conditions relating to physically active individuals. Concepts of referral, legal/ethical considerations will be discussed. Prerequisite: Admission into the MSAT program. (2)

TX551. Procedures in Athletic Training. Concepts relating to performing and applying standard medical procedures commonly required in various health care populations and settings. Prerequisite: Admission into the MSAT program. (2)

TX580. Clinical Experience in Athletic Training I. First of five clinical experience courses designed to provide students with experiential learning in athletic training. Focus on emergency care and injury prevention techniques. Prerequisites: TX535; TX550. (1)

TX581. Clinical Experience in Athletic Training II. Second of five clinical experience courses designed to provide students with experiential learning in athletic training. Focus on lower extremity evaluation. Prerequisite: TX580. (2)

TX621. Musculoskeletal Assessment Technique I. Instruction on proper methods of musculoskeletal examination techniques. Emphasis on pathomechanics, recognition, and evaluation of lower extremity injuries. Prerequisite: HL 511. (3)

TX622. Musculoskeletal Assessment Technique II. Instruction on proper methods of musculoskeletal examination techniques. Emphasis on pathomechanics, recognition, and evaluation of upper extremity injuries. Prerequisite: TX621. (3)

TX640. General Medical Concerns in Athletic Training. Principles related to general medical issues and pharmacological principles guiding athletic training, including legal and ethical principles. Prerequisite: TX551. (3)

TX650. Therapeutic Interventions in Athletic Training I. The underlying theories and application regarding the use of therapeutic modalities in athletic training practice. Prerequisite: TX621. (3)

TX651. Therapeutic Interventions in Athletic Training II. The underlying theories and application of the use of therapeutic exercise in athletic training practice. Prerequisite: TX650. (3)

TX660. Administration & Leadership in Athletic Training. Application of leadership techniques in professional responsibility, facility management, human resources, and resource management. Prerequisite: TX640. (3)

TX670. Applied Research in Athletic Training I. Introduction to the preparation and submission of a clinically relevant research project in athletic training. Prerequisite: PY571. Pre- or Co-requisite: FN637. (1)

TX671. Applied Research in Athletic Training II. The collection of data and information culminating in the submission of a clinically relevant athletic training research topic. Prerequisite: TX670. (1)

TX680. Clinical Experience in athletic Training III. Third of five clinical experience courses designed to provide students with experiential learning in athletic training. Focus on lower general medical evaluation. Prerequisite: TX581. (1)

TX681. Immersive Clinical Experience in Athletic Training. An immersive clinical experience designed to provide students with full-time experiential learning in athletic training. Prerequisite: TX581. (3)

TX682. Clinical Experience in Athletic Training IV. Fourth of five clinical experience courses designed to provide students with experiential learning in athletic training. Focus on upper and lower extremity evaluation. Prerequisite: TX581. (3)

TX683. Clinical Experience in Athletic Training V. Fifth of five clinical experience courses designed to provide students with experiential learning in athletic training. Focus on therapeutic interventions. Prerequisite: TX581. (4)

TX699. Seminar in Athletic Training. Capstone course to prepare students for professional practice through implementation of case studies and preparation for Board of Certification Exam. Prerequisite: TX671. (2)

## BIOLOGY (BI)

BI500. Fundamental Concepts of Bioenergetics. Fundamental principles of cell structure/function and metabolism as demonstrated in prokaryotic and eukaryotic microbes. Does not count toward completion of a graduate degree. Prerequisites: Admission to Graduate Study in Department of Biology; 30 semester hours of acceptable undergraduate credit in science and mathematics. Three hours lecture; one 2-hour lab. (3)

BI501. Fundamental Concepts of Genetics. Intermediate-level survey of modern genetics. Topics covered include enzymology of gene expression; introduction to gene regulation in prokaryotes and eukaryotes; techniques of DNA manipulation; cytogenetics; quantitative and population genetics. Does not count toward completion of a graduate degree. Prerequisites: Admission to Graduate Study in Department of Biology; 30 semester hours of acceptable undergraduate credit in science and mathematics. Three hours lecture; one 2-hour lab. (3)

BI502. Fundamental Concepts of Ecology. An introduction to the fundamental principles of ecology. Field trips outside of class time may be required. Does not count toward completion of a graduate degree. Prerequisites: Admission to Graduate Study in Department of Biology; 30 semester hours of acceptable undergraduate credit in science and mathematics. Two hours lecture; one 2-hour lab. (3)

BI503. Fundamental Concepts of Evolution. An introduction to historical biology, incorporating principles of ecology, systematics, biogeography, and basic principles of evolutionary biology. Does not count toward completion of a graduate degree. Prerequisites: Admission to Graduate Study in Department of Biology; 30 semester hours of acceptable undergraduate credit in science and mathematics. Three hours lecture. (3)

BI520. (Cross-listed as CH/PH520). Engaging Learners in Science. Interested in teaching science? Try your hand at engaging peers in lab and classroom guided by research on learning. Two lectures and one two-hour lab. Open to graduate students in the sciences. Prerequisites: Declared major in biology, chemistry or physics (course is not available for Physics minors); sophomore standing; completion of 100 level courses in the science major/interest in teaching. (3)

BI543/043. Pathogenic Microbiology. The study of the significant microorganisms with an emphasis on molecular mechanisms and treatments of disease. Three one-hour lectures; one two-hour lab. Prerequisite: BI 310 or BS 240. Co-requisite: BI 043. (4)

BI551. Biology Field Studies. Study of ecosystems and habitats not normally within the range of Southeast Missouri (e.g. grasslands, deserts, estuarine, and montane systems). Prerequisite: BI283. (1)

BI552. Biology Field Studies. (2)

BI553. Biology Field Studies. (3)

BI563/564/565. Experience in Museum Curation. Working in a biological museum collection with emphasis on identification, preservation and curation of biological museum specimens. Prerequisite: Consent of museum curator. Repeatable up to 6 hours. (1-3)

BI570. Development of Instructional Materials for Courses in the Biological Sciences. Independent study under the supervision of a member of the Department of Biology faculty. Students will design and develop instructional materials for a course in the Department of Biology with the expectation that such materials will be incorporated into the course. On demand. Prerequisite: BI283. (1)

BI589. Biological Research. Investigation of a research project with emphasis on development of controls, evaluation of results, and relation to current literature. Appropriate summarizing paper required. Prerequisite: BI283. Consent of instructor and department chairman (an abstract of the research problem must be submitted to the chairman.) Students are limited to a total of 6 credit hours of research during their program. (1)

BI590. Biological Research. (2)

BI591. Biological Research. (3)

BI600. (Cross-listed as EV600). Health Physics. Radiation physics and biology as related to safe use of ionizing radiation in therapeutic and diagnostic medicine, industry, and research. Prerequisites: BI283 or BS105; CH185 or PH120. Two hours lecture; one 2-hour lab. (3)

BI603. Medical Genetics. Critical reading of scientific literature examining molecular basis of human genetic disorders and importance of model organisms for studying disease. Prerequisites: BI283; CH341

BI604. Cell Biology. Dynamics of eukaryotic cellular function, molecule targeting, vesicular trafficking, signal transduction and molecular aspects of cell interactions. Prerequisites: BI283; CH341. Two hours lecture; one 2-hour lab. (3)

BI605. (Cross-listed as CH605 and EP605). Engineering in Science Education. Engineering in Science Education. Pedagogies, resources, assessments of engineering concepts and skills, lesson development, incorporation with existing content, peer teaching. Two lab hours. Prerequisite: Level 2 pedagogy course. (1)

BI613. Molecular Genetics. Advanced-level genetics. Topics include regulation of gene expression in prokaryotes and eukaryotes, techniques of DNA manipulation, and chromosome biology. Prerequisites: BI283; CH341. Three lectures. (3)

BI614. Current Problems in Cell and Molecular Biology. In-depth consideration of selected topics of current interest in cellular and molecular biology, with emphasis on problem solving and analysis of primary literature. Prerequisite: BI404 or BI413. Three hours lecture; one hour recitation. (3)

BI620. Management of Wildlife Populations. Introduction to theoretical principles and empirical bases for population management of wildlife, and applications of these principles. Basic concepts of population dynamics, estimation of population parameters, and population management. Examples emphasize North American species. Prerequisite: BI332. Weekend field trip may be required. (3)

BI621/021. Bacterial Genetics. Introduction to the genetics of bacteria and archaea. Examination of both traditional and modern methods. Three one-hour lectures and one two-hour lab. Prerequisites: BI310; CH341. Corequisite: BI021. (4)

BI625. (Cross-listed as EV625). GIS Planning for Emergency Management. This course introduces the current and potential roles of GIS in support of crisis (emergency) management activities at all geographic scales (local to international). These roles are considered at each of the four stages of crisis management and selected focus topics are considered in detail. Pre- or Co-requisites: BI/EV454; GO445. (3)

BI630. Management of Wildlife Habitat. Principles and practices of habitat management for wildlife in North America. Particular emphasis placed on habitat evaluations procedures. Prerequisite: BI332. Two hours lecture; one 2 hour lab. Weekend field trips may be required. (3)

BI632. Advanced Ecology. Study of the evolutionary interactions among organisms and their environments. Evolutionary stable strategies, life history and foraging strategies, population growth, intra- and interspecific interactions. Prerequisite: BI332. (3)

BI634. Marine Ecology and Conservation. Integration of advanced ecological processes and conservation principles that affect marine community structure, function, and services. Prerequisite: BI 348. (3)

BI 635. Conservation Biology. Discussion of ecological principles relating to conservation of biodiversity, with a review of social, political, and economic constraints. One weekend field trip is required. Prerequisite: BI332. (3)

BI 638. Biogeography. Geographical distribution of biological diversity. Application of theories and methods to explore spatial and temporal patterns of variation and biodiversity. Prerequisite: BI300 or BI332. (3)

BI640. Ecology and Management of Wetlands. General introduction to structure, function, classification, delineation, and biota of wetlands. Emphasis will be on the application of principles of wetland ecology to wetland management, with particular attention given to wetland types occurring in the Midwest. Prerequisite: BI332. One weekend field trip is required. Two hours lecture; one 2-hour lab. (3)

BI641. Virology. A course to acquaint students with the viruses, prions and viroids of animals, plants and bacteria with emphasis on their biochemical characteristics, techniques of study and medical and economical importance. Prerequisite: BI310. (3)

BI642/042. Immunology. An introduction to modern immunology with an emphasis on the underlying biochemical mechanisms. Three one-hour lecture; one two-hour lab. Prerequisite: BI310 or BS240. (4)

BI643. (Cross-listed as EV643). Epidemiology. Concepts, methods and applications of infectious disease, chronic disease and environmental epidemiology focused on epidemiological reasoning processes. Prerequisite: BI283. (3)

BI645. Microbial Physiology. A detailed consideration of prokaryotic structure and function, encompassing morphology, metabolism, genetics, and growth. Prerequisite: BI310 or BS240. Two hours lecture; one 2-hour lab. (3)

BI647. (Cross-listed as EV647). Fundamentals of Disaster/Emergency Management and Planning. This course concentrates on pre-emergency fundamentals critical in emergency management and disaster relief systems including mitigation, planning, and critical processes. The course covers issues associated with emergency planning up to the point that the emergency occurred and a discussion of the principles of sound response, coordinated relief, and orderly recovery. Prerequisite: BI/EV454. (3)

BI648. (Cross-listed as EV648). Disaster/Emergency Planning and Response. This course examines the differences between disasters and catastrophes. The issues of the magnitude of impacts on planning and response are addressed through longitudinal examination of national and international disaster response and planning case studies covering catastrophic level disasters. Prerequisites: BI/EV454; BI/EV447. (3)

BI649. (Cross-listed as EV649). Vulnerability, Risk Reduction, and Critical Incident Management. Course is designed to provide insight into the tasks, roles, and responsibilities required to design and conduct exercises as part of a long-term, carefully constructed plan to help a community prepare for disasters. Students will use community needs assessments to develop the case for exercises, design an exercise, and outline an evaluation plan aimed at improving competence in all emergency functions. Prerequisites: BI/EV454; BI/EV448. (3)

BI650. Investigative Molecular Biology and Biotechnology. Gene cloning and analysis in an investigative environment. DNA isolation, sequence analysis, recombinant construction, hybridization, library screening, PCR. Prerequisites: BI283; CH341. One hour lecture; two 2-hour labs. (3)

BI652. Freshwater Ecology. A comparative approach to the ecological study of freshwater systems, including the chemical, physical, and biological components of springs, streams, impoundments, and swamps. Prerequisite: BI310 or BO310 or ZO310. One lecture; two 2-hour labs. (3)

BI653. (Cross-listed as EV653). Occupational Health. Introduction to the factors influencing occupational incidents and the adverse interactions of environmental and occupational chemical/physical agents with humans. Prerequisites: Living Systems (BI or BS); CH181 or CH185. (3)

BI654. (Cross-listed as EV654). Risk Assessment Applications. Introduction to concepts, terminology, methods, and applications of qualitative and quantitative health and ecological risk assessment and risk communication. Prerequisites: Living Systems (BI or BS), CH181 or CH185; and MA134 or MA135; or MA139 or MA140. (3)

BI655. (Cross-listed as EV655). Industrial Hygiene. The study of chemical and physical hazards in the occupational environment and the methods used for their evaluation and control. Prerequisites: BI310; CH186; MA 134. (3)

BI656. (Cross-listed as EV656). Fundamental Risk Communication in Emergency Management. This course focuses on the art and science of risk communication within the context of natural disasters, disease outbreaks, and terrorism events. The course will address core principles of risk communication, special challenges associated with diverse audiences, and prepare students to create a crisis and emergency risk communication plan. Prerequisite: BI/EV454. (3)

BI658. Analytical Bioinformatics for Biology and Medicine. Analysis of large-scale molecular biology data. Databases and queries. Gene annotation. Sequence similarities and alignments. Protein structure/function prediction. Genomics, transcriptomics, proteomics. Prerequisite: BI283 or permission of instructor. (3)

BI660. (Cross-listed as EV660). Introduction to Toxicology. Introduction to the fundamental principles of toxicology, toxic agents, toxicity testing, mechanisms of toxicity, toxic effects, sources of exposure, and applications of toxicology. Pre-requisites: BI283 and CH185. (3)

BI669. Wildlife Toxicology. Introduction to the principles of environmental toxicology and discussion of the literature on biological effects of environmental toxicants on terrestrial vertebrate wildlife species. Prerequisites: BI283; CH185. (3)

BI684. Readings in Biology. Consideration in depth of subject matter ordinarily unavailable in the departmental curriculum through directed readings and discussion with the instructor. May be taken twice. Prerequisite: permission of the department chair. (1)

BI685. Topics in Biology. Consideration in-depth of subject matter that is not a part of the established departmental curriculum. Topics available can be obtained from the department chair. Prerequisite: As determined by the topic. (3)

BI688. Experimental Design. Introduction to the topic of research, the planning of research proposals, and the nature of quantitative biological principles (biometrics). One hour lecture; one 2-hour lab. (2)

BI689. Graduate Seminar I. To be taken during the first semester of course work on the MNS. Presentation and discussion of material dealing with current issues in biology including ethics, regulations and information resources. Prerequisite: Graduate standing. (1)

BI690. Graduate Seminar II. To be taken at end of program when student is preparing his/her thesis or graduate paper. Presentation and discussion of material dealing with current issues in biology. Prerequisite: BI 689. (1)

BI693. Readings in Biology. Consideration in depth of subject matter ordinarily unavailable in the departmental curriculum through reading and discussion of assigned material. Students are limited to a total of 6 credit hours of readings during their program. Permission of the department chair is required. (2)

BI694. Thesis. A written report based on independent investigation or the completion of a creative project. See Thesis Plan in the Graduate Bulletin for additional information. May be taken for 1, 2, or 3 hours of credit. A minimum of 3 hours credit for thesis is required with a maximum of 6 hours of credit allowed. Prerequisite: Admission to the graduate program in the Department of Biology; consent of the student's Thesis Committee. (3)

BI696. Thesis. May be repeated for up to 6 hours of credit. (2)

BI697. Thesis. May be repeated for up to 6 hours of credit. (1)

#### Biology - Gulf Coast

Southeast Missouri State University is affiliated with the University of Southern Mississippi's Gulf Coast Research Laboratory. Through their summer field program, they offer a variety of courses, for instance,

Barrier Island Ecology, Coastal Herpetology, Coastal Ornithology, Marine Mammals, or Shark Biology. For more information, contact the Department of Biology Office.

BI593. Special Problems in Marine Science. Special problems are research oriented and grades are based on reports submitted by students. Students wishing to take a special problems course are required to submit a brief proposal of planned study. (1)

BI594. Special Problems in Marine Science. (2)

BI595. Special Problems in Marine Science. (3)

BI596. Special Problems in Marine Science. (4)

BI597. Special Problems in Marine Science. (5)

BI598. Special Problems in Marine Science. (6)

#### BIOLOGICAL SCIENCE (BS)

BS618. Topics in Biology Education. Variable topics in biology education addressed using multiple investigation-rich and technology rich approaches adaptable for K-12 settings. May be repeated for up to 6 hours of credit. Prerequisite: Graduate status; permission of the instructor. (3)

#### BIOTECHNOLOGY (BT)

BT650. Investigative Molecular Biology and Biotechnology. Gene cloning and analysis in an investigative environment. DNA isolation, sequence analysis, recombinant construction, hybridization, library screening, PCR. Prerequisites: BI283; CH341. One hour lecture; two 2-hour labs. (3)

BT658. Analytical Bioinformatics for Biology and Medicine. Analysis of large-scale molecular biology data. Databases and queries. Gene annotation. Sequence similarities and alignments. Protein structure/function prediction. Genomics, transcriptomics, proteomics. Prerequisite: BI283. (3)

#### BOTANY (BO)

BO501. Fundamental Concepts of Botany. Survey of the structure, function, and evolution of plants, plus relevant introduction to cyanobacteria, and photosynthetic protists. Does not count toward completion of a graduate degree. Prerequisite: Admission to Graduate Study in Department of Biology.

Thirty semester hours of acceptable undergraduate credit in science and mathematics. Three hours lecture/discussion; one 2-hour lab. (3)

BO565. Plant Diversity Collections. Skill-building course focused on building a plant diversity collection useful in courses and research labs in biological sciences. Prerequisite: BO310; or permission of instructor. (3)

BO620. Ethnobotany. The history and traditional methods of plant use by ethnic groups and potential or current applications to modern human needs, such as pharmacy, nutrition, human habitat, clothing, and industry. Prerequisite: BI283. (3)

BO645. Plant Physiology. Physiological processes and responses of plants to the environment with emphasis on metabolism, development and transport. Prerequisite: BI283 or AO 120/125; CH341. Two hours lecture; one 2-hour lab. (3)

BO659. Field Botany-Fall Flora. Study of plant communities, emphasizing natural history and field identification of local species during late summer and fall. Prerequisite: BO 310. (2)

BO661. Native Aquatic Plants. Classification, identification, and natural history of freshwater algae and aquatic vascular plants, with emphases on the local flora. Prerequisite: BO310. One hour lecture; two 2-hour labs. (3)

BO 469. Field Botany-Spring Flora. Study of plant communities in a variety of habitats, emphasizing the natural history and field identification of local species. One, 2-hour lecture/discussion per week during first 8-week period and two, 4-hour labs per week during 2nd 8-week period. Prerequisite: BO 310. (3)

## BUSINESS ADMINISTRATION (BA)

BA560. Topics in International Business. Provides a comprehensive theoretical overview of international business, along with an intensive overseas study tour of business and institutions. This course involves additional travel and accommodation expenses. Prerequisite: MK301 and MG301; minimum grade of C in each course. (3)

BA600. Organizational Behavior in Practice. Explores challenges in managing and leading employees in a dynamic environment. Covers multiple contexts and usage of leading human resource practices.

Prerequisites: Admission to a graduate program in the Harrison College of Business and Computing; HA 300 or MG 301 with a C or better; or consent of Graduate Business Studies Program Director. (3)

BA601. Graduate Business Statistics Essentials. Graduate review of fundamental business content in Business Math and Statistics. (1)

BA602. Graduate Business Accounting Essentials. Graduate review of fundamental business content in Financial Accounting. (1)

BA603. Graduate Business Microeconomics Essentials. Graduate Review of fundamental business content in Microeconomics. (1)

BA604. Graduate Business Finance Essentials. Graduate review of fundamental business content in corporate finance. (1)

BA605. Graduate Business Information Systems Essentials. Graduate review of fundamental business content in management information systems. (1)

BA606. Graduate Business Student Onboarding. Review of Graduate Business Studies' policies, procedures, and available resources. (0)

BA620. Quantitative and Qualitative Research Methods. The course provides an analysis of the types, sources, methods, philosophy of business research and completion of a research project. Prerequisite: QM257 or equivalent and admission to a graduate program in the Harrison College of Business and Computing. (3)

BA630. Integrated Decision Information Systems. Use of information system technologies to support decision making. Topics include management information systems, decision support systems, and expert systems. Prerequisites: MI375 or equivalent; admission to a graduate program in the Harrison College of Business and Computing. (3)

BA640. Integrative Management. Utilizing applied projects, six organizational components—leadership, strategic planning, customer focus, information, human resources, processes—are analyzed as parts of an overall system. Prerequisite: Admission to a graduate program in the Harrison College of Business and Computing. (3)

BA641. Entrepreneurship. This course emphasizes the entrepreneurship processes and methods for analyzing new venture start-up opportunities, and the marketing, managerial and financial activities needed for successful start-up, growth, and harvesting of entrepreneurial business ventures.

Prerequisite: Admission to graduate program in Harrison College of Business and Computing. (3)

BA650. Strategic Decision Making. Strategic business behavior especially in relation to the external environment of business. Interdisciplinary and integrative perspectives are emphasized using cases, projects and team teaching. Prerequisites: Admission to the MBA Program; successful completion of 18 hours in the MBA program. (3)

BA651. Strategic Marketing. The advanced analysis of marketing case problems utilizing marketing and related business concepts and strategy. Prerequisite: Admission to the MBA Program. (3)

BA656. Applied Human Resource Management. Study of applied human resource management in the field of equal employment law, diversity, recruitment process, training and development, performance appraisals, and employee rights. Prerequisite: Admission to a graduate program in the Harrison College of Business and Computing; HA 300 or MG 301 with a C or better; or consent of Graduate Business Studies Program Director. (3)

BA657. Applied Research Project. Designed to understand the process by which business leaders respond to business problems. Integrates research skills and professional business practices, and provides an opportunity to apply current research to a business problem. Prerequisites: successful completion of 21 hours in the MBA program; or admission to a graduate program in the Harrison College of Business and Computing; consent of the director of Graduate Business Studies and faculty supervisor of paper. (3)

BA658. Business Internship. A supervised field experience in business involving at least 150 supervised contract hours. Credit/no credit. Prerequisites: Successful completion of 18 hours in a graduate program in the Harrison College of Business and Computing; consent from the MBA director. (3)

BA660. Strategic Cost Analysis and Financial Application. Interpretation and analysis of financial information, internal and external reporting, planning and control for decision-making, and analysis of the current manufacturing environment. Prerequisites: AC222 and FI361 with a minimum grade of C; admission to the MBA. (3)

BA661. External Environment of Business. Study of the competitive, economic, legal, regulatory, political, technological, international and socio-cultural environments in which American businesses operate. Prerequisite: Admission to a graduate program in the Harrison College of Business and Computing. (3)

BA662. Contemporary Issues in Business. Intended to introduce students in current research on contemporary business issues and questions. Students will be expected to read, understand, and critically evaluate research and analysis on contemporary issues and demonstrate an understanding of how research and analysis affect proposed solutions or responses to these issues or questions. Prerequisite: Admission to a graduate program in the Harrison College of Business and Computing. (3)

BA663. International Business Strategies. Comprehensive theoretical and practical discussion of international business strategies with specific emphasis on current case analysis. Prerequisite: Admission to the MBA program or consent of Graduate Business Studies Program Director. (3)

BA664. Organizational Leadership. An investigation of organizational leadership styles and the types of behavior necessary to implement these styles. Prerequisites: BA600; Admission to a graduate program in the Harrison College of Business and Computing; 18 hours completed for the Master of Science/Management major degree-seeking students. (3)

BA665. Financial Institutions, Credit Markets, and Regulatory Policy. The course examines the role of financial intermediation in business and society. In addition to the management of financial institutions, the course will focus on the impact of global economic forces and technological change on the financial services industry. Prerequisite: Admission to MBA. (3)

BA667. Liability Risks in Products and Services. This course examines liability laws and how those laws impact American businesses in the production of goods and services. Prerequisite: Admission to a graduate program in the Harrison College of Business and Computing. (3)

BA668. The Financial Environment. The course will cover the two dominant points of view that comprise the financial environment. Managers "inside the firm looking out" to the investment community raise capital, acquire assets and then deploy company assets in a manner that they believe maximizes the market value of the firm for a given risk level. In contrast, the investment community "on the outside looking in" is the final arbiter of whether or not managerial decision making is consistent with the wealth maximization of stockholders and creditors. The investment community is comprised of individuals, mutual funds, public and private pension funds, insurance companies, credit unions, university endowments, etc. Prerequisite: Admission into the MBA Program. (3)

BA671. Business Topics Seminar. Special business topics typically unavailable in the graduate business curriculum. May be taken only once. Prerequisite: Admission to a graduate program in the Harrison College of Business and Computing. (1-3)

BA678. Operations Management. A problem solving and decision-making approach to Operations Management in a case setting. Emphasis is placed on developing the student's ability to apply quantitative techniques presented in the course to real-life problems. Prerequisite: Admission to MBA program or consent of the director of Graduate Business Studies Program Director. (3)

BA691. Independent Study. Independent Study, A supervised field experience in an area of business, such as accounting, finance, management, marketing, etc. (1)

BA692. Independent Study. (2)

BA693. Independent Study. (3)

#### BUSINESS LAW (BL)

BL560. International Business Law. International business law topics: international transactions, trade law, marketplace regulation, intellectual property, contracting, financing, environmental responsibility, and criminal/civil liability. Prerequisite: BL255 with a minimum grade of C. (3)

BL563. Advanced Business Law. A study of legal issues confronting business decision-makers, including debtor-creditor relationships, securities regulation & business organizations. Prerequisite: BL255 or its equivalent with minimum grade of C or consent of instructor. (3)

BL573. Internship in Business Law. A supervised learning and work experience in law which enhances traditional business law courses. Prerequisites: 60 hours of course credit with a minimum 2.75 cumulative GPA; BL255 or its equivalent with a minimum grade of B. (3)

#### CHEMISTRY (CH)

CH511. Fundamentals of Physical Chemistry. A one-semester survey of the basic concepts of physical chemistry and their applications to understanding chemical and physical phenomena. M.N.S. refresher course. Three lecture plus four lab hours. Fall only. Prerequisite. Graduate student status. (2)

CH520. (Cross-listed as BI/PH 520). Engaging Learners in Science. Interested in teaching science? Try your hand at engaging peers in lab and classroom guided by research on learning. Two lectures and one two-hour lab. Open to graduate students in the sciences. Prerequisites: Declared major in biology, chemistry or physics (course is not available for Physics minors); sophomore standing; completion of 100 level courses in the science major/interest in teaching. (3)

CH531. Foundations of Biochemistry. Structure and function of amino acids, proteins, and carbohydrates. Generation and storage of metabolic energy. Three lecture hours. Fall only. Prerequisites: CH 340 or CH 342 or consent of instructor. (3)

CH532. Advanced Biochemistry. Metabolism and biosynthesis of lipids, amino acids, and nucleic acids. Transmission and expression of genetic information. Two lecture hours. Spring only. Prerequisite: CH531. (2)

CH533. Biochemistry Laboratory. Laboratory course dealing with selected biochemical techniques. Major areas of study include amino acids, proteins, carbohydrates, lipids, and nucleic acids. Four lab hours. Spring only. Prerequisite or Corequisite. CH531. (2)

CH540. Fundamentals of Organic Chemistry. Organic chemistry refresher course for M.N.S. Four lecture plus two lab hours. Prerequisite. Graduate student status. (2)

CH545. Organic Preparations and Characterization. Preparation and characterization of organic compounds, including formulation of an organic reaction sequence, developing experimental procedures, and characterizing intermediates and products. One lecture and four lab hours. Prerequisites: CH607; CH540; or consent of instructor. (3)

CH563/063. Advanced Inorganic Chemistry. A course dealing with theoretical and descriptive inorganic and organic metallic chemistry. The course also includes an introduction to inorganic synthesis and characterization. Three one-hour lectures and two two-hour labs. Spring only. Corequisite: CH063. Prerequisite: CH511; or consent of instructor. (5)

CH565. Inorganic Preparations. Acquaints students with techniques of inorganic synthesis. Four lab hours. Prerequisite: CH563. (2)

CH571. Fundamentals of Quantitative Analysis. Theory and techniques of analytical chemistry. Refresher course for M.N.S. Three lecture and four lab hours. Fall only. Prerequisite: graduate student status. (2)

CH572. Environmental Estuarine Chemistry. Offered summer only at the Gulf Coast Research Laboratory in Ocean Springs, Mississippi. Department advisors have additional details. (4)

CH575/075. Chemical Instrumentation. Theory and practice of instrumental methods of chemical analysis: spectroscopy, electrochemistry, and separation science. Two lecture and four lab hours. Spring only. Corequisite: CH075. Prerequisite: CH 271 or CH 311 or CH 312 or CH 571. (4)

CH605. (Cross-listed as BI605 and EP605). Engineering in Science Education. Pedagogies, resources, assessments of engineering concepts and skills, lesson development, incorporation with existing content, peer teaching. Two lab hours. Prerequisite: Level 2 pedagogy course. (1)

CH607. Introduction to Research and Chemical Literature. Intensive study of the sources of chemical literature and their indexes. The students do a literature search on a problem suitable for a research project and thesis. This problem will be selected and developed through an extensive literature survey. Spring only. Prerequisite: CH511. (3)

CH608. Seminar. Students will attend oral presentations on chemical research by graduate chemistry students and professionals. (0)

CH609. Seminar. Oral presentations on topics of chemical research will be given by graduate chemistry students. Prerequisite: CH607. (1)

CH611. Topics in Physical Chemistry. In depth study of selected topics in physical chemistry. Prerequisite: Approval by instructor and department. (3)

CH612. Computational Chemistry. Applications of theoretical chemistry including molecular modeling and quantum mechanical calculations in the high-performance computing environment. Prerequisite: CH 312. (3)

CH618. Topics in Chemistry Education. A review of the basic content of chemistry coupled with pedagogical models appropriate for teaching in the elementary or secondary classroom. This course is not intended for students with an undergraduate or graduate chemistry major. (3)

CH620. Forensic Chemistry. Principles, methods, and instrumentation of chemistry as applied to forensic problems. Covers the everyday functions of a crime laboratory professional. Three lectures and two hour lab. Prerequisites: CH540; CH571; or appropriate undergraduate preparation as evidenced by performance on organic chemistry and quantitative analysis placement examinations. Co-requisite: CH020. (4)

CH641. Topics in Organic and Biological Chemistry. In depth study and selected topics in organic and biological chemistry. Prerequisite: Approval by instructor and department. (3)

CH647. Advanced One and Two-Dimensional Nuclear Magnetic Resonance (NMR) Techniques. Advanced NMR techniques applied to structure determination. Provides theoretical and hands-on training of various 1D and 2D NMR techniques. Two hours lecture and two hours of lab. Prerequisites: CH540 or consent of instructor. Co-requisite: CH047. (3)

CH650. Environmental Chemistry. A study of the sources, reactions, transport, and fate of chemical entities in the air, water and soil environments. Two lectures and two hours lab. (3)

CH663. Topics in Inorganic Chemistry. In depth study of selected topics in inorganic chemistry. Prerequisite: Approval by instructor and department. (3)

CH665. Chemical Crystallography. Study of crystalline materials covering symmetry, properties, diffraction techniques, databases, and practical X-ray structure determination and publication. Prerequisite: MA140; or consent of instructor. (4)

CH675. Topics in Analytical Chemistry. In depth study and selected topics in analytical chemistry. Prerequisite: Approval by instructor and department. (3)

CH676. Internship in Chemistry. A supervised learning and work experience, approved by the Chemistry Department Graduate Committee and supervised by the student's graduate advisor which contributes to the student's program of study and career objectives. May be repeated for credit. Prerequisite: Departmental approval. (1)

CH677. Internship in Chemistry. May be repeated for credit. (2)

CH678. Internship in Chemistry. May be repeated for credit. (3)

CH688. Problems in Chemistry. Directed study in specific topics in chemistry, chemical education, or chemical instrumentation. Prerequisite: Departmental approval. (1)

CH689. Problems in Chemistry. (2)

CH691. Research. An in depth investigation of a scientific problem in an approved area that will result in a thesis or a comprehensive scholarly paper upon the completion of the research project. Prerequisite:

CH607. Introduction to Research and Literature. (1)

CH692. Research. (2)

CH693. Research. (3)

CH694. Research. (4)

CH695. Research. (5)

#### CHILD AND FAMILY (CF)

CF517. Gerontology Practicum. An advanced supervised field experience which focuses upon the administration, staff, schedule, and operation of programs for the elderly. Prerequisites: CF 206; CF 207; or 6 hours of related courses and/or experiences. (2)

CF518. Gerontology Practicum II. An advanced supervised field experience which focuses upon the administration, staff, schedule, and operation of programs for the elderly. (3)

CF520. Professional Ethics & Practice. Overview of strategies and tools necessary for assessment of the family system. Administration and evaluation of the assessment process. Prerequisites: CF102; CF209; CF402; CF430; or consent of instructor. (3)

CF565. Family Service Internship. Capstone professional internship in a human service agency, program or organization. Criminal background check required. Prerequisites: CF 209, CF 405, and CF 520 with grades of C or higher; senior standing with a cumulative GPA of 2.00; or consent of instructor. (3)

CF 602. Trauma-Informed Care. Using an ecological perspective, service systems will be evaluated in relation to trauma-informed models and standards of care. (3)

CF607. Advanced Topics in Gerontology. Lectures, discussions, field trips and assigned readings in various areas of gerontology according to the areas of specialty of the professor. May be taken more than once. On demand. (3)

CF630. Family Systems Application in Human Services. Advanced family studies based upon the Family Systems Theory. Thorough examination of the familial subsystems and intervention approaches. (3)

#### COMMUNICATION DISORDERS (CD)

CD502. Communication Technology. Provides a study of technology used to aid and assist individuals with communication disorders. Professional issues (e.g., HIPPA, FERPA, Universal Precautions) and ethics of the profession will also be discussed. Prerequisites: CD371; CD426. (3)

CD510. Multicultural Issues in Communication Disorders. Introduction to the complex relationships existing between language, society, and communication disorders. A difference versus disorders approach will be utilized in considering communicative issues. Assessment and intervention approaches will also be discussed. Prerequisites: CD 211; CD 225; CD 340. (3)

CD512. Speech and Hearing Science. Study of sound acoustics and speech production and the physics of sound, respiration, acoustic properties of voice and vocal tract resonance. Prerequisite: CD211. (3)

CD525. Audiological Rehabilitation. Management of hearing impairment and auditory-based learning disabilities in children and adults including psychosocial, technological, educational, and cultural aspects. Pre- or Corequisite: CD 426. (3)

CD603. Advanced Communication Disorders Clinical Practicum. Combined lecture and supervised clinical experience in assessment and treatment of children and adults with communication disorders. Includes the application of formal and informal assessment protocols, and implementation of generic and esoteric treatment programs. A minimum of 35 clinical clock hours must be obtained for the course. May be repeated for credit. Prerequisite: Regular graduate standing. (3)

CD608. Clinical Methods in Speech-Language Pathology. Overview of clinical methods in speech-language pathology to prepare students for on- and off-campus practicum experiences. Prerequisite: MA in Communication Disorders program. (2)

CD616. Literacy Essentials for Speech-Language Pathologists. Students will engage an in-depth study of impairments of oral language, reading, and written expression in school-age children and adolescents. Explores typical development, models of impairment, assessment, and multi-sensory treatment for written language. Pre- or Corequisite: Regular graduate standing. (3)

CD620. Developmental Articulatory & Phonological Disorders. A study of developmental speech sound disorders in children. Models and methods for assessment and differentiation between various types of speech sound disorders, including articulation and phonological disorders and apraxia and dysarthria. Prerequisite: Regular graduate standing or consent of instructor. (2)

CD625. Research Methodology in Communication Disorders. Introduction to research Introduction to research methodologies in communication sciences and disorders, including prospectus development, data collection, analysis, and professional research writing and editing. Prerequisite: regular graduate standing. (3)

CD626. Counseling Individuals with Communication Disorders and Caregivers. Study of counseling for individuals with communication disorders and their caregivers. Counseling systems and techniques for specific communication disorders are emphasized. Prerequisite: Regular graduate standing or consent of instructor. (3)

CD629. Neuroscience of Communication Disorders. Advanced study of central and peripheral nervous systems, with emphasis on neural mechanisms explaining speech, language, cognition, and swallowing. (2)

CD630. Language and Cognitive Communication Disorders in Adults. Deficits associated with acquired language disorders, focusing on aphasia, brain injuries, and dementias. Diagnosis, prognosis, treatment methods emphasized. Prerequisite: Regular graduate standing or consent of instructor. (2)

CD634. Language and Cognitive Disorders in Infants and Preschool Children. A study of receptive and expressive language and cognitive development/disorders in infants and preschool children. The needs of this population in terms of service coordination, assessment, planning and implementing prevention and intervention are addressed using a family-centered approach. Prerequisite: Regular graduate standing or consent of instructor. (2)

CD635. Language, Cognitive and Social Communication Disorders in School-Aged Children. A study of the receptive and expressive language, cognitive and social behaviors of children and adolescents with language disorders. Methods for assessing, preventing and treating language, cognitive and social skills will be addressed. Prerequisite: Regular graduate standing or consent of instructor. (3)

CD641. Voice Disorders. Study of normal structures and functions of voice and various vocal disorders that result from deviations of structure or function. Differentiating organic from psychogenic disorders. Study of and experience with instrumentation and techniques for the assessment and management of vocal disorders. Prerequisite: Regular graduate standing or consent of instructor. (3)

CD642. Fluency Disorders. Etiologies, comprehensive assessment and treatment of a variety of fluency disorders, primarily identified by stuttering behaviors in children and adults. Prerequisites: Regular graduate standing or consent of instructor. (2)

CD643. Augmentative/Alternative Communication Systems. Diagnostic and therapeutic implications for the individuals who require augmentative/alternative systems and related assistive technologies to function adequately in their environments. Prerequisite: Regular graduate standing or consent of instructor. (2)

CD651. Neurogenic Speech Disorders. A study of speech disorders resulting from progressive and non-progressive neurological lesions of the central and peripheral nervous systems. Emphasis is placed on etiology and neuropathology of different dysarthric syndromes, as well as on corresponding diagnostic and management options. Prerequisites: Regular graduate standing or consent of instructor. (2)

CD652. Swallowing Disorders. Swallowing disorders across the lifespan. Emphasis on anatomy and physiology, etiology, characteristics of symptoms, diagnostic, and management techniques. Prerequisites: Regular graduate standing or consent of instructor. (3)

CD653. Pediatric Feeding and Swallowing Disorders. Pediatric feeding and swallowing disorders. Emphasis on typical development, etiology, characteristics of symptoms, diagnostic, and management techniques. Prerequisite: CD652. (1)

CD656. Craniofacial Anomalies and Resonance Disorders. Study of embryologic, anatomic, and physiologic bases of orofacial anomalies and cleft palate; team approach to assessment and rehabilitation; emphasis on genetics, reconstructive surgery, prosthodontics, orthodontics, laryngology, and speech-language pathology. Prerequisite: Regular graduate standing or consent of instructor. (2)

CD659. Speech and Language Services for Special Populations. Provides students with strategies for the prevention, education, diagnosis, and intervention of communication disorders found in the low-incidence populations such as individuals with autism, visual impairments, cerebral palsy, neuromuscular disorders, and various syndromes. Explores the effect on the family, and the importance of interdisciplinary treatments. Prerequisites: Regular graduate standing; CD634 or CD635. (3)

CD661. Independent Study in Speech-Language Pathology. Directed individual study of specific problem areas in speech-language pathology. Prerequisites: Graduate standing; consent of department chairperson or instructor. (1)

CD662. Independent Study in Speech Pathology. May be repeated for up to 14 hours of credit. (2)

CD663. Independent Study in Speech Pathology. May be repeated for up to 15 hours of credit. (3)

CD669. Externship in Communication Disorders. Supervised clinical practicum in either a pediatric or adult setting distinctly different from the University Speech and Hearing Clinic. A minimum of two externships is required for certification. May be repeated for credit. Prerequisites: A minimum graduate GPA of 3.0; completion of a minimum of 100 clinical clock hours obtained at the graduate level, including diagnostic hours in speech, language and hearing; completion of or concurrent enrollment in CD630, CD651 and CD652 for adult sites; completion of CD 620; CD 634 and CD 635 for pediatric sites; permission of instructor for all sites. (3)

CD681. Research in Communication Disorders. Capstone research project (non-thesis) pertaining to a topic in communication disorders. May be repeated for credit. Prerequisite: CD683 and consent of instructor. (1)

CD683. Research in Communication Disorders. Individual research problems in speech pathology or audiology. Student will be engaged in a variety of relevant professional topics in CSD. May be repeated for a maximum of 15 hours. Prerequisite: CD625. (1-2)

CD685. Professional Topics in Communication Disorders. Exploration of current local, regional, and national issues that impact ethical decision making and service delivery by the speech pathologist and audiologist. Includes ethics and requirements for state and American Speech-Language Hearing Association certification and licensure. Prerequisite: Graduate student in good standing. (2)

CD694. Thesis. Capstone research or creative project (thesis) pertaining to a topic in communication disorders. Prerequisite: CD625 and consent of instructor. May be repeated for up to 15 hours of credit. (3)

CD695. Thesis in Communication Disorders. A written report based upon the investigation of a specific subject/topic or completion of a creative project. May be repeated for a total of 12 hours. Prerequisites: Graduate standing; consent of department chairperson. (1-2)

CD697. Thesis. Capstone research or creative project (thesis) pertaining to a topic in communication disorders. Prerequisite: CD694 and consent of instructor. May be repeated for up to 15 hours of credit. (1)

#### COMMUNICATION STUDIES (SC)

SC510. Communication Principles of Leadership and Team Building. A study and survey of leadership theories and concepts of team building. Emphasis on the communication competencies necessary for successful leadership and teamwork within the organizational culture. (3)

SC560. Organizational Communication. Study of communication functions and networks in organizations. Emphasis on leadership functions and principles needed for effective management of organizational communication processes. (3)

#### COMPUTER SCIENCE (CS)

CS500. Fundamentals of Programming. Data structures, algorithms, object orientation and standard libraries with emphasis on practical programming. Prerequisite: Permission of department chairperson. (3)

CS503. Fundamentals of Computing. Basic understanding of fundamental concepts in computer organization, networks, algorithms and operating systems. Prerequisite: Permission of department chairperson. (3)

CS505. Data Mining. Explores the trend, principles, and applications of data mining. Prerequisite: CS265 or CS500 with a minimum grade of C. (3)

CS506. Distributed Cloud Computing. Principles and technologies for distributed cloud computing development. Prerequisites: CS265 and CS380 and CS480; OR CS500 and CS503; with minimum grades of C. (3)

CS533. Mobile Computing. Mobile device architectures and the application development frameworks for various modern mobile platforms. Prerequisites: CS265 and CS380 and CS480; OR CS500 and CS503; with minimum grades of C. (3)

CS560. Computer Architecture. Major architectures in modern computer systems, including the evolution of computer architectures. Prerequisites: CS300 and CS380 and CS480; OR CS500 and CS503; with minimum grades of C. (3)

CS575. Advanced Web Development. Latest technologies for the front-end and back-end web development. Prerequisites: CS 265 or CS 500 with minimum grade of C. (3)

CS 580. Advanced Robotics. Modern topics in Artificial Intelligence robotics. Prerequisites: CS300 and CS380 and CS480; or CS500 and CS503; with minimum grades of C. (3)

CS581. Advanced Network Programming. Client-server communication, inter-process communication, and secure networking programming. Prerequisites: CS300 and CS380 and CS480; or CS500 and CS503; with minimum grades of C. (3)

CS585. Formal Systems and Modeling. Nondeterminism, program specification and verification, formal models of computation and languages. Prerequisites: CS 265 or CS 500 with minimum grade of C. (3)

CS591. Advanced Artificial Intelligence. Major Artificial Intelligence is covered in detail. Prerequisites: CS300 and CS380 and CS480; or CS500 and CS503; with minimum grades of C. (3)

CS603. Introduction to Data Analytics. Data collection, analysis and visualization of Big Data. Prerequisites: CS500; CS503. (3)

CS605. Research Methods. Analysis of the types, sources, methods, philosophy of computer science and completion of a research project. (3)

CS609. Advanced Programming Languages. Objects, testing, deployment, maintenance of a component-based solution and design patterns using object orientated concepts. Prerequisite: CS500. (3)

CS612. Simulation and Modeling for Computing. Principles of modeling and analysis of discrete event systems, computer systems, and computer networks. Prerequisite: CS500. (3)

CS630. Current Topics in Human Computer Interaction. Designing interfaces for interactive systems, usability engineering techniques; implementing and evaluating interfaces. (3)

CS631. Advanced Software Engineering. Software engineering processes, project planning, scheduling, metrics, estimation, testing/quality, and management. Prerequisite: CS500. (3)

CS632. Emerging and Converging Technologies and Computing. Current emerging and converging technologies related in computer applications and their implications. Prerequisites: CS500; CS503. (3)

CS633. Digital Signal and Image Processing. Aspects and the corresponding computational techniques and tools currently used in digital signal and image processing. Prerequisites: CS500; CS503. (3)

CS634. Machine Learning. Overview of many concepts, techniques, and algorithms related to machine learning. Prerequisites: CS500; CS503. (3)

CS640. Advanced Database Systems. Major topics on designing, using, and implementing database systems and database applications. (3)

CS645. Internet of Things. Architectures, protocols, layers, services, and applications of a packet network from general internet to sensor networks. Prerequisites: CS500; CS503. (3)

CS650. Theory of Computation. Models of computation and theory of programming languages. Prerequisites: CS500; CS503. (3)

CS653. Special Topics. Contemporary topics in various areas of computer science. May be repeated for credit. Prerequisites: CS500; CS503. (3)

CS690. Graduate Project. Evaluate and defend select activities such as projects, papers, etc., completed during the student's period of study. Credit/no credit. Prerequisites: permission of department chairperson or graduate coordinator; enrollment in final semester. (0)

CS691. Independent Study. Independent study in Computer Science. May be repeated for up to 6 hours of credit. (1)

CS693. Independent Study. Topics in computer science independently under the supervision of advisors. May be repeated for credit. (3)

CS695. Seminar I. Impact of computing on society; social, professional, ethical, legal and security and privacy issues and responsibilities. Prerequisites: CS500 and CS503 OR CS300 and CS380 and CS480; or permission of department chairperson. (1)

CS696. Seminar II. Talks/presentations by invited speakers, faculty and graduate students over major issues and trends in computing. Prerequisite: CS695. (1)

CS697. Thesis Research I. Proposal development leading to thesis as directed by the advisor and/or chair of the thesis committee. Prerequisite: CS605. (3)

CS698. Thesis Research II. Research leading to thesis as directed by the advisor and/or chair of the thesis committee. Prerequisite: CS697. (3)

CS699. Internship. Supervised learning and work experience in a professional field which augments the knowledge in computer science. (3)

#### COMPUTER AND MULTIMEDIA GRAPHICS (GM)

GM525. Virtuality in Gaming. Modeling techniques using sub-division, non-uniform rational b-splines, polygons and displacement mapping for creation of immersive virtual spaces for gaming engines and environments. (3)

GM580. Motion Capture Technology. Motion capture and key frame technology for developing applications including gaming. Other topics include software workflow, forward and inverse kinematic rigging, advanced blend shapes, skinning and modeling surface deformations. (3)

GM585. Computer Special Effects. Examine the techniques involved in developing computer generated special effects based on simulating physical concepts. (3)

GM680. Stereoscopic Imaging. Explore technical issues involved with developing stereoscopic pipeline for applications using automated high dynamic range lighting, parallax effects, stereoscopic 3D, MEL scripting, ray tracing, sub surface scattering, Mental Ray and 3D compositing. (3)

#### CONSTRUCTION MANAGEMENT (CM)

CM510. Building Information Modeling. Concepts of Building Information Modeling (BIM) including creating computer model of buildings for scheduling, sequencing, cost estimating, management, and simulation of construction projects. (3)

#### COUNSELING PROGRAM (CP)

CP531. Treating Sexual Offenders. Treatment components specific to sex offender therapy are emphasized. Differences between treating sex offenders and other clients will be addressed. (3)

CP532. Introduction to the Counseling Profession. This course will provide an orientation to the field of professional counseling and its application in mental health, school, addiction and other settings, in addition to professional issues and ethics. (3)

CP535. Eating Disorders Counseling. This course provides an overview of the etiology, diagnosis and treatment of eating disorders, including anorexia nervosa, bulimia, and binge eating disorder. Treatment is considered from a team-based approach to include psychological, cognitive, and physiological processes. Obesity and its relationship with eating disorders will also be addressed. (3)

CP537. Multicultural Experience in Counseling and Education. This course provides an opportunity of experiencing the importance of different lifestyles and socio-cultural aspects in the counseling process, during an educational trip to the host institution in a foreign country (e.g. Fortaleza, Ceara, Brazil). Once this experience is processed through the levels of phenomenology, the student should be able to advocate for the client and his or her counseling needs from a culturally sensitive point of view. Attention is given to the experiential component by being in the host culture (e.g. Fortaleza, Brazil), processing the meaning of the experience and giving a theoretical framework to the meaning making. Prerequisite(s). Consent of instructor. Graduate students are required to register for this class in order to earn the 3-credits. Faculty and scholars can earn CEU's by participating in the course. This opportunity welcomes graduate students in counseling and related fields, faculty and scholars in cultural education. (3)

CP610. Counseling Orientation and Ethics. Professional orientation, personal characteristics, responsibilities, legal and ethical issues relating to professional counseling will be explored. (3)

CP611. Developmental Theories. Knowledge and understanding of different developmental levels, human behavior, personality and learning theory. (3)

CP612. Counseling Theories. An exploration of a variety of counseling theories to provide a foundation for practice for professional counselors. (3)

CP613. Social and Cultural Counseling. Study of social changes and trends in stereotyping, societal subgroups, and different lifestyles and how this is incorporated in counseling. (3)

CP614. Counseling Skills. Knowledge and application of counseling techniques and helping skills with an emphasis on experiential learning and preparation for practicum. (3)

CP615. Career Counseling. Knowledge and application of career development theories, decision-making models, career planning, career education, sources of educational and occupational information. (3)

CP616. Group Counseling. Knowledge and application of group counseling theory skills and techniques. Course includes a personal small group experience. (3)

CP617. Assessment in Counseling. Application of psychometric assessment techniques to increase understanding of the student/client and develop an individualized plan of assistance. Prerequisites: CP610; CP612; CP614. (3)

CP626. Advanced Career Counseling. Knowledge and application of recent developments and advances in career theory, assessment, and practice. Will focus on advanced career counseling application. (3)

CP630. Foundations of School Counseling. Knowledge and application of school counseling theory, the comprehensive guidance model and issues of school counseling. (3)

CP631. Crisis Intervention and Consultation. Knowledge and application of consultation theory and knowledge and application of crisis intervention in school and community settings. (3)

CP632. Applications of School Counseling. Professional and ethical issues in school counseling. Focus on current issues, trends, and applications in the field of school counseling. Prerequisites: CP630; permission of instructor. (3)

CP640. Foundations of Mental Health Counseling. An overview of the role and scope of the mental health counselor, the community counseling agencies, and the counseling service programs. (3)

CP641. Mental Health Systems. An overview of the principles of mental health systems and practice in clinical mental health settings, including: prevention, intervention and service delivery. (3)

CP643. Psychodiagnostics and Treatment. Knowledge and application of Psychodiagnostics and using the DSM and ICD and subsequent treatment plan development, including an introduction to Psychopharmacology. (3)

CP645. Marriage and Family Counseling. Overview of the historical development and principal conceptualizations of marital and family counseling. Prerequisite: CP680. (3)

CP651. Professional Issues in Counseling. Directed study of special topics, issues and trends in counseling through seminars, forums, etc. (1-3)

CP652. Introduction to Play Therapy. Focus will be given to the definition, history and basic assumptions of play therapy. (3)

CP658. Advanced Play Therapy. Advanced emphasis on play therapy skills, client-centered play therapy, trauma, group play therapy, Sandtray therapy, and working with adults. Prerequisites: CP610; CP614; CP652. (3)

CP661. Addictions Counseling. Designed to review the current developments in the field of addictions and the evaluation of treatment methods within addiction practice. (3)

CP664. Religion & Spirituality in Counseling. Didactic and online instruction of religious/spiritual issues in counseling, developmental models and clinical intervention relevant to religion, spirituality and counseling. (3)

CP680. Counseling Practicum. Supervised practical experience which emphasizes the application of knowledge gained with clients, schools and agencies. (3)

CP682. Internship-Elementary. Field based counseling internships designed to give the student practical learning in chosen school counseling environment. (3)

CP683. Internship-Secondary. Field based counseling internships designed to give the student practical learning in chosen school counseling environment. (3)

CP684. Internship-School. Field based counseling internships designed to give the student practical learning in chosen school counseling environment. (3)

CP685. Internship – Career. Field based counseling internships designed to give the student practical learning in chosen career counseling environment. (3)

CP686. Internship-Mental Health. Field based counseling internships designed to give the student practical learning in chosen Mental Health counseling environment. (3)

CP687. Internship-Mental Health. (3)

CP688. Internship-Mental Health. (3)

CP691. Research Methods and Program Evaluation in Counseling. Overview of data collection, analysis, designs used in program evaluation, and evidence-based practice in the counseling profession. Prerequisite: graduate standing or consent of instructor. (3)

CP695. Independent Study in Counseling. Designed to meet specific needs of students who may wish to pursue additional study of selected topics. (1-3)

CP696. Thesis. A written report based upon investigation of some subject or the completion of a creative project. See Thesis Plan for additional information. (Variable credit hours)

CP699. Portfolio Oral Defense. Capstone experience for all master's level students completing the portfolio requirement. Prerequisite: Taken during the last semester before graduation. All curriculum requirements must be met prior to registering for this course. Credit/No credit. (0)

CP733. Advanced Educational Processes. Required course for the Education Specialist in Counseling Education and School Psychological Examiner Certification in the elementary, middle, and secondary schools. Designed to enhance teaching practices to facilitate learning for a diverse student population. Promotes an understanding of student characteristics and methods of assessing and evaluating variability of students and their performance. Legal and ethical issues and the effect of cultural differences are addressed. (3)

CP735. Intelligence Testing. Provides the student with the training needed, under direct supervision, to administer and score individual intelligence tests. (3)

CP739. Testing Practicum. Practice in an educational or clinical setting with an emphasis on the utilization of tests. (3)

CP771. Counselor Supervision. Students will become familiar with models of counseling supervision; provide individual and group supervision for master's level practicum/internship students; and be acquainted with the research in counselor training and supervision. Individual and group supervision is provided. Video- recording of individual and dyadic supervision sessions with practicum/internship students is required. (3)

CP788. Advanced Internship. Advanced Internship in a Counseling setting consists of a minimum of 200 clock hours per 3 credit hours in an appropriate counseling setting under appropriate supervision. (3-6)

#### CRIMINAL JUSTICE (CJ)

CJ505. Social Inequality. Provides a critical examination of the meaning, history, correlates, and consequences of both privileges and social inequalities as they relate to the American criminal justice system. Prerequisite: Acceptance to M.S. in Criminal Justice program or Accelerated M.S. in Criminal Justice program; or consent of instructor. (3)

CJ510. Comparative Criminal Justice Systems. Study of the criminal justice systems of four major countries, including the United States, Great Britain, Japan, and Sweden. Each country's differing philosophical and practical approaches to criminal justice are analyzed and compared. Prerequisite: Acceptance to M.S. in Criminal Justice program or Accelerated M.S. in Criminal Justice program; or consent of instructor. (3)

CJ519. Restorative Justice. Exploration of the principles and theory of restorative justice and its application as a response to criminal conduct. Prerequisite: Acceptance to M.S. in Criminal Justice or Accelerated M.S. in Criminal Justice; or consent of instructor. (3)

CJ520. Law and Social Control. Analyzes the nature of law and social forces that influence practices of crime, punishment, and social control. Prerequisite: Acceptance to MS in Criminal Justice or Accelerated MS program in Criminal Justice; or consent of instructor. (3)

CJ522. Critical Analysis of Gangs in America. Promotes the critical analysis of gangs in America by exploring the sociological, cultural, political, and economic causes of gangs. Prerequisite: Acceptance to M.S. in Criminal Justice program or Accelerated M.S. in Criminal Justice program; or consent of instructor. (3)

CJ525. Crime and Criminal Justice Public Policy. An overview of how crime policy is formulated and adopted into the American political agenda. Prerequisite: Acceptance to M.S. in Criminal Justice program or Accelerated M.S. in Criminal Justice program; or consent of instructor. (3)

CJ540. Ethical Issues in Criminal Justice. An exploration of the ethical issues that confront criminal justice professionals. Ethical issues include professional conduct in policing, corrections, and courts. Prerequisite: Acceptance to M.S. in Criminal Justice program or Accelerated M.S. in Criminal Justice program; or consent of instructor. (3)

CJ600. The Criminal Justice System. Exploration of the origins and significance of key ideas influencing the rise and development of the criminal justice system. Selected issues in law enforcement, courts and corrections are examined in relationship to current criminal justice policies and practices. (3)

CJ601. Research Methodology in Criminal Justice. Study of the design and execution of criminal justice research, as well as a critical examination of current research in criminal justice. (3)

CJ610. Seminar in Law Enforcement. An analysis of contemporary issues in law enforcement as they are translated into agency policy, programs, services, and relationships with public and private agencies, institutions, and the community. (3)

CJ615. Theories of Crime. Overview of research on the correlates and causes of criminal behavior. Focus is on the significance of current knowledge for crime and control prevention. (3)

CJ625. Adult Correctional Organization and Administration. Study of adult correctional institutional organization and administration in the United States. Four levels of organization and administration are explored in detail. Federal, state, county, and private institutions. (3)

CJ626. Statistical Analysis in Criminal Justice. The use of statistical methods and computer applications for research and program analysis in criminal justice. (3)

CJ630. Contemporary Juvenile Justice. Exploration of contemporary issues in juvenile justice, including relationships among the various components of the juvenile justice system. Emphasis is placed on current research literature in the field, as well as analysis of current philosophy, policy, law, and practice in juvenile justice. (3)

CJ635. Civil Law and Liability. Study of the civil justice system, theories of civil liability and management of civil liability in law enforcement and corrections. (3)

CJ641. Death Penalty in America. Exploration of the history of capital punishment in the United States, and the related constitutional issues and policy arguments. (3)

CJ645. Criminal Justice Policy Analysis and Evaluation. Examination of the development, implementation, analysis, and evaluation of public policies as they relate to the criminal justice system. (3)

CJ650. Seminar Criminal Justice Leadership & Practice. Capstone course designed to showcase students' integration and synthesis of the graduate experience from theoretical and practical leadership, analysis, and organizational frameworks. Prerequisites: CJ 601; CJ 615; CJ 525 or CJ 645; and 15 additional criminal justice graduate level credits. (3)

CJ651. Special Topics in Criminal Justice. Covers variable topics in an area of criminal justice not part of the established department curriculum. May be repeated for a maximum of 6 hours. Prerequisite: Admission to the graduate school or permission of instructor. (3)

CJ691. Independent Study in Criminal Justice. Independent work in a specialized area not covered by criminal justice course offerings. Prerequisite: Acceptance to M.S. in Criminal Justice program or Accelerated M.S. in Criminal Justice program; or consent of instructor. (1)

CJ692. Independent Study in Criminal Justice. Independent work in a specialized area not covered by criminal justice course offerings. Prerequisite: Acceptance to M.S. in Criminal Justice program or Accelerated M.S. in Criminal Justice program; or consent of instructor. (2)

CJ693. Independent Study in Criminal Justice. Independent work in a specialized area not covered by criminal justice course offerings. Prerequisite: Acceptance to M.S. in Criminal Justice or Accelerated M.S. in Criminal Justice or consent of instructor. (3).

CJ694. Thesis. Prerequisites: CJ601; CJ615; consent of graduate coordinator. (3)

CJ695. Thesis Second Semester. Thesis. Prerequisites: CJ601; CJ615; consent of graduate coordinator. (3)

CJ696. Internship Capstone I. Internship capstone experience with a criminal justice agency. Student will clarify internship project goals and objectives and complete the requisite hours of service in an approved criminal justice-related agency. Prerequisites: CJ601 CJ615; and 12 additional credits. (3)

CJ697. Internship Capstone II. Continuation of internship capstone experience. The student will finalize contact hours and write the internship project to be approved by the internship capstone committee. Prerequisite: CJ696. (3)

CJ699. Criminal Justice Internship. Provides graduate students with a practical learning experience in a criminal justice agency. For those presently employed in a criminal justice agency, internships must involve another agency or employment situation. For those who complete the internship capstone, only 3 hours of CJ699 will count toward the degree. Students can earn either 3 or 6 hours of credit. (3)

#### CYBERSECURITY (CY)

CY501. Introduction to Cybersecurity. Advanced overview of the field of Cybersecurity, information assurance terminology, security issues, and applied cryptography. Pre- or corequisite: CS265 or CS500 with a minimum grade of C. (3)

CY510. Information Security and Assurance. System security principles, components of system security, information assurance with high assurance software design. Cryptographic principles to design secure systems. Data protection at rest and in motion and evolution of challenges in information security. Prerequisites: CS500; CS503; with minimum grades of C. (3)

CY520. Information Security in Systems Administration. Information security. Security constructs. Secure software development. Authorization models. Security administration of networking elements, databases, operating and cloud-based systems. Prerequisites: CS503 with a minimum grade of C. (3)

CY530. Computer Network Security and Defense. Learn the fundamentals and techniques of defense in depth to protect a computer network. Prerequisites: CS500; CS503; with minimum grades of C. (3)

CY610. Web Application Security. Web/Cloud architectures, languages and protocols. Web/Cloud authentication, certificate authority and cryptographic standards. Security requirements, threat modeling and secure coding standards. Prerequisite: CS500. (3)

CY620. Advanced Computer Forensics. Fundamentals of computer forensics and cyber-crime scene analysis. Prerequisites: CS500; CS503; with minimum grades of C. (3)

CY630. Hardware Security. Hardware physical attacks and security primitives. Debugging, applicability techniques of hardware security within ecosystems (mobile, cloud computing, Internet of things.) Prerequisites: CS500; CS503. (3)

CY640. Security of Critical Infrastructure. Critical Infrastructure vulnerability, asset identification, governance. Critical infrastructure control technologies. Monitoring, access control, risk, compliance, defense techniques of critical infrastructure. (3)

CY643. Independent Study. Learn to apply knowledge and skills within a topic in cybersecurity independently under supervision from advisors. May be repeated for up to 6 hours of credit. (3)

CY650. Legal, Risk and Compliance for Security. Cybercrime and legal frameworks. Digital assets and business law. Compliance and risk measurement within cyberspace. Contracting digital content, forensic investigations. Prerequisites: CS500; CS503. (3)

CY653. Special Topics in Cybersecurity. Students will learn contemporary topics in an area of cybersecurity. Prerequisites: CS500; CS503. May be repeated for up to 6 hours of credit. (3)

CY655. Research Methods in Cybersecurity. Cybersecurity research methodology in analyzing sources, methods, adversaries, threats, and philosophy resulting in completion of a research project. (3)

CY660. Cyber Operations. Cyberspace and Cyber warfare. Tools, techniques of cyber offense and defensive tactics. Foot printing and monitoring techniques within critical infrastructure. Prerequisites: CS500; CS503. (3)

CY662. Ethical Hacking. Introduction to the principles and techniques associated with the cybersecurity practice known as penetration testing or ethical hacking. Prerequisites: CS500; CS503; with minimum grades of C. (3)

CY670. Secure Operating Environments. Trust frameworks of secure operating environments. Understanding and operation of secure ecosystems within critical infrastructure conforming to policy and compliance. Prerequisite: CY501. (3)

CY690 Graduate Project. Develop and complete a project by applying the knowledge and skills of cybersecurity in a scientific and practical manner. Graded credit/no credit. Prerequisites: consent of department chairperson or graduate coordinator; enrollment in final semester of degree program. (0)

CY691. Thesis Research I. Development of knowledge, understanding and skills necessary to work with problems in cybersecurity in a scientific manner. Prerequisite: CY655. (3)

CY692. Thesis Research II. Development of knowledge, understanding, skills necessary to work with problems within cybersecurity and defend research topics orally. Prerequisite(s): CY 691. (3)

#### EARLY CHILDHOOD EDUCATION (CE)

CE530. Foundations of Early Childhood Special Education. This course provides in-depth study and examination of recent research findings affecting the education and development of young children with special needs. (3)

CE605. Issues and Trends in Early Childhood Education. This course provides in-depth study and recent findings in the trends and issues affecting the education and development of young children, including those with disabilities. (3)

CE610. Curriculum, Methods and Program Management in Early Childhood. In-depth study of basic principles and concepts underlying curriculum planning in early childhood education including developmentally appropriate principles, play based/inquiry learning, and program administration and management including environmental organization and design. (3)

CE614. Family / School Partnerships in Early Childhood. Analysis of current programs and practices in establishing family/school partnerships to support educational decision making and child learning. (3)

CE634. Assessing Young Children's Learning and Development. Studies informal observation-based assessment practices and their uses in planning and instruction with diverse young learners, including those with exceptional needs (3)

#### ECONOMICS (EC)

EC525. Public Policy Economics. Economic analysis of the functions of government in a market economy. Prerequisites: EC215; EC225. (3)

EC561. Managerial Economics. Application of microeconomic theory to the practical problems faced by decision makers in business environment. Prerequisites: EC215; MA134. (3)

EC580. International Economics. Development and maintenance of trade between nations; trade policies, exchange rate determination, financial activities involved. Prerequisites: EC215; EC225. (3)  
EC585. Healthcare Economics. Analysis of the markets for healthcare and health insurance from the perspective of an economist. Prerequisite: EC215 or admission to MS Healthcare Management program. (3)

#### EDUCATION (ED)

ED506. Education, Law and Society. A study of the social and legal issues that have influenced public K-12 education. Prerequisite: Junior standing or permission of instructor. (3)  
ED535. The Trauma Informed Professional. Developing trauma knowledgeable professionals to foster resiliency building practices in children impacted by trauma. (3)

#### EDUCATIONAL ADMINISTRATION (EA)

EA507. School and Campus Safety. An overview of school safety issues impacting public and private P-12 and institutions. (3)  
EA601. Administration of Adult Education Programs. Administration of Adult Education Programs at the University or Junior College level. (3)  
EA606. Introduction to Teacher Leadership and Peer Coaching. An introduction to teacher leadership and peer coaching. Prerequisite: Admitted to the MA in teacher leadership program. (3)  
EA607. Leading with Data. The process of school improvement is taught through the development of cultures of collaborative inquiry and data-driven change. Prerequisite: Admitted to the master's degree program. (3)  
EA610. Diversity and Equity in Schools. This course is designed to provide school leaders as they engage in exploring diversity and equity issues within the school setting. Prerequisite: Admission to the MA in school leadership or teacher leadership. (3)  
EA615. Wellness Issues in Higher Education. This course will introduce students to wellness issues in the college setting and analyze solutions to student wellness concerns. Prerequisite: Admitted to the MA in Higher Education or consent of instructor. (3)  
EA616. Enrollment Management in Higher Education. This course will examine the strategies used by colleges to establish enrollment goals and effective recruitment and marketing efforts. Prerequisite: Admitted to the MA in Higher Education Administration or consent of instructor. (3)  
EA619. Research in the College Context. This course will introduce students to qualitative and quantitative research techniques in the college context. Prerequisite: PY571; Admitted to the MA in Higher Education Administration or consent of instructor. (3)  
EA620. Foundations of Higher Education I. An overview of higher education. Exploration of the historical development of higher education; the philosophical aspects; current functions, issues and participants; and considerations related to the future status of higher education institutions. (3)  
EA621. Finance and Assessment in Higher Education. An examination of financial and assessment components of higher education. Prerequisite: EA620 or consent of instructor. (3)  
EA622. Foundations in Higher Education II: Leadership. A study of leadership and organizational change as it applies to effective administration in higher education. (3)  
EA623. Principles and Practices in Higher Education. An introduction to theory and scholarship on the structure of colleges and universities, their administration, and organizational behavior. Topics include organizational theory, governance, re-structuring, and management. (3)  
EA624. Theories of Collegiate Student Development. A study and application of developmental theory as it relates to the higher education student, the higher education environment, and the interaction between student and environment. Prerequisite: Admission to the program or consent of instructor. (3)

EA625. Foundations of Educational Leadership. Explore the foundational principles of establishing a clear focus, managing change, creating a purposeful community, special educational and career education. Prerequisite: Admitted to the MA in administration; or consent of instructor. (3)

EA626. Introduction to Student Personnel. Provides a comprehensive introduction to the field of student personnel and its role within American higher education. A related goal is to help students develop a broad foundation for subsequent study, practice, and research strategies may be added. (3)

EA628. Teaching in Higher Education. This course provides an overview of the major issues in higher education and methods of instruction in college teaching through the use of experiential learning, lecture, collaborative activities, readings, and discussion. The intent for this course is to provide practical knowledge of designing instruction and to develop skills that will enhance college teaching. (3)

EA629. Internship in Higher Education. The intent of this course is to integrate professional practice, theory, and ethical standards within a supervised higher education administration setting. (3-6)

EA632. The Community College. Structure, function, and working of the community college. (3)

EA633. Legal Aspects of Higher Education. Legal issues and typical problems of higher education. (3)

EA634. School Supervision. Provides the knowledge and skills necessary for personnel supervision in schools. Uses adult growth and development as the context for supervisory behavior appropriate to any supervisor-supervisee relationship. Prerequisite: graduate standing. (3)

EA635. Secondary School Administration. The course provides students with knowledge and skills required for the position of a secondary school principal. Prerequisite: Program admission. (3)

EA638. Women in Higher Education. This course is designed to introduce students to the issues that are central to women students, faculty, and staff in higher education. Students will also become familiar with feminist theory and scholarship, as it relates to women in higher education. (3)

EA639. Ethics in Higher Education. Introduces students to the multiple frameworks that inform ethical and moral decisions in the classroom and administration of higher education. Students will learn to recognize these frameworks and use them to resolve ethical dilemmas that they may encounter as professionals. Prerequisite: graduate standing. (3)

EA643. Current Issues in Higher Education. Students find current issues in higher education and share in a seminar. (3)

EA644. Issues in Institutional Research I. Issues that arise in institutional research. (3)

EA645. Issues in Institutional Research II. Institutional research issues II. (3)

EA651. School Law. The course provides school administrators and persons seeking certification in school administration with in-depth study of Missouri and federal laws regulating the operation of public schools and a survey of the state and federal court decisions that affect the operation of public schools. Prerequisite: Program admission. (3)

EA653. Curriculum for Leaders in Education. This course focuses on teaching leaders to connect curriculum, instruction, assessment and evaluation in an effort to improve learning and understanding. Prerequisite: Admitted to the MA in administration; or Teacher Leadership; or consent of instructor. (3)

EA654. The Principalship. Designed to prepare students with the knowledge and skills required to be a school leader. Prerequisite: Admission to the MA program in school leadership. (3)

EA655. Leadership for Effective School Operations. Designed to prepare the building level leader for the responsibilities regarding financial management, facilities management, and public relations. Prerequisite: Admitted to the MA in administration; or Teacher Leadership; or consent of instructor. (3)

EA656. Internship II in Elementary School Administration. The second course of a two-course sequence which provides candidates with experiences regarding administrative and supervisory duties of the elementary school principal. Prerequisite: program admission. (3)

EA657. Internship II in Secondary School Administration. The second course of a two-course sequence which provides candidates with experiences regarding administrative and supervisory duties of the secondary school principal. Prerequisite: program admission. (3)

EA658. Instructional Strategies and Classroom Management in the School Setting. Introduces the student to organization and curriculum of elementary and secondary schools, instructional strategies, and classroom management in school. (3)

EA660. Leadership in Special Education. Designed to prepare school leaders for the responsibilities regarding the administrative and supervision of special education. Prerequisite: Admission to MA in school leadership or teacher leadership. (3)

EA661. Internship I Special Education Administration. First course of a two-course sequence which provides candidates with experiences regarding administrative and supervisory duties of the special education director. (3)

EA662. Internship II Special Education Administration. Second course of a two-course sequence which provides candidates with experiences regarding administrative and supervisory duties of the special education director. (3)

EA663. Internship I: Leadership for Research in Action. First course of a capstone two-course sequence which provides candidates with experiences regarding research activities of the school leader.

Prerequisite: Admission to the MA in Educational Leadership. (3)

EA664. Internship II: Leadership for Experiential Learning. Second course of a capstone two-course sequence which provides candidates with experiences regarding activities to prepare school leaders.

Prerequisite: Admission to MA in Educational Leadership program. (3)

EA670. Higher Education Capstone. Culminating experience intended to apply the knowledge and skills acquired in the degree program to complex problems of policy and practice in higher education. (3)

EA682. School Improvement Leadership I. Incorporates and explores efforts initiated by private, state, and federal educationally related entities and agencies, professional leadership organizations, professional leadership academies and grant activities designed for school improvement Prerequisite: teaching certificate; admitted to the Masters in School Administration Program. (1-3)

EA688. ISLLC Problems-Principalship. Practical application of knowledge, competencies and management skills that research has identified as crucial to effective school administration. Credit/no credit. Prerequisites: Completion of administration core courses; admission to graduate studies; major in school administration; consent of instructor. (1)

EA694. Thesis. A written report based upon investigation of some subject or the completion of a creative project. See Thesis Plan for additional information. (3)

EA695. Thesis. Second semester. (3)

EA696. Thesis. Second semester. (2)

EA697. Thesis. Second semester. (1)

EA698. Independent Study in School Administration. Designed to permit the graduate student to pursue independent study in a topic of interest relating to Educational Leadership. It is expected that the student will secure approval of his/her major advisor and will be assigned a professor who will work closely with the student in structuring and directing the study. (1)

EA699. Independent Study in School Administration. This course is designed to permit the graduate student to pursue independent study in a topic of interest relating to Educational Leadership. It is expected that the student will secure approval of his/her major advisor and will be assigned a professor who will work closely with the student in structuring and directing the study. (2)

EA707. Personnel Management in Education. Provides school administrators with knowledge and skills on the purposes, processes, planning procedures, and policy making in administering the personnel program. Prerequisites: EA625; EA630 or EA635; or consent of the instructor. (3)

EA709. Leadership and Communications. An exploration of the principles of leadership including: the nature of leadership; social justice; changing cultures; leadership for learning; and the future of leadership. Students will learn leadership skills focused on school communication; community support; and long-range planning. Prerequisite: admission to the Ed.S. Program; or consent of instructor. (3)

EA710. Leading District Improvement. Focus on developing the district mission, vision and core values while cultivating a collaborative and individually responsive culture. Includes external leadership.

Prerequisites: Master's degree and admittance to the Specialist degree program. (3)

EA716. Innovative Practices in Teacher Leadership. Designed to acquaint educators with theories and current research that support innovative practices and effective teaching strategies in K-12 school settings. Prerequisites: Master's degree; admittance to the Ed.S. Program. (3)

EA718. Instructional Leadership Strategies II. This course is designed to provide students an advanced understanding of the factors and processes related to teacher leadership in K-12 educational settings.

The emphasis of the course will be improving classroom performance and student achievement as it relates to school improvement efforts. Students will learn to apply their knowledge of educational theories and current research as it relates to effective teaching strategies and innovative practices.

Topics such as mentoring, community relations, shared decision-making, professional development, best practices, classroom management, and assessment issues will be addressed. Prerequisite: EA716. (3)

EA721. Data Driven Leadership for School Improvement. Students will learn how to lead district personnel through the data collection processes, analysis, interventions, accountability, and sustainment for school improvement. Prerequisite: admission to the Specialist in Teacher Leadership program. (3)

EA722. Equity in Educational Leadership Practices. This course is designed for experienced teachers as they engage in exploring the foundation of equitable school settings in the context of their work.

Prerequisite: admission to the Specialist in Teacher Leadership program. (3)

EA727. Curriculum Development and Alignment. Students will explore how to develop a curriculum based on identified standards, check for alignment of existing curricula, and make appropriate revisions.

Prerequisite: admission to the Specialist in Teacher Leadership program. (3)

EA730. Internship Teacher Leadership I: Specialist. This is a project based course focused on gaining relevant expertise in the various teacher leadership positions in a district. Prerequisite: admission to the Specialist in Teacher Leadership program. (3)

EA731. Internship Teacher Leadership II: Specialist. The second of two courses which is project based focused on gaining expertise in the various teacher leadership positions in a district. Prerequisite: admission to the Specialist in Teacher Leadership program. (3)

EA737. Administration of Curriculum. The course is designed to prepare the aspiring and practicing school administrator for the responsibilities at the central office level in proper administration of development of curricula, examining the national, state, district, and school roles in curricular matters, as well as being able to research findings in educational literature to identify trends in curriculum change, and to understand the components of a district curriculum. Prerequisites: Master's degree; admittance to the Specialist degree program; EL606 or SE637. (3)

EA743. Data for Continuous Improvement. Designed to engage school and district administrators and teacher leaders in the process of using data to lead, facilitate, and encourage the process of continuous school improvement. Prerequisites: admittance to the Specialist degree program; or consent of instructor. (3)

EA755. Ethics, Law, and Policy. A study of law that includes the basic fields of contracts, property, torts, constitutional law, and other areas of law that directly affect the educational and administrative processes of the educational system. Prerequisite: EA651 or consent of instructor. (3)

EA756. Financial Management and Leadership. Designed to prepare the aspiring and practicing school administrator for the responsibilities of financial management in a district. Prerequisites: admittance to the Specialist degree program; or consent of instructor. (3)

EA760. Internship I: Specialist Level. First course in a two-course sequence designed to provide advanced specialist students with an opportunity to gain relevant experience in the superintendency. (3)

EA761. Internship II: Specialist Level. Second course in a two-course sequence designed to provide advanced specialist students with an opportunity to gain relevant experience in the superintendency. (3)

EA781. School Improvement Leadership II. Incorporates and explores efforts initiated by private, state and federal educationally related entities and agencies, professional leadership organizations, professional leadership academies, and grant activities designed for school improvement. Prerequisites: teaching certificate; admitted to the Masters in School Administration Program. (1-3)

EA785. School Plant Planning and Operation. This course provides school district administrators the fundamental concepts of planning, designing and constructing new educational facilities and/or the rehabilitation, remodeling or modernization of existing facilities with a focus on learning spaces and sustainability. Additionally, the course includes operation and maintenance programs. Prerequisite: Admission to a Specialist in Educational Administration degree program; or consent of instructor. (3)

EA790. Independent Study in Educational Administration. Directed individual study of problems and special topics in educational administration. Prerequisite: Admission to graduate status on the specialist's degree. On demand. (1)

EA791. Independent Study in Educational Administration. (2)

EA900. Leadership Theory and Practice. This course is intended to be an advanced study of leadership theories, concepts, and inquiry as applies to educational organizations. This course will explore leadership theories, power and authority in organizations, leader effectiveness, and organizational reform. Emphasis will be placed on understanding the conduct of leadership in organizations through application and extension of leadership theories in practice. Prerequisite: Admission to Doctoral program. (4)

EA905. Educational Leadership Inquiry. This introductory seminar to inquiry will focus on understanding key policies related to doctoral dissertation research as set by the University of Missouri Graduate School. In addition, the seminar will explore the use of multiple search sources for information, human subjects review requirements, and research ethics. Prerequisite: Entrance into the Ed.D. Program. (1)

EA906. Team Building and Group Dynamics. The seminar will focus on teaming and team development in organizations. The seminar will explore the team building process including activities to help groups move to high performance teams. Intervention strategies will be practiced to help teams and team members assume productive roles on the team. Prerequisite: Acceptance in the cooperative doctoral cohort. (1)

EA907. Qualitative Tools for Applied Research in Educational Leadership. Qualitative research designs that leaders can use to critically examine research questions in their practice. (3)

EA910. Content and Context of Learning. Students will develop the knowledge and skills for examining, designing, and implementing organization, classroom, and training conditions that support quality learning experiences for learners. This theme is about learning and the issues that can enhance quality learning contexts. Prerequisite: Acceptance in the cooperative doctoral cohort. (3)

EA908. Leadership Inquiry II: Data Reporting. Develop knowledge and skills in collecting data through authentic inquiry utilizing surveys, and presenting/communicating data from a multitude of sources. (1)

EA909. Leadership Inquiry III: Prospectus Development. Course will assist student in outlining research prospectus which is part of the written comprehensive exam. Prospectus will also serve as an outline for the development of the research proposal. (1)

EA915. Program Planning and Evaluation. Participants will develop thorough knowledge of the theoretical underpinnings of selected approaches to planning and evaluation and the necessary integration of the two. The course will afford participants the opportunity to plan, conduct and deliver a utilization-focused evaluation to an actual client by the end of the semester. Prerequisite: Entrance into the Ed.D. Program. (3)

#### EDUCATIONAL FOUNDATIONS (EF)

EF691. History of American Education. An examination of education in America from the colonial period to the present, focusing on educational ideas and practices in the context of American social and intellectual history. (3)

EF697. Independent Study in Foundations of Education. Independent work in an educational foundation area not covered by regular course offerings. (1-3)

#### ELECTRONICS AND COMPUTER TECHNOLOGY (ET)

ET568. Industrial Controls. A study of process controls fundamentals (Proportional Integral, Proportional Derivate, Proportional, Integral, and Derivate), sensors, transducers, actuators, and distributed controls, and their industrial/commercial applications using programmable controllers. (3)

ET570. Energy Management. A study of energy auditing, rate structures, economic evaluation techniques, lighting efficiency improvement, HVAC optimization, combustion and use of industrial waste, steam generation and distribution system performance, Distributed Digital Control systems, process energy management, and maintenance considerations. (3)

#### ELEMENTARY EDUCATION (EL)

EL603. Teaching Elementary School Mathematics. Designed to help the teacher better understand mathematical ideas basic to present-day elementary school mathematics and become acquainted with techniques for their presentation. (3)

EL604. Techniques of Teaching Science and Mathematics in the Elementary School. Students will apply standard driven instructional and assessment strategies to develop skills and abilities to work in elementary science classroom. (3)

EL605. Teaching Social Studies in the Elementary School. A course designed to study the structure of the elementary school social studies program. The social sciences, as the core of the social studies, are studied. Emphasis is placed on methods of organizing the curriculum, on teaching techniques, and on new materials. (3)

EL606. Curriculum Construction (Elementary). Investigates historical, philosophical, psychological, and societal factors; organization, trends, and issues influencing curriculum; includes the contributions of each subject area. (3)

EL608. Diagnosis and Remediation of Difficulties in Learning Mathematics. Designed to help teachers learn to use techniques for assessing and remediating difficulties in mathematics. (3)

EL611. Emergent Literacy Learners Practicum. Field-based application in the administration, scoring, and interpretation of reading assessments with appropriate intervention strategies for emergent literacy learners. Prerequisites: EL647 or consent of instructor. (3)

EL615. Research in Action. Introduction to the methods of action research for improving an aspect of the teaching-learning process. Prerequisites: EX601; completion of minimum of 12 hours of graduate work. (3)

EL623. Intermediate and Upper-Level Literacy Learners Practicum. Field basis application in the administration, scoring, and interpretation of reading assessments with appropriate strategies for intermediate and upper-level literacy learners. Prerequisite: EL647 or consent of instructor. (3)

EL624. Literacy Leadership. Survey of leadership theories and styles and their application to the promotion of literacy in educational settings and beyond. Prerequisite: EL644; EL646; EL647; EX601; or consent of instructor. (3)

EL625. Assess in Literacy. A theoretical course of literacy evaluation training in the administration and interpretation of 'An Observation Survey' and intervention processes. (2)

EL629. Integrating Children's Literature in the Curriculum. Focus on exploration of children's literature from a global perspective and current theories and methods of integrating literature into curriculum. (3)

EL630. Reading Recovery Seminar I. Introduces Reading Recovery teacher-in-training to Reading Recovery, its theoretical foundations, purposes and procedures. Classroom instruction is coordinated with the individual instruction of four at-risk students in an integrated field experience. Prerequisite: Admission to the Reading Recovery Program. (3)

EL631. Reading Recovery Seminar II. Further in-depth theoretical and procedural development of Reading Recovery for at-risk first graders. Classroom instruction is coordinated with the individual instruction of four at-risk students in an integrated field experience. Prerequisite: Admission to the Reading Recovery Program. (3)

EL632. Theoretical Seminar I. This course will introduce the Reading Recovery professional to an in-depth understanding of the theoretical base for the Reading Recovery program as designed by Marie Clay. Prerequisite: Admission to the Reading Recovery Teacher Leader program or completion of EL630 and EL631 or EL660 and EL661. (3)

EL635. Reading Recovery Practicum II. Teacher Leaders-in-training learn the implementation and the system impact of Reading Recovery in class and through field experiences. Prerequisite: Admission in the Teacher Leader Training Program. (3)

EL636. Reading Recovery Advanced Seminar. Advanced level study of Reading Recovery theory, research, and practice. Prerequisite: Successful completion of the Reading Recovery teacher preparation program. Must also be working as a Reading Recovery teacher during the school year when the seminar is taken. The previous advanced seminar must have been taken. (1)

EL637. Reading Recovery Advanced Seminar. (1)

EL638. Reading Recovery Advanced Seminar. (1)

EL639. Reading Recovery Advanced Seminar. (1)

EL644. Understanding and Applying the Multidimensional Process of Reading. Course will advance the understanding and application of the theoretical base supporting reading and writing as a multi-dimensional process. Prerequisite: Graduate standing. (3)

EL646. Inquiry and Research Models Used to Improve Reading Instruction. Focuses on principles for studying how children become literate and the factors and practices that affect all learners. (3)

EL647. Diagnosis and Correction of Reading Difficulties. Knowledge and expertise in literacy growth and development, test administration, drawing diagnostic conclusions based upon data, background information and observation. Prerequisites: EL644; EL646; EX601; or consent of instructor. (3)

EL648. Dyslexia and Reading Disabilities. Evidence-based practices for teaching children who have dyslexia or related reading disabilities. (3)

EL651. Independent Study in Elementary Education. Selected topics in elementary education to meet the needs of individual students. (1, 2, 3)

EL667. Mathematical Leadership for Elementary Mathematics Specialists: Foundations. This course provides an understanding of leadership principles and the process of continuous improvement for elementary mathematics specialists. (3)

EL668. Mathematical Leadership for Elementary Mathematics Specialists: Influencing and Facilitating. This second leadership course in the EMS program focuses on research and practice related to teamwork, interaction, communication, conflict resolution, and leadership in K-5 schools. Candidates will also examine effective strategies for influencing and facilitating school/district improvement (e.g., mentoring and observing colleagues, conducting professional development, and making data-informed decisions to improve student learning) collaborating with colleagues and administration. Candidates will focus on mentoring and observing colleagues, conducting professional development, and making data-informed decisions to improve student learning school- and district-wide. Prerequisite: EL667. (3)

EL680. Small Group Intervention Instruction. The course will focus on differentiating reading and writing instruction within various settings including supplemental and classroom for meeting the needs of struggling learners. (3)

EL681. Differentiating Literacy Instruction for Classroom Teachers. This course introduces classroom teachers to theories, purposes, and practices of differentiated instruction in literacy. Teachers will apply this knowledge and learn to create literacy supportive classrooms. (3)

EL682. Intervention Designs for Struggling Learners. Differentiating reading and writing instruction within various settings for meeting the needs of struggling learners. Response to intervention Comprehensive Intervention Model. (CIM) as a method. (3)

EL683. Advanced Practicum Intervention Models. Supervised practicum implementing intervention models for learners' experiencing literacy difficulty within school settings, collecting data documenting children's progress over time. (3)

EL685. Literacy Lessons Designed for Individuals I. Training Literacy Intervention Specialists with additional skills in working with at risk students using Reading Recovery teaching procedures. (3)

EL686. Literacy Lessons Designed for Individuals II. Further training for Literacy Intervention Specialists with additional skills in working with at risk students using Reading Recovery methods. Prerequisites: EL685; 3 years teaching experience; acceptance into the Reading Recovery training program by the Teacher Leader. (3)

#### ENGINEERING PHYSICS (EP)

EP503. Materials Science. The solid state; structure of solids; mechanical, chemical, thermal, electrical, magnetic, and optical properties of materials; behavior of materials in engineering applications. (3)

EP505. Nano-scale Science and Engineering. Fundamentals and applications of nano-scale engineering. Size-dependent phenomena, cutting edge applications, nanotechnology for smart grid communication and cybersecurity. Prerequisites: BI173; CH185; PH121 or PH231. (3)

EP578. Interdisciplinary Research. Original research for students of superior ability in major other than engineering physics, physics, or physics education. (1)

EP579. Interdisciplinary Research. (2)

EP600. Bioengineering Laboratory: Flow Cytometry. Principles of flow cytometer. Principles of fluorescence, data analysis, common protocols, cell viability and reactive oxygen species (ROS) assay in presence of smart nanostructures, and comparative analysis with live dead assay. (2)

EP605. (Cross-listed as BI605 and CH605). Engineering in Science Education. Pedagogies, resources, assessments of engineering concepts and skills, lesson development, incorporation with existing content, peer teaching. Two lab hours. Prerequisite: Level 2 pedagogy course. (1)

EP610. Nano-scale Engineering for Healthcare. Presents micro- and nano-devices in biomedical applications. Includes fabrication, remote actuation using smart nanostructures, device performance, nano-carrier delivery of therapeutics. Prerequisite: PH 231 or consent of instructor. (3)

EP615. Fundamentals of Bio-Engineering. Introduction to areas of bio-engineering applications. Topics include nano-biomaterials, biomechanics, bioinstrumentation, biosensors, various imaging techniques, fundamentals of bioinformatics and molecular engineering. Prerequisites: BI173; CH185; PH121 or PH231. (3)

EP620. Biomechanics. Introduction to mechanics of biological systems. Mechanics of cardiovascular, pulmonary and renal systems. Implementation of mathematical models and analytical techniques. Prerequisite: EP 263 or consent of instructor. (3)

EP663. Numerical and Finite Element Methods. Introduction to finite element methods with applications. Covers modeling, mathematical formulation, and implementation. Involves exposure to finite element software. Pre- or corequisite: MA350. Prerequisites: CS177; PH231; or consent of instructor. (4)

EP688. Graduate Research. Original research for students doing graduate research in bio-nano engineering, biophysics, or biomechanics. Prerequisite: Consent of graduate advisor. (3)

EP695. Readings in Nano-Bio Engineering, Understanding of nano-bio engineering research. May be repeated once for credit (1)

EP698. Thesis Research I. Original research for students doing graduate research in bio-nano engineering, biophysics, or biomechanics with a thesis-track option. Prerequisite: Consent of graduate advisor. (3)

EP699. Thesis Research II. Original research for students doing graduate research in bio-nano engineering, biophysics, or biomechanics with a thesis-track option. Prerequisite: Consent of graduate advisor. (3)

#### ENGLISH (EN)

EN500. History of the English Language. Origin and development of the English language, including grammatical forms, principles of sound change, and growth of English vocabulary. (3)

EN535. Rhetorical Theory and Written Discourse. Historical survey of rhetorical theory (Aristotle to the moderns), with emphasis on critical examination of texts. (3)

EN550. Style in Writing. A study of the theory and practice of style in written expression, analyzing styles of writers representing various periods and types of writing, with focus on the development of style in the student's own writing. (3)

EN572. Creative Non-Fiction Essay. A study of the development of the personal essay form, intensive reading of works by contemporary American and British essayists and composition of original personal essays. Prerequisites: EN140; any 200-level literature course (except LI243). (3)

EN600. Orientation Seminar for Teaching Assistants. Seminar in methods and materials for teaching freshman English. Open only to graduate assistants in the Department of English. May not be repeated for credit. (3)

EN601. Research in English Studies. This course provides research strategies that will enable students to work more proficiently in the profession. In addition, addresses thesis writing, the prospectus, proposals, and the scholarly paper. (3)

EN606. Topics, Issues and Trends in English. This class is a graduate seminar in which we will discuss current educational issues. The textbook essays will serve as a starting place for these electronic forum discussions. (3)

EN615. Practicum in Teaching Creative Writing. For graduate students who wish to gain mentored experience in teaching introductory creative writing and facilitating a writing workshop within the classroom setting of EN275. Prerequisites: Consent of the mentoring instructor. (3)

EN623. Visual Rhetoric. Advanced study of rhetorical and design techniques for technical writing. (3)

EN624. Editing and Research in Professional Writing. Practicum in the forms of research commonly performed by professional writers, such as historical and data fact-checking; analysis of and collaboration with authorial style; and usage of CMS, APA, and online style manuals. (3)

EN645. Advanced Literary Publishing. Principles, techniques, and theories in the production of literary books, including history of cover art, collaborative typography, special problems in editing and book marketing, review writing, contracts, budgets, and grant writing. (3)

EN670. Advanced Creative Writing: Poetry. For graduate students who wish to create imaginative writing in poetry, including open form, the formal poem, and the prose poem. In addition to workshop sessions and special problems assigned in class, at least eight imaginative works in poetry must be completed during the term. May be taken up to 6 hours. (3)

EN678. Advanced Creative Writing: Fiction. For graduate students who wish to create imaginative writing in fiction, including traditional and experimental short fiction, novellas, and novels. In addition to workshop sessions and special problems assigned in class, at least 40 pages of well-revised fiction must be completed during the term. May be taken up to 6 hours. (3)

EN686. Sociolinguistics. The study of language in context, particularly dialects, bilingualism, multilingualism, speech communities, genderlects and regional/social variations as they relate to linguistic variables. (3)

EN694. Thesis. A written report based upon investigation of some subject or the completion of a creative project. See "Thesis" for additional information. (3)

EN696. Thesis. (2)

EN697. Thesis. (1)

#### ENTREPRENEURSHIP (ER)

ER521. Topics in Entrepreneurship. This course focuses upon the critical issues and challenges encountered at different stages in the processes of new venture initiation and growing privately held companies. May be repeated for up to 6 credit hours. Prerequisites: Senior standing or consent of instructor. (3)

ER531. Creative Problem Solving in Business. Investigation of imagination, creativity and innovation in the context of one's interpersonal, social, and organizational environment. Prerequisite: Junior standing; or admission to a graduate business program; or consent of instructor. (3)

ER551. Managing and Growing the New Venture. Investigation of fundamental business concepts in the context of successfully launching and managing a new venture. Prerequisite: ER 361 with a minimum grade of C. (3)

ER561. Business Planning for New Ventures. Entrepreneurial analysis with a primary emphasis on strategic and business planning for a new venture; an applied course where students develop comprehensive business plans. Prerequisite: ER 361 with a minimum grade of C. (3)

ER581. Entrepreneurship Practicum: Venture Creation. Practicum which serves as a platform to systematically build a new venture individually or in teams. May be repeated for up to 6 credit hours. Prerequisite: ER361 with a minimum grade of C. (3)

#### ENVIRONMENTAL SCIENCE (EV)

EV551. Hazardous Materials Assessments. Introduction to performing investigative or remedial activities at hazardous waste sites. Three hours lecture; one mandatory field exercise. Prerequisites: CH185; CH186. (3)

EV600. (Cross-listed as BI600). Health Physics. Radiation physics and biology as related to safe use of ionizing radiation in therapeutic and diagnostic medicine, industry, and research. Prerequisites: BI283 or BS105; CH185 or PH120. Two hours lecture; one 2-hour lab. (3)

EV625. (Cross-listed as BI625). GIS Planning for Emergency Management. This course introduces the current and potential future roles of GIS in support of crisis (emergency) management activities at all geographic scales (local to international). These roles are considered at each of the four stages of crisis management and selected focus topics are considered in detail. Pre- or co-requisites: BI/EV454; GO445. (3)

EV643. (Cross-listed as BI643). Epidemiology. Concepts, methods and applications of infectious disease, chronic disease and environmental epidemiology focused on epidemiological reasoning processes. Prerequisite: BI283. (3)

EV647. (Cross-listed as BI647). Fundamentals of Disaster/Emergency Management and Planning. This course concentrates on pre-emergency fundamentals critical in emergency management and disaster relief systems including mitigation, planning, and critical processes. The course covers issues associated with emergency planning up to the point that the emergency occurred and a discussion of the principles of sound response, coordinated relief, and orderly recovery. Prerequisite: BI/EV454. (3)

EV648. (Cross-listed as BI648). Disaster/Emergency Planning and Response. This course examines the differences between disasters and catastrophes. The issues of the magnitude of impacts on planning

and response are addressed through longitudinal examination of national and international disaster response and planning case studies covering catastrophic level disasters. Prerequisites: BI/EV454; BI/EV447. (3)

EV649. (Cross-listed as BI649). Vulnerability, Risk Reduction, and Critical Incident Management. Course is designed to provide insight into the tasks, roles, and responsibilities required to design and conduct exercises as part of a long-term, carefully constructed plan to help a community prepare for disasters. Students will use community needs assessments to develop the case for exercises, design an exercise, and outline an evaluation plan aimed at improving competence in all emergency functions. Prerequisites: BI/EV454; BI/EV448. (3)

EV650. Environmental Chemistry. A study of the sources, reactions, transport, and fate of chemical entities in the air, water, and soil environments as well as their effects on human health and the environment. Prerequisites: BI283; CH341. Two hours lecture; and one 2-hour lab. (3)

EV653. (Cross-listed as BI653). Occupational Health. Introduction to the factors influencing occupational incidents and the adverse interactions of environmental and occupational chemical/physical agents with humans. Prerequisites: Living Systems (any BI or BS course); CH181 or CH185. (3)

EV654. (Cross-listed as BI654). Risk Assessment Applications. Introduction to concepts, terminology, methods, and applications of qualitative and quantitative health and ecological risk assessment and risk communication. Prerequisites: Living Systems (with BI or BS course), CH181 or CH185; MA134 or MA135 or MA139 or MA140. (3)

EV655. (Cross-listed as BI655). Industrial Hygiene. The study of chemical and physical hazards in the occupational environment and the methods used for their evaluation and control. Prerequisites: BI310; CH186; MA134 (3)

EV656. (Cross-listed as BI656). Fundamental Risk Communication in Emergency Management. This course focuses on the art and science of risk communication within the context of natural disasters, disease outbreaks, and terrorism events. The course will address core principles of risk communication, special challenges associated with diverse audiences, and prepare students to create a crisis and emergency risk communication plan. Prerequisite: BI/EV454. (3)

EV660. (Cross-listed as EV660). Introduction to Toxicology. Introduction to the fundamental principles of toxicology, toxic agents, toxicity testing, mechanisms of toxicity, toxic effects, sources of exposure, and applications of toxicology. Pre-requisites: BI283; CH185. (3)

EV661. Business Strategies for Corporate Environmental Management. Exploration of the importance and effects of environmental leadership in establishing management strategies for national and international businesses. Prerequisites: Admission to the MBA Program; CH181 or CH185; MA134. (3)

EV671. Topics in Environmental Science. Special topics in environmental science typically unavailable in the departmental curriculum. May be taken more than once. Prerequisite: permission of program director. (1)

EV672. Topics in Environmental Science. (2)

EV673. Topics in Environmental Science. (3)

EV674. Readings in Environmental Science. Consideration in depth of subject matter ordinarily unavailable in the program curriculum through directed readings and discussion with the instructor. Prerequisite: Admission to the graduate program in Environmental Science; permission of the program director. (1)

EV675. Readings in Environmental Science. (2)

EV681. Environmental Science Internship. A supervised experiential learning opportunity in environmental science which enhances the student's comprehension of applied environmental concepts and skills. Prerequisite: Admission to the graduate program in Environmental Science; the internship learning site must exhibit a demonstrated relationship to environmental science; approval of program director. (1)

EV682. Environmental Science Internship. (2)  
EV683. Environmental Science Internship. (3)  
EV691. Environmental Science Research. Conduct of a research project in environmental science including design, evaluation, and relation to current literature. Appropriate summarizing paper required. Prerequisite: Admission to the graduate program in Environmental Science; consent of program director (an abstract of the research problem to be studied is required for approval by the program director). (1)  
EV692. Environmental Science Research. (2)  
EV693. Environmental Science Research. (3)  
EV697. Thesis. A written report based on an independent, in-depth scientific investigation in environmental science. Prerequisite(s): Admission to the graduate program in Environmental Science; consent of the student's Thesis Committee. (1)  
EV698-699. Thesis. (2-3)

#### EXCEPTIONAL CHILD EDUCATION (EX)

EX507. Family and the Child with Exceptionalities. Emphasizes the teaching of children with exceptionalities partnering with families. Stresses collaborating with families and strategies for accessing community resources. (3)  
EX555. Introduction to Autism Spectrum Disorder. Overview of student characteristics, theory and teaching applications for students with Autism Spectrum Disorder (ASD). (3)  
EX556. Communication Intervention & Strategies for Individuals with Autism Spectrum Disorder. This course addresses the process of verbal and non-verbal communication skills, and investigates research-based strategies and interventions for improving communication in individuals with autism spectrum disorder Co- or prerequisite: EX555 or instructor approval. (3)  
EX557. Behavior Management & Interventions for Individuals with Autism Spectrum Disorder. This course provides an analysis of the principles of behavior management and interventions for individuals with autism spectrum disorder and sensory disabilities. Co- or prerequisite: EX555 or instructor approval. (3)  
EX558. Research in Autism Spectrum Disorder. This course addresses critical issues and trends in the field of developmental disabilities. Co- or prerequisite: EX555 or instructor approval. (3)  
EX559. Clinical Practicum. This course consists of a supervised field experience which will be conducted in a clinical environment with individuals with varying exceptionalities. Pre- or corequisite: EX555 or instructor approval. (1-3)  
EX601. Educational Assessment Techniques. Develops skills in selection, administration, scoring, and interpretation of standardized tests used in special education. Appraisal process is reviewed, and report writing is emphasized. (3)  
EX602. Language Acquisition of the Child with Exceptionalities. Emphasizes typical and atypical language acquisition; current research and instructional strategies/technologies for student with exceptional learning needs. Prerequisite: Admission into the graduate program. (3)  
EX618. Introduction to Children with Exceptionalities. Overview of the field of cross-categorical special education, and K-12 students who are placed in cross-categorical settings. Co-requisite: EX619. (2)  
EX619. Introduction to Mild Moderate Cross Categorical Internship. Supervised field experience conducted in an environment with individuals with mild/moderate disabilities. Students will apply knowledge gained in coursework. Co-requisite: EX618. (1)  
EX621. Behavior Intervention Strategies. Integration of theory, research, and practice perspectives necessary for understanding and influencing individual behavior adjustments. Co-requisite: EX622. (2)  
EX622. Behavior Intervention Strategies Internship. Integration of appropriately designed field experiences commensurate with Exceptional Child Education Teacher Preparation Program coursework. Co-requisite: EX621. (1)

EX635. Psychology and Education of Students with Special Needs. This course is to assist in preparing graduate students to meet the diverse educational needs of the exceptional learner. (3)

EX652. Techniques of Teaching the Mild/Moderate Cross-Categorical. Presentation of appropriate instructional procedures and methods for teaching individuals identified for cross-categorical services within least restrictive settings. Prerequisite: EX618/619 or consent of instructor. (3)

EX691. Transition Planning for Individuals with Exceptional Learning Needs. A course designed to provide structure for infusing transition education into the curriculum to fulfill the unique needs of learners with exceptional learning needs. (3)

EX693. Special Education and the Law. A course designed to study historical and current state and federal litigation and legislation affecting special education services. (3)

EX696. Exceptional Child Education Advanced Field Experience. Clinical experience requiring demonstration of content knowledge, differentiated instruction, curriculum implementation, critical thinking, classroom management, communication, assessments, professionalism and collaboration. (8)

#### FACILITIES MANAGEMENT (FM)

FM504. Facilities Management. A variety of topics will be covered related to facilities and their management. These include project management, facility planning, maintenance, energy management, cost estimating, accounting, preventative maintenance, and others. (3)

FM544. Sustainable Construction Materials and Technology. This course will explore the philosophy behind the growth in Green Building design. It will also expose the student to Green Building with regards to residential construction. Covering such topics as energy efficient building codes, green construction methods and environmentally friendly construction practices. Prerequisite: FM504. (3)

FM 554. Facilities Operations and Supervision. Facilities management responsibilities involving daily management of corporate needs based on the core competencies such as IFMA (International Facility Management Association), ASHE (American Society for Healthcare Engineering), and PRSM (Professional Retail Store Maintenance Association). Prerequisite: FM504. (3)

FM564. Sustainable Facility Planning and Design. Course on sustainable construction and green building design for large commercial facilities based on LEED standards. Topics include locality, energy systems, controls, materials, water, planning and design using sustainable construction methods. Prerequisite: FM504. (3)

FM565. Building Automation and Technology. Discussion of technology used in facilities management operations. Topics include building automation systems, controls, and current technology used in the different processes in facility management. Pre- or Co-requisite: FM 504. (3)

#### FASHION AND CONSUMER STUDIES (FA)

FA518. Social Psychological Aspects of Clothing. Social, psychological, economic and cultural factors related to clothing. (3)

FA520. Survey of National Markets – New York. Supervised visits to components of the fashion world and to auxiliary fields located in the industry center – New York. (3)

FA530. Fashion Industry Internship. Career-related work experience in the fashion industry following an approved work/study plan under an approved site supervisor. Graded credit/no credit. May be repeated up to 6 hours. (1-6)

#### FINANCE (FI)

FI540. International Finance. Examination of the operations and financial strategies of multinational firms within a global environment. Prerequisite: FI361 with a minimum grade of C. (3)

FI568. Portfolio Seminar. Examination of the concepts relating to modern portfolio theory. Topics include EMH, risk, portfolio performance, and related topics. Prerequisite: FI361 with a minimum grade of C. (3)

#### FOOD AND NUTRITION (FN)

FN502. Nutrition II. Study of metabolism of proteins, fats and carbohydrates, stressing the action and interaction of nutrients within the human body. Prerequisite: FN235; FN355; BS113; BS114; FN255; CH181; CH234. (3)

FN503. Medical Nutrition Therapy I. Part one of the in-depth study of pathophysiology and the principles of medical nutrition therapy for various disease states. Three hours lecture and two hours lab.

Prerequisites: BS113; BS114; FN235 and/or FN255; FN355; FN502; UI331 or consent of instructor. (4)

FN504. Medical Nutrition Therapy II. Part two of the in-depth study of pathophysiology and the principles of medical nutrition therapy for various disease states. One-hour lecture and six hours clinical rotation. Prerequisite: FN503 or consent of instructor. (4)

FN505. Senior Dietetics Seminar. Preparation for assuming leadership positions in dietetics. Capstone course for seniors applying to dietetics internships. (1)

FN510. Nutrition and Health Education. Utilization of educational principles and theory for instructional planning, implementation, and evaluation for nutrition and health education. Prerequisite: FN255. (3)

FN520. Nutrition and Aging. A study of the nutritional needs of the mature adult population with consideration of the physiological, psychological and socioeconomic changes associated with aging. Prerequisites: FN370; FN502. (3)

FN525. Nutrition Counseling. Principles of nutrition counseling theories, behavior change models, approaches for nutrition counseling, skill development and application in nutrition counseling setting. Prerequisites: FN235 or 255; FN355/605, FN370. (3)

FN530. Pathophysiology: Implications for Nutrition and Exercise Science. An in-depth examination of pathophysiology and the relationship to nutrition and exercise. Prerequisites: FN502; HL331; or consent of instructor. (3)

FN535. Emergency and Population Nutrition. Nutrition issues in emergencies and in global populations explored in depth, including assessment, prevention, and relief. (3)

FN540. Community Nutrition. Fundamentals of nutritional care and delivery in community programs. A special focus on cultural food patterns, nutrition education assessment and meeting community needs on local, state and federal levels. Prerequisites: FN235; HE409; HE501. (3)

FN550. Vitamin Metabolism. Focus on the theories and principles of vitamin metabolism and their application to health promotion and discuss prevention. Prerequisite: FN502 or consent of instructor. (3)

FN600. Advanced Application of Medical Nutrition Therapy. Advanced integration of theories and principles of medical nutrition therapy into clinical practice. Corequisites: FN607; FN610; FN629; or permission of program directors. Prerequisites: FN611; FN619; or permission of program directors. (3)

FN601. Sports Nutrition. Theory and application related to nutrition for athletic performance. Application of sports nutrition concepts for recreational and elite athletes. (3)

FN605. Nutrition in the Family Life Cycle. Study of recent scientific findings and developments as they affect the nutrition of all individuals in the family unit. Prerequisite: FN235 or FN255. (3)

FN607. Food Science and Technology. In-depth study of the interrelationships between food production, health, food science, agricultural technology, and food systems sustainability. Corequisites: FN600; FN610; FN629; or permission of program directors. Prerequisites: FN611; FN615; or permission of program directors. (3)

FN610. Strategic Management of Food Service Operations. Advanced study and application of quantity food service operations, strategy formulation, and competitive analysis in the context of food service

management. Corequisites: FN600; FN607; FN629; or permission of program directors. Prerequisites: FN611; FN615; or permission of program directors. (3)

FN611. Foundations in Dietetics Practice. Foundational knowledge and application of the Nutrition Care Process, pharmacology, nutrition informatics, research methodologies, leadership theories, and management theories. Prerequisites: Acceptance into the Master of Science in Nutrition program or consent of program directors. (3)

FN615. Culinary Nutrition. Advanced application of nutrition, food science and culinary skills. Students modify recipes according to a variety of needs. Corequisite: FN611. (3)

FN617. Applied Statistics in Health Sciences. Guide to data analysis: Interpretation and presentation of findings of various data analyses with emphasis on food and nutrition data. Corequisite: FN611. (3)

FN619. Metabolic Considerations in Performance and Wellness Nutrition. In-depth investigation into nutrient utilization and metabolism with special consideration given to athletes, chronic disease risk, wellness, and performance nutrition. Prerequisites: FN611; FN622; or consent of program directors. (3)

FN620. Community Nutrition Programming: Advanced Concepts and Application. In-depth analysis and application of community-based nutrition practices including needs assessments, health programming, grant writing, and public policy advocacy. Prerequisites: FN611; FN615; FN617; or consent of program directors. Corequisites: FN622; FN624; FN628 or consent program directors. (3)

FN622. Nutrition Counselling and Education: Advanced Concepts and Application. In-depth study and application of nutrition counseling and nutrition education theories, techniques, and strategies. Prerequisites: FN611; FN615; FN617; or consent of the program directors. Corequisites: FN620; FN624; FN628; or consent of the program directors. (3)

FN624. Research Methodology. Design and application of research methodology to aid decision making in the food and nutritional sciences. Prerequisites: FN611; FN615; FN617; or consent of program directors. Corequisites: FN620; FN622; FN628; or consent or program directors. (3)

FN627. Essentials of Food Science. Application of food science principles and their efforts on product quality, recipe development, nutritional value and current assessment techniques. Prerequisites: CH181; CH234; FN205; HL303 or PY271. (4)

FN628. Applied Nutrition Field Experience I. Supervised experiential learning in community nutrition, nutrition counseling, and nutrition education settings. Prerequisites: FN611; FN615; FN617; or consent of the program directors. Corequisites: FN620; FN622; FN624; or consent of the program directors. (1)

FN629. Applied Nutrition Field Experience II. Supervised experiential learning in food service management and clinical nutrition settings. Corequisites: FN600; FN607; FN610. Prerequisites: FN611; FN628; or consent of the program directors. (1)

FN630. Energy Metabolism. In-depth study of the metabolism of carbohydrates, lipid, protein and micronutrients and their utilization during exercise and training. (3)

FN637. Research Design and Evaluation. In-depth analysis, description, evaluation, formatting, and reporting of scientific research processes. Pre- or corequisite: PY571. Prerequisite: Graduate standing or permission of instructor. (3)

FN645. Capstone Project in Applied Nutrition. Conduct, analyze and write a report based upon a food and nutrition-focused creative project. Corequisite: FN650 or consent of program directors. Prerequisites: FN600; FN610; FN611; FN617; FN624; or consent of the program directors. (1)

FN650. Professional Skills and Emerging Trends in Dietetics. Application of advanced professional skills required of registered dietitians. Includes a comprehensive review, professional development portfolio, and Capstone Project presentation. Corequisite: FN645; or consent of program directors. Prerequisites: FN600; FN607; FN610; FN611; or consent of program directors. (3)

FN690. (Cross-listed as HL690). Seminar in Nutrition and Exercise Science. Discussion and presentations on current issues involving the disciplines of Nutrition, Dietetics, and Exercise Science. May be repeated for credit. (3)

#### FOREIGN LANGUAGE (FL)

FL610. Independent Study in Foreign Language. For graduate credit in French, German, or Spanish. Prerequisite: Consent of department chairperson and Dean of the Humanities and Social Sciences. May be repeated for up to 9 hours of credit. (3)

FL611. Independent Study in Foreign Language. May be repeated for up to 6 hours of credit. (2)

FL612. Independent Study in Foreign Language. May be repeated for up to 6 hours of credit. (1)

#### FORENSIC SCIENCE (FS)

FS550 Forensic Microscopy. Introduction to the techniques of forensic microscopy in the analysis of physical evidence. Four lab hours. Prerequisite: CH344 or consent of instructor. (2)

FS552 Forensic Serology & DNA Analysis. Introduction to biological fluid identification on evidence and the DNA analysis process to obtain a DNA profile. One hour lecture and two-hour lab. Prerequisite: BI283 or consent of instructor. (2)

FS553. Introductory Analysis of Pattern Evidence. One-semester introduction to the chemical and physical techniques used in the collection, preservation, documentation, analysis, and interpretation of pattern evidence. Prerequisite: CJ350 or FS351 or consent of instructor. (3)

FS601. Problems in Forensic Science. Directed study in specific topics related to forensic science, the operation and function of a crime laboratory, or methods of analysis applied to physical evidence. Prerequisite: Consent of instructor. (1)

FS603. Problems in Forensic Science. (3)

FS605. Forensic Expert Witness Testimony. Survey of principles and practice of forensic expert witness testimony, and the scientific and legal issues affecting the expert witness. Prerequisite: Consent of instructor. (2)

#### GEOGRAPHY (GG)

GG561. Advanced Topics in Geography. Lectures, discussions, laboratories, field trips and assigned readings in various fields of geography. Topics vary. May be taken more than once. (1)

GG562. Advanced Topics in Geography. (2)

GG563. Advanced Topics in Geography. (3)

GG681. Independent Study in Geography. (1)

GG682. Independent Study in Geography. (2)

GG683. Independent Study in Geography. (3)

#### GEOSCIENCES (GO)

GO514. Geographic Information Science Today. Encompasses knowledge-based computational modeling of activities and processes in the human and natural environments using geographic information systems. (GIS). (3)

GO520. Geographic Information System Application. Introduction to concepts, terminology, methods of Geographic Information System (GIS) technology and mapping science. (3)

GO555. Soil Classification and Resource Management. Classification of soils in terms of their physical, chemical, and mineralogical composition. Interpretation of soils in terms of proper land use, with special attention to soil erosion. Prerequisites: AO215 or GO110; CH181 or CH185 or consent of instructor. (3)

GO563. Advanced Topics in Geology. Lectures, discussions, labs, field trips and assigned readings in various fields of geology. May be taken more than once. Topics vary. Prerequisite: Consent of instructor. (3)

GO605. Environmental Assessment. A seminar on the philosophy and process of environmental assessment with an interdisciplinary project which includes team writing of an environmental assessment report. Prerequisite: Consent of the instructor. (3)

GO618. Topics in Earth Science Education. A review of the basic content of earth science coupled with pedagogical models appropriate for teaching the elementary or secondary classroom. This course is not intended for students with an undergraduate or graduate major in earth science. (3)

GO640. Remote Sensing. An introduction to the principles/concepts of remote sensing, its applications, and its significance in today's world. Two lectures, one lab per week. Prerequisites: GO110; MA133; MA134; or consent of instructor or consent of instructor. (3)

GO644. Spatial Analysis. Develop an understanding of spatial relationships and methods to analyze those relationships by using GIS and geostatistics for model development. (3)

GO645. Geographic Information Systems (GIS). An introduction to the theory, methods, and applications of GIS for spatial data analysis. Two lectures, one lab per week. Prerequisite: IS175; GO340; MA223 OR SO242; GO640 or consent of instructor. (3)

GO658. Environmental Geochemistry. Application of chemical principles to the study of near surface environments. Prerequisite: CH186 or consent of instructor. (3)

GO661. Environmental Hydrology. An introduction to the interrelationships between the environment and the occurrence, distribution, movement, and chemistry of water. Emphasizing the influence of geologic processes and materials on surface water, groundwater, and fluid and contaminant transport through the vadose zone. Two lectures, one lab per week. Prerequisites: GO110; MA134; or consent of instructor. (3)

GO681. Independent Study. Supervised individual study in a selected field of the geosciences. Prerequisite: Consent of department chairperson and supervising faculty member. (1)

GO682. Independent Study. (2)

GO683. Independent Study. (3)

#### GRADUATE INSTRUCTION (GI)

GI600. Studies in Pedagogy. Intensive study and research in the art of teaching the disciplines. Topics will vary according to the areas of specialty of the instructor. (3)

GI602. AP Institute: Art. Examine and develop curricular and assessment methodologies, explore practical classroom management strategies, and prepare teaching resources to be used in each respective studio. (3)

GI603. AP Institute: Biology. A course designed to assist high school biology teachers in offering Advanced Placement Biology as part of their curriculum. 8 days, from 8 a.m.-5 p.m. each day, lab and lecture. Summer. Prerequisite: Certified biology teacher. (3)

GI604. AP Institute: Chemistry. An institute designed to help prepare high school chemistry teachers to teach Advanced Placement Chemistry in their schools. Eight days, from 8 a.m. to 12 p.m. and 1 p.m. to 5 p.m. each day, lecture and lab. Summer. Prerequisite: Certified chemistry teacher. (3)

GI609. AP Institute: English Language and Composition. An institute designed to prepare high school teachers to develop a curriculum that will prepare their students to take the Advanced Placement Language and Composition examination and to discuss and develop effective pedagogical techniques for teaching various types of prose passages and to practice evaluation of student writing. (3)

GI610. AP Institute: English Literature/Composition. This course is designed to assist high school teachers in implementing a curriculum that will prepare their students to successfully take the College Board's Advance Placement Literature and Composition examination. (3)

GI611. AP Institute: Foreign Language. This institute is designed to prepare high school teachers of

French, German, and Spanish for the AP exam. In particular, it is intended to assist in implementing a curriculum that will prepare their students to pass the College Board's Advanced Placement French, German, or Spanish examinations. (3)

GI619. AP Institute: U.S. Government and Politics. An institute designed to prepare high school U.S. Government and Politics teachers to teach AP U.S. Government and Politics in their high schools and to develop pedagogical methods and techniques for teaching specific skills and to provide the high school student with a learning experience equivalent to that obtained in college introductory U.S. government and politics courses. Prerequisite: High school teacher of Social Studies. (3)

GI621. AP Institute: European History. A workshop designed to prepare high school history teachers to teach the AP European History course in their high schools. Focus is upon the factual content, methods of historical interpretation and pedagogy appropriate to a college equivalent course. Prerequisite: Qualification for and experience in teaching history at the high school level. (3)

GI622. AP Institute: U.S. History. A workshop designed to prepare high school teachers to teach the AP American History course in their high schools. Focus is upon the factual content, methods of historical interpretation and pedagogy appropriate to a college equivalent course. Prerequisite: Qualifications for and experience in teaching history at the high school level. (3)

GI623. AP Institute: Calculus AB. This institute assists secondary school mathematics teachers in offering an Advanced Placement Calculus course in their schools. The institute is taught over a two-week period for a total of 45 hours. Prerequisite: Mathematics teacher certificate. (3)

GI624. AP Institute: Calculus BC. This institute assists secondary school mathematics teachers in offering an Advanced Placement Calculus course in their schools. The institute is taught over a one or two-week period for a total of 45 hours. Prerequisite: Mathematics teacher certificate. (3)

GI631. AP Institute: Human Geography. An institute designed to prepare high school teachers to develop a curriculum that will prepare their students to take the Advanced Placement Human Geography test and understand the interactions of people on the surface of the earth. Prerequisites: Participants must have a bachelor's degree in social studies (or a social studies-related degree program) with course work in geography; Missouri teacher certification. (3)

GI635. AP Institute: Environmental Science. A course designed to assist high school environmental science teachers in offering Advanced Placement Environmental Science as part of their curriculum. 8 days, from 8 a.m. - 5 p.m. each day, lab and lecture. Summer. (3)

GI640. AP Institute: English Vertical Teams. An institute designed to prepare middle school, junior high, and high school language arts teachers to form English vertical teams and develop a sequential curriculum that will prepare their students to take either the Advanced Placement Literature and Composition or Advanced Placement Language and Composition examination, develop effective pedagogical techniques for teaching various types of nonfiction and literary works, and practice evaluation of student writing. (1-3)

GI641. AP Institute: Mathematics Vertical Teams. The Advanced Placement Program Mathematics Vertical Teams Toolkit will be studied as a resource for implementing vertical teams in mathematics aimed at increasing the number and diversity of students succeeding in Advanced Placement Calculus. Prerequisite: Graduate status or consent of instructor. (1-3)

GI642. AP Institute: Science Vertical Teams. An institute designed to prepare middle school, junior high, and high school science teachers to form vertical teams and develop and implement an aligned curriculum that will prepare their students to take Advanced Placement Courses in science. Prerequisite: consent of instructor. (3)

GI647. AP Institute: Music Vertical Teams. An institute designed to prepare elementary, middle school, junior high and high school music teachers to form vertical teams and develop and implement an aligned curriculum that will prepare their students to take the Advanced Placement Music Theory course and the AP Music Theory examination. Prerequisite: Consent of Instructor (3.)

GI654. Advanced Topics in Advanced Placement Chemistry. A course focusing on advanced topics in AP Chemistry and designed for experienced AP teachers. Five days, from 8 a.m. to 12 p.m. and 1 p.m. to 5 p.m. each day, lecture and lab. Summer. Prerequisites: Certified Chemistry Teacher; Experienced AP Chemistry Teacher. (2)

GI680. Topics in Advanced Placement Teaching. An examination of trends and issues in the Advanced Placement program at the middle level and secondary education, including instructional strategies in the contemporary middle-level and secondary-school classrooms. Prerequisite: Possess middle or secondary school teaching credentials (for public school teachers only). (1-3 credit hours)

#### GRADUATE SCHOOL (GR)

GR603. Seminar on College Teaching. An in-depth study of, and intensive practical training in effective classroom teaching. (0)

GR609. Graduate Thesis/Creative Project Development. Preliminary effort to define and develop a suitable concept for a graduate thesis, creative project, or capstone work. (0)

GR691. Methods of Research: Qualitative and Quantitative Designs. This course prepares students to understand, interpret, evaluate, and design qualitative and quantitative research as well as develop the ability to select and use appropriate research methods. Prerequisite: Admittance to the graduate program. (3)

GR693. Independent Study. May be repeated for credit. (1-3)

GR698. Master's Final Comprehensive Examination. Written comprehensive examination over the degree program. Students must enroll in GR698 during the final semester. (0)

GR699. Master's Oral Examination. The oral examination will be conducted for students writing a thesis or internship paper in lieu of the comprehensive examination. (0)

GR799. Education Specialist Oral Examination. (0)

#### HEALTH, HUMAN PERFORMANCE & RECREATION (HL)

HL510. Health Concerns of Aging. This course is designed to consider the health concerns of individuals and groups as they relate to the aging process. Emphasis will be on working with the aged population. (3)

HL511. Applied Anatomy. Location and action of skeletal muscles. Anatomy and biomechanical principles of movement as applied to rehabilitation, physical activity, and common anatomical injuries and disease. Prerequisites: BS113; BS114; or graduate standing. (3)

HL526. Health Behavior Change. Behavior change theory, principles, predictive models, and their application to health behavior change programs and interventions. Prerequisites: HL120; HL331/031; or consent of instructor; or graduate standing. (3)

HL531. Advanced Exercise Testing. Development of knowledge and skills necessary to conduct exercise tests in clinical settings. 2-hours lecture, 2-hours lab. Prerequisite: undergraduate exercise physiology course with lab or permission of instructor. (3)

HL550. Exercise Programming for Special Populations. Exploration of exercise testing and exercise programming considerations for special populations. Prerequisite: undergraduate exercise physiology course with lab or permission of instructor. (3)

HL601. Physiology of Exercise. Physiological responses to exercise, the recovery process, and systematic training regimens. Emphasis on bioenergetics, training, and health. Prerequisite: undergraduate exercise physiology course with lab or permission of instructor. (3)

HL603. Cardiovascular Exercise Physiology. Systems approach to the cardiovascular responses to acute and chronic exercise. Emphasis on the myocardial and circulatory adaptations associated with physical training and the impact of environment on pertinent parameters. Prerequisite: undergraduate exercise physiology course with lab or permission of instructor. (3)

HL621. Exercise in Health and Disease. The role of exercise in the prevention and rehabilitation of cardiopulmonary diseases. Emphasis on patient/client education, programming, and assessment.

Prerequisite: undergraduate exercise physiology course with lab or permission of instructor. (3)

HL671. Implementation and Organization of Fitness Programs for Healthy and Diseased Populations.

Organizational structure, exercise programming, facility administration, and testing/screening procedures for programs serving apparently healthy, symptomatic, and diseased populations.

Prerequisite: Graduate standing or consent of instructor. (3)

HL672. Health Promotion Programs. Principles of planning, implementing, and evaluating health promotion programs in various settings. Prerequisite: Graduate standing or consent of instructor. (3)

HL690. (Cross-listed as FN690). Seminar in Nutrition and Exercise Science. Discussion and presentations on current issues involving the disciplines of Nutrition, Dietetics, and Exercise Science. May be repeated for credit. (3)

HL691. Applied Research. An applied research project, guided by a faculty committee within the fields of Health Promotion, Exercise Science, and Athletic Training. Prerequisites: GR691 or equivalent; PY571 or equivalent; consent of department chair. (3)

HL699. Internship in Nutrition and Exercise Science. Internship with an approved agency for the purpose of applying knowledge and enhancing practical skills through an experiential learning opportunity.

Completion of all coursework for M.S. in Nutrition and Exercise Science. (3)

#### HEALTHCARE MANAGEMENT (HA)

HA510. Healthcare Operations. Focus on the practical and analytical tools required to deal with operational issues in healthcare organizations. Prerequisites: HA300 or MG301 with a minimum grade of C; or permission of department chairperson. (3)

HA520 Introduction to Healthcare Quality. Foundation of the quality improvement issues, including the history and drivers of quality, facing individuals in the healthcare setting. Prerequisites: HA300 or MG301 with a minimum grade of C; or permission of department chairperson. (3)

HA525. Advanced Healthcare Quality. Focus on the implementation of quality initiatives in healthcare organizations based on organizational structure, new and existing processes, and desired outcomes. Prerequisite: HA520 with minimum grade of C; or permission of department chair. (3)

HA530. Introduction to Patient Safety. Introduction to relevant theory and practice in the area of patient safety, including the role of management, physicians, nurses, clinicians, and support staff in patient safety initiatives. Prerequisite: HA300 or MG301 with minimum grade of C; or permission of department chair. (3)

HA535. Advanced Patient Safety. Focus on implementation of patient safety initiatives through leadership, developing a culture of safety, and the legal and ethical concerns in the context of patient safety. Prerequisite: HA530 with a minimum grade of C; or permission of department chair. (3)

HA540. Healthcare Informatics. Introduction to information technology as it is applied to healthcare and health related organizations. Examination of how information is captured, converted and stored in machine readable form and used in the various facets of the healthcare system; the impact of Electronic Medical Record (EMR) and mobile computing on the healthcare system. Prerequisites: MI375 with a minimum grade of C; HA300 or MG301 with a minimum grade of C; or permission of department chair. (3)

HA545. Healthcare Database Systems. Study of the design of databases used in healthcare. Types of database architecture, normalization techniques, file and access techniques, query, and update languages, data integrity, use of health record systems, and applications of databases to support the healthcare system. Prerequisites: MI375 with a minimum grade of C; HA300 or MG301 with a minimum grade of C. (3)

HA550. Healthcare Risk Management. Foundation of knowledge relating to the components of an effective risk management and ethics program in compliance with applicable laws and regulations. Prerequisite: HA300 or MG301 with a minimum grade of C; or consent of department chair. (3)

HA556. Topics in Healthcare Administration. Seminar in contemporary healthcare administration problems and issues, stressing the technical, analytical, legal, social, and pragmatic aspects of healthcare administration. Repeatable up to 9 cred hours. Prerequisite: Consent of instructor. (1-3)

HA560. International Healthcare Administration. Economic, cultural, political, and environmental variables of international healthcare management. Includes trends and organization for international healthcare operations. Prerequisites: HA300 or MG301 with minimum grade of C. (3)

HA580. Healthcare Strategy. Introduction to strategic management in the healthcare setting. Prerequisite: HA300 or MG301 with a minimum grade of C; or consent of department chair. (3)

HA582. Healthcare Budgeting and Reimbursement. This course is an introduction to health care budgeting and reimbursement and the impact of resource allocation on health care delivery. Prerequisite: HA300 or MG301 with a minimum grade of C; or consent of department chair. (3)

HA585. Marketing for Health Services Organizations. Introduction to strategic marketing in healthcare. Concepts and tactics marketers use to develop cutting-edge value propositions for key target audiences in a range of healthcare settings. Prerequisite: HA300 or MG301 with a minimum grade of C; or consent of department chair. (3)

HA620. Research Methodology in Healthcare. Introduction to research and program evaluation in a healthcare setting. Prerequisite: PY271 with a minimum grade of C; or consent of Graduate Studies Program Director. (3)

HA657. Applied Research Project in Healthcare. Designed to understand the process by which leaders respond to healthcare problems. Integrates research skills and professional practices and provides an opportunity to apply current research to a healthcare problem. May be repeated for up to 6 credit hours. Prerequisite: Successful completion of 18 hours in the MS in Healthcare Management program; or consent of Graduate Studies Program Director. (3)

HA658. Graduate Internship in Healthcare. Supervised field experience in a healthcare related setting involving at least 150 supervised contact hours. May be repeated for up to 6 credit hours. Prerequisite: Successful completion of 18 hours in the MS in Healthcare Management program; or consent of department chairperson. Credit/No Credit. (3)

HA691-693. Independent Study in Healthcare. Study of an approved specific problem in healthcare management, preferably one growing out of previous coursework or from practical experience. Course may be repeated for credit. (1-3)

HA681. Health Administration Policy. Introduction to policies impacting health administration. Prerequisite: 21 hours completed in the MS Healthcare Management program; or consent of department chair. (3)

#### HISTORIC PRESERVATION (HP)

HP500. Historic Preservation Internship I. Professional practicum requiring demonstration of Historic Preservation competency in appropriate settings under the direction of cooperating site administrators and University coordinator. (3)

HP501. Historic Preservation Internship I. Historic Preservation Internship I. Professional practicum requiring demonstration of Historic Preservation competency in appropriate settings under the direction of cooperating site administrators and University coordinator. (6)

HP502. Historic Preservation Internship I. Historic Preservation Internship I. Professional practicum requiring demonstration of Historic Preservation competency in appropriate settings under the direction of cooperating site administrators and University coordinator. (9)

HP540. Topics in Historic Preservation. Examination of specialized topics or issues in historic preservation. (3)

HP552. Historic Preservation Field School. Intensive field experience in documenting and preserving the built environment and the historic landscape. (3)

HP575. Collections Management. Study of collections management theory, practices for administration, handling, physical care, recording, and study of artifacts in public history institutions. Prerequisite: HP 200 or GH 600. (3)

HP580. History of American Building Materials and Techniques. A survey of traditional construction materials and methods used in buildings and structures in the United States from the late sixteenth century to the recent past. (3)

HP585. History of American Architecture. The study of architectural history as material evidence of America's social, cultural, economic, and technological development. (3)

HP588. Legal and Economic Principles of Historic Preservation. A study of the legal and economic aspects in the procedures for locating, recording and preserving America's historical, architectural and cultural resources. Prerequisites: HP100; HP200. (3)

HP589. Historic Preservation-Based Economic Revitalization. A study of the role of historic preservation in the revitalization of America's historic downtowns. (3)

HP601. Independent Study in Historic Preservation. Prerequisite: Consent of instructor. (1)

HP602. Independent Study in Historic Preservation. Prerequisite: Consent of instructor. (2)

HP603. Independent Study in Historic Preservation. Prerequisite: Consent of instructor. (3)

HP615. Heritage Education. An applied research course focusing on techniques used to teach about the diverse, rich heritage of the built environment and material culture artifacts. (3)

HP630. Issues in Historic Preservation. Examination of specialized issues in historic preservation relating to archives and special collections, historic site administration, or museum studies. (3)

HP635. Issues in Interpretations in Public History. Explores potentially controversial or divisive topics in public history education with an emphasis on state, regional and local importance. (3)

HP640. Historic Preservation Internship. Graduate internship in historic preservation. 150 hours required. May be repeated for credit. (3)

HP645. Advanced Projects in Applied History. Individual or group projects requiring knowledge and skill in the field of historic preservation, historic site administration, museum administration, archives administration or heritage education. Prerequisite: Minimum of 16 hours of graduate coursework completed. (3)

HP650. Problems in Historic Preservation. Projects in historic preservation that acquaint the student with a broad spectrum of academic/practical problems that complement professional training. Prerequisites: HP100 and HP200; or HP600; or consent of instructor. (3)

#### HISTORY-EUROPEAN (EH)

EH516. History of Modern Germany. Germany in the Nineteenth and Twentieth Centuries. (3)

EH518. History of Soviet Russia. The 1917 revolution and analysis of the history and policies of the U.S.S.R. (3)

EH520. History of Spain and Portugal. Survey of the history of Spain and Portugal from the Roman era to the present. (3)

EH527. Intellectual History of Europe. Examination of intellectual and social history of Europe from the seventeenth century to the twentieth century. (3)

EH550. Castles in Context. Study of medieval castles and related settlement forms and their contemporary and modern-day social, landscape, and cultural contexts. (3)

EH620. Seminar in European History. Intensive study in European History. (3)

#### HISTORY-GENERAL (GH)

- GH520. Techniques of Oral History. Study and practice in designing and carrying out oral history projects. (3)
- GH 550. Heritage Outreach. Study of the outreach methods used by heritage professionals in public endeavors, with special emphasis on digital humanities tools. Prerequisite: graduate status. (3)
- GH600. Introduction to Public History. Guided readings, discussion, and practice in presenting history to audiences outside the academy. Prerequisite: Graduate status. (3)
- GH601. Independent Study in History. Prerequisite: Consent of instructor. (1)
- GH602. Independent Study in History. Prerequisite: Consent of instructor. (2)
- GH603. Independent Study in History. Prerequisite: Consent of instructor. (3)
- GH610. Methods of Research in History. Location, evaluation, and presentation of historical material, including a component of historiography. Designed to prepare the student for writing research papers and the thesis. Emphasis will be upon archival and computer research tools. (3)
- GH645. Readings Applied History. Study of selected topics in applied history. (3)
- GH651. Problems in Social Studies. (Subtitle will vary.) (1)
- GH652. Problems in Social Studies. (2)
- GH653. Problems in Social Studies. (3)
- GH678. Issues in Teaching Social Studies in the Secondary School. An analysis of special problems in teaching history and the social studies in the secondary school. Emphasis on current trends in the social studies curriculum. Prerequisite: A major or minor in history and/or social studies. (3)
- GH680. Practicum Teaching History. Applied and mentored experience in teaching history to undergraduates at the college level. (0)
- GH694. Thesis. A written report based upon investigation of a subject or the completion of a creative project. See "Thesis" for additional information. (3)
- GH695. Thesis. Candidates choosing the Teaching Option may elect to write a thesis under the direction of their advisor. Upon completing the thesis the candidate will defend it before a committee selected by the candidate and advisor. Candidates may elect 6 hours of coursework and 1 non-thesis paper in lieu of the thesis. (3)
- GH696. Thesis. (2)
- GH679. Thesis. (1)

#### HISTORY-UNITED STATES (US)

- US502. America Since 1920. Thematic survey of American history from 1920 through application of social, cultural, political, and economics historical methods. (3)
- US507. Civil War and Reconstruction. Study of the social, economic, military and political aspects of the Civil War and Reconstruction periods of American history. (3)
- US509. American West. The economic cultural, political, and military developments of the various frontiers. (3)
- US524. Rural American Society and Culture. Study of geographic, social, economic, and political characteristics of rural United States from 1800-present. (3)
- US525. American Urban History. A study of the origins and growth of American cities from the colonial town to the modern metropolis and an analysis of the city's historical impact on American culture and institutions. (3)
- US 530. The African-American Experience. Survey of African-American history and culture from 1619 to the present. (3)
- US531. American Military History. A study of the changing relationship between civil-military authority, of warfare, and their impact upon democratic institutions. (3)

US620. Seminar in United States History. Intensive study and research in United States history. Topics vary according to the areas of specialty of the instructor. (3)

US635. American Material Culture. A study of American material culture emphasizing how commonplace artifacts provide historical evidence of the past and the people who made and used them. (3)

US660. African Americans During a Time of Slavery. A study of Africans in America, both slave and free, from 1619 to 1865. (3)

#### HISTORY-WORLD (WH)

WH515. The Rise and Fall of the British Empire. Examines the development of the British Empire from its origins in the late 16th century to decolonization in the mid-20th century. (3)

WH520. Latin American Colonial History. Survey of the Iberian and Indian background to the voyages of discovery, European conquest; establishment of imperial institutions, Bourbon reforms of the eighteenth century and the origins of independence. (3)

WH522. History of South America. Survey of the development of the major nations of South America since independence with particular attention to revolutionary change and the evolution of democracy. (3)

WH524. History of Mexico. An examination of modern Mexico from wars of independence to the Mexican Revolution of 1910. (3)

WH550. The Atlantic World. The political, social, economic and cultural history of the Atlantic world from 1492 to 1830. Prerequisite: US105 or consent of the instructor. (3)

WH620. Seminar in European History. Intensive study and research in European history. Topics will vary according to the areas of specialty of the instructor. (3)

WH630. Seminar in World History. Intensive study and research in world history. Topics will vary according to the areas of specialty of the instructor. (3)

#### INTERIOR DESIGN (DS, HI)

DS618. Environmental Design for Human Services. Study of the principles and theories involved in designing effective home, office, educational healthcare, hospitality, service, and retail environments. (3)

DS620. Advanced Environmental Design Studio. In-depth review of design-related research, theories, and case studies. Emphasis of research to the design of interior environments. May be repeated for up to 9 hours of credit. (3)

#### HUMAN ENVIRONMENTAL STUDIES (HE)

HE501. Learning Theories and Methods for the Human Services Professional. Application of learning theory in instructional planning, implementation and evaluation in nontraditional educational settings. Students will interview, counsel individuals and facilitate a group process related to the field of dietetics. Prerequisite: Completion of 45 hours of coursework. (2)

HE505. Problems in Human Environmental Studies. Directed study of special problems through seminars, workshops, forum, etc. (1)

HE506. Problems in Human Environmental Studies. (2)

HE507. Problems in Human Environmental Studies. (3)

HE508. Problems in Human Environmental Studies. (4)

HE540. Foundations of Family and Consumer Sciences. Focus on mission, vision, and history; roles in improving quality of life for individuals and families; and career opportunities. (3)

HE600. Foundations of Human Environmental Studies. A study of history, theory and philosophy as related to Human Environmental Studies. Prerequisite: Introductory Philosophy course or consent of instructor. (3)

HE601. Sustainable Environments in Human Services. Examination of models of sustainability and critical applications in human services. (3)

HE608. Supervision and Personnel Development in Human Environmental Studies. Evaluation of supervision theories, models and employee development for private/ public institutions with emphasis on Human Environmental Studies areas. (3)

HE610. Independent Study. (1)

HE611. Independent Study. (2)

HE612. Independent Study. (3)

HE615. Qualitative Research Design. Introduction to qualitative research design including data collecting, recording, managing analysis. Prerequisites: CF630; HE625; or consent of instructor. (3)

HE625. Evaluating Research in Human Services. Emphasizes understanding and evaluating research studies. Identifying, differentiating, analyzing, and evaluating research components and processes. Prerequisite: Introductory statistics course or consent of instructor. (3)

HE625; PY571; or permission of instructor. (3)

HE640. Advanced Professional Practicum. A professional practicum placement designed to enhance the development of advanced interactive skills and management practices appropriate to the discipline. Prerequisite: Graduate standing. (3)

HE645. Advanced Graduate Seminar. Selected advanced topics will be offered as needed in a seminar format. Student interaction, debate and presentation skills are incorporated. Prerequisites: CF630; HE608; or consent of instructor. (3)

HE694. Thesis. First Semester. A written report based upon investigation of some subject or the completion of a creative project. See Thesis Plan for additional information. (3)

HE695-697. Thesis. Second semester. (1-3)

#### INDUSTRIAL AND SYSTEMS ENGINEERING (EG)

EG506. Operations Research. Provides Operations Research (OR) methods to formulate, analyze, and solve mathematical models in order to optimize real world problems. Prerequisites: MA 345; MA 523; MN 260 or CS 155 or CS 177; or graduate standing. (3)

#### INDUSTRIAL EDUCATION (IE)

IE590. Assessment for Career and Technical Education. Study of terminology and philosophy of career and technical education, objectives, analysis for development and evaluation of courses of study. (3)

IE592. Selection and Organization of Subject Matter. Study of terminology and philosophy of industrial education; objectives, analysis for manipulative and informational units, projects, exercises, experiments, production jobs, demonstrations, textbooks, job, operation, assignment and information sheets, teaching aids, evaluations, progress charts, performance tests, master teaching plan, instructional guides and courses of study. On demand. (3)

IE593. Principles and Practices of Technical Subjects. A vocational teacher training course designed to serve trade, technical, health, CETA teachers. Designed to give practical and substantial assistance to instructors through the study of the most useful methods, basic principles, and techniques for teaching. (3)

IE594. Guidance in Vocational Education. Problems, methods, and procedures involved in assisting individuals to choose, prepare for, enter and become adjusted in their vocations. Designed for teachers and counselors, employment service personnel, and others. (3)

IE595. Teaching Adults in Vocational Education. Definition, importance, concepts, problems, and movement with characteristics, interests, and abilities of adults. Techniques of overcoming problem areas, methods of conducting classes, and role of school system in an adult vocational education program. (3)

IE596. Foundations of Career and Technical Education. Introduction to the foundations of vocational and industrial education including history, philosophy, definitions, state plan, handbook, certification, recertification, occupational surveys, safety programs, career education, area vocational-technical schools, co-op education, CETA programs, apprenticeships, related instruction, state department evaluations, accountability, follow-up studies, advisory committees, facilities, funding and federal acts. (3)

IE597. Coordination of Cooperative Education. Organization and operation of cooperative programs, including advisory committees, classroom, development of training stations, methods of instruction and student organizations. (3)

#### INDUSTRIAL MANAGEMENT (IM)

IM501. Independent Study in Industrial and Engineering Technology. Individualized independent investigation in laboratory and informational content. (1)

IM502. Problems in Industrial and Engineering Technology. Study of special concerns. (1)

IM503. Independent Study in Industrial and Engineering Technology. Individualized independent investigation in laboratory and informational content. (2)

IM504. Problems in Industrial and Engineering Technology. Study of special concerns. May be repeated for up to 6 hours of credit. (2)

IM505. Independent Study in Industrial and Engineering Technology. Individualized independent investigation in laboratory and informational content. May be repeated for up to 6 hours of credit. (3)

IM506. Projects in Industrial and Engineering Technology. Study of special concerns. Prerequisite: IM419 or consent of instructor. (3)

IM515. Advanced Technical Communication. Designed to provide students with advanced written and oral communication of technical documents required in industry, using technology tools. Prerequisite: IM300. (3)

IM516. Documenting and Presenting Technical Instruments and Proposals. Provides students with the ability to analyze and produce technical instructions and proposals for usability to end-users. Prerequisite: IM515. (3)

IM517. Software in Technical Documents. Course will help students to apply technological software to produce advanced technical documents and descriptions used in industry. Prerequisite: IM300. (3)

IM518. Advanced Technical Document Design, Organization & Graphics. Provides students with the ability to produce effective technical documents utilizing visual design concepts for industrial applications. Prerequisite: IM517. (3)

IM520. Technical Training and Development. Course provides students with the knowledge and application of a structured approach for developing technical training. (3)

IM521. Technical Change and Human Resource Development. Course provides students with the knowledge and application of a structured approach for developing technical training. (3)

IM522. Technical Leadership in Training and Development. Course provides students with the theoretical background and application of technical leadership. (3)

IM523. Training and Development of Technical Teams. Course provides students with the theoretical background and application of coaching and training of technical teams. (3)

IM555. Sustainable and Green Manufacturing. Examines the concept of "sustainable manufacturing; using green materials, methods and technologies that are energy efficient, sustainable and friendly to the environment. Topics include carbon footprint management, sustainable manufacturing process

design, and life-cycle assessment for industrial processes. Prerequisite: ET 426 or consent of instructor. (3)

IM581. Independent Study in Industrial and Engineering Technology. Individualized independent investigation in laboratory and informational content. May be repeated for up to 6 hours of credit. (1)

IM583. Independent Study in Industrial and Engineering Technology. May be repeated for up to 6 hours of credit. (2)

IM585. Independent Study in Industrial and Engineering Technology. May be repeated for up to 6 hours of credit. (3)

IM600. Managing Technology Innovation. This course focuses on management of technology, innovation, and new product development. It will cover concepts such as innovation management in the field of technology, identification of sources of innovation, and creating new products and services in the field of technology. (3)

IM601. Industrial Safety and Ergonomics. This course will examine the role and importance of management in producing and maintaining a safe workplace environment. Topics covered will include the role of Occupational Safety and Health Administration (OSHA) in industry and business, OSHA inspections, regulations, required documentation and legal and ethical issues regarding safety issues. (3)

IM602. Advanced Quality Concepts. This course examines the role(s) and application of quality concepts to modern industrial organizations. The key concepts related to Certified Quality Engineer certification exam will be covered. Prerequisite: IM302 or IM311. (3)

IM603. Industrial Supervision in a Diverse Workplace. The role(s) and knowledge required for managers to effectively supervise, interact, communicate, and motivate employees of various demographics in current work environments. (3)

IM605. Innovation for a Lean Enterprise. This course is aimed at preparing students for careers in industry. A team of students will identify and develop solutions to practical problems or market needs. Students will develop creative problem-solving abilities and other skills necessary for innovative thought and innovation. (3)

IM606. Knowledge Management. The goal of the course is to prepare students to become familiar with the current theories, practices, tools and techniques in knowledge management (KM) organizations. In addition, students will learn to determine the infrastructure requirements to manage the intellectual capital in organizations. (3)

IM617. Manufacturing Resources Analysis. Prediction of costs involved in manufacturing processes and systems. Students learn how to create effective production and inventory control applications throughout all production phases. Activities will include application of Enterprise Resource Planning Software. (3)

IM681. Independent Study in Industrial and Engineering Technology. Individualized independent investigation in laboratory and informational content. May be repeated for up to 6 hours of credit. (1)

IM683. Independent Study in Industrial and Engineering Technology. May be repeated for up to 6 hours of credit. (2)

IM685. Independent Study in Industrial and Engineering Technology. (3)

IM691. Methods of Research in Technology Management. Covers fundamental issues in planning, conducting, and research in technology management areas. Includes concepts such as identification of research problems, effective research design, data collection and analysis using quantitative and qualitative techniques and techniques for evaluation research results. (3)

IM692. Modeling and Simulation. This course emphasizes the development of modeling and simulation concepts and analysis skills necessary to design, program, implement, and use computers to solve and analyze problems of complex systems/products. Prerequisite: IM691 or consent of instructor. (3)

IM693. Applied Research Project. Designed to develop an understanding of the process by which industrial supervisors respond to problems. Integrates research skills and professional practices and provides an opportunity to apply current research to an identified problem. Prerequisite: IM691. (3)  
IM694. Thesis. (3)

#### INFORMATION SYSTEMS (IS)

IS575. IS/IT Strategy and Management. Business alignment with technology using strategic frameworks for IT deployment in organizations. Course is of applied nature with discussions on industry practices in managing IT. Prerequisite: IS340 with minimum grade of C. (3)

#### LITERATURE (LI)

LI510. Literature and the Bible. A study of literature based on Biblical parallels and archetypes. Includes novels, stories, poems, and plays. (3)

LI523. Studies in American Literature. Variable topics course emphasizing foundational and traditional texts, genres, authors, and themes of American literature. May be repeated for credit. Prerequisites: EN 140; any 200-level literature course; or graduate status. (3)

LI542. Literature for the Young Adult. A survey of the literature written for young adults (grades 7-12) with emphasis on literary analysis and evaluation of the literature and on the reading interests of young adults. (3)

LI560. Chaucer. Primary works of Geoffrey Chaucer, including *The Canterbury Tales* within the context of a turbulent 14<sup>th</sup> century social, political, and religious world. Prerequisites: EN140; any 200-level literature course; or graduate status. (3)

LI565. Southern Literature. Study of the literature and culture of the American South, covering a wide variety of themes and topics. Prerequisites: EN140; any 200-level literature course; or graduate status. (3)

LI568. Masculinities in the 19<sup>th</sup> Century American Novel. Study of works by American writers of the 19<sup>th</sup> century, including historical and cultural contexts as well as writing styles and novelistic techniques. Prerequisites: EN140; any 200-level literature course or graduate status. (3)

LI570. Twentieth-Century American Literature. Study of works by American writers of the 20<sup>th</sup> century, including historical and cultural contexts, writing styles and techniques. Prerequisites: EN140; any 200-level literature course or graduate status. (3)

LI571. Contemporary American Poetry. Exploration of major and minor American poets of the 20<sup>th</sup> and 21<sup>st</sup> centuries. Themes may include race, ethnicity, poetic forms, gender, regional and specific time periods. Prerequisites: EN140; any 200-level literature course or graduate status. (3)

LI576. American Fiction of the Twenty-First Century. Studies of novels and short stories from a variety of voices in 21<sup>st</sup> century American literature. Writing assignments may include response papers, literary analysis, cultural analysis, and literary criticism. Prerequisites: EN140; any 200-level literature course or graduate status. (3)

LI577. Studies in Early English Literature. A course which focuses on the study of early modern English literature from 1450-1785. It addresses issues, periods, or genre studies in the literature of England not addressed in the regular course listings. May be repeated for elective credit. (3)

LI578. Studies in Later British and Postcolonial Literature. Any literature from 1798 to the present written in English (excluding American literature). Emphasizes emergent issues in British and postcolonial literature; globalization, empire, domination, sexual politics, and/or speculative apocalypse. Prerequisites: EN140; any 200-level literature course or graduate status. (3)

LI582. Topics in Literature. Directed study of special topics in literature. (3)

LI605. Contemporary Anglophone Literature/Contemporary Theory. An examination of contemporary literary theory through contemporary literature (British, Commonwealth, and post-colonial) which addresses the theoretical issues of our time. (3)

LI 612. Native American Literature. Explores the contributions that Native American writers have made to the development of American literature from the late 19th Century to the present. (3)

LI615. Practicum in Teaching Literature. Teaching practicum: Mentored experience in teaching undergraduate literature; experience includes techniques for writing, presenting, facilitating discussion, and finding employment. (3)

LI 617. Writing Race and Gender in the South. Special topics class with a focus on women's literature and multicultural authors and texts from and about the U.S. South, including novels, poetry, short stories, plays, and films. (3)

LI 626. Gender and Sexuality in Literary Studies. A study of literary, theoretical, and critical texts related to gender and sexuality. (3)

LI631. Faulkner Seminar. Study of the works of William Faulkner and other writers. Features in-depth study of the works and criticism of Faulkner, paired with a changing selection of other writers and topics. Students will be introduced to the University's world-class L.D. Brodsky Collection of Faulkner materials. Pre- or co-requisites: EN140; any 200 level LI course. (3)

LI 634. African American Literature before 1900. A study of African American Literature from Beginnings through 1900. Pre- or corequisites: EN 140; any 200-level literature course; or graduate student status. (3)

LI 636. African American Literature since 1900. Explores the contributions that African American writers have made to the development of American literature from the turn of the 20th Century to the present. (3)

LI658. Literary Criticism. A course in the techniques of close analysis of literary form. (3)

LI665. Shakespeare. An extensive study of the works of William Shakespeare and Shakespeare criticism. (3)

LI 670. Immigration in Literature and Film. A study of the themes of immigration, transculturation, and global diasporas in American literature and film. (3)

LI674. Studies in Modern American Literature. A study of American literature from the Civil War to the present. Variable content; may be repeated. (3)

LI676. Early Twentieth-Century British Literature. Course addresses how British/Irish modernism's radical artistic experimentation transformed a way of seeing the world, beginning with Oscar Wilde's rebellion against Victorian morality and concluding with modernism's dialogue with postmodernism. (3)

LI679-681. Independent Study in English. Independent work in a specialized area not covered by regular course offerings. (1-3)

#### MANAGEMENT (MG)

MG548. Project Management. Project organization structure and staffing; conflict management; project planning and control; pricing and estimating; earned value analysis; proposal preparation; project information systems; international project management. Prerequisites: IS275 or MI375 with minimum grades of C. (3)

MG550. Improving Team Performance. The course will investigate team performance and the skills and techniques required to improve team performance. Prerequisite: MG301 with minimum grade of C. (3)

MG560. International Management. Economic, cultural, political, and environmental variables of international management. Includes trends, organization for international operations, international management of human resources. Prerequisite: MG301 with minimum grade of C. (3)

MG562. Organization Theory and Design. Organizational purpose, design, structure, bureaucracy, power and politics; impact of external environmental and internal organizational factors on structure and design. Prerequisite: MG301 with a minimum grade of C. (3)

MG566. Legal and Union Issues in Human Resources. Human resource topics of employment law and labor relations. Emphasis on the impact of case law and union activity on organizations. Prerequisite: MG356 or BA656 with minimum grade of C. (3)

MG575. Information Technology Management. Business alignment with technology as pertaining to strategic frameworks for IT deployment in an organization. Applied nature, with discussions on industry practices. Prerequisite: MI375/IS275 with minimum grade of C. (3)

#### MANUFACTURING ENGINEERING TECHNOLOGY (MN)

MN512. Industrial Capstone Projects. Provides students an opportunity to work on industrial capstone projects, such as system integration, data analysis, and design of automation systems. Prerequisites: graduate or senior standing. May be repeated for up to 6 hours of credit. (3)

#### MANAGEMENT INFORMATION SYSTEMS (MI)

MI556. Topics in Management Information Systems. Seminar in contemporary Management Information Systems covering an emerging topic, trend, or methodology in Management Information Systems. Prerequisite: MI375 with a minimum grade of C. Repeatable up to 9 credit hours. (3)

#### MARKETING (MK)

MK547. Sales Management. Human relations aspect of organizing and managing an outside sales force, sales analysis, planning and control. Prerequisite: MK 301 with a minimum grade of C. (3)

MK 555. Digital Marketing Strategies. An introduction to the Internet as part of a company's marketing strategy. Students will explore Internet consumer characteristics and behavior and their effect on web content. Prerequisite: MK 301 with minimum grade of C. (3)

MK560. International Marketing. The marketing environments throughout the world and the management of the marketing function on a global scale. Prerequisites: MK301 with minimum grade of C. (3)

#### MATHEMATICS (MA)

MA510. Mathematical Foundations. Review of propositional logic, proof techniques, number theory and discrete probability in preparation for further graduate studies. Cannot be used for credit on any mathematics major or minor. Prerequisite: Admission to MS Cybersecurity or permission of instructor. (3)

MA523. Probability and Statistics I. Introduction to probability and statistics using the tools of calculus. Algebra of probability, random variables, discrete and continuous distributions. Prerequisite or Co-requisite: MA 244 with minimum grade of C. (3)

MA524. Probability and Statistics II. Continuation of MA523 with emphasis on bivariate distributions and statistical inferences, statistical sampling, estimation, testing hypotheses, parametric procedures for one-sample and two-sample problems. Prerequisite: MA523 with minimum grade of C. (3)

MA526. Actuarial Seminar. Solving probability problems that are unique to actuarial science. Prerequisite: MA524. (3)

MA530. Statistical Learning. Introduction to supervised and unsupervised learning with hands-on capability of building predictive models using statistical software. Prerequisites: MA323; CS155 or CS177 or MA334; minimum grade of C on all prerequisites. (3)

MA532. Foundations of Geometry. Historical development of the axiomatic approach to Euclidean geometry and non-Euclidean geometries, coordinate systems for affine and projective planes, and

metric postulates for Euclidean, hyperbolic, and elliptic planes. Prerequisite: MA250 with a minimum grade of C. (3)

MA538. History of Mathematics. A historical account of mathematics from the time of Newton and Leibniz to its twentieth century developments. Prerequisite: MA139 or MA140 with a minimum grade of C. (3)

MA540. Projective Geometry. Non-Euclidean geometry, study of projective geometry and its relation to other geometries. Prerequisite: MA250 with a minimum grade of C. (3)

MA544. Numerical Methods. Approximation procedures, numerical differentiation and integration, numerical solution of equations, systems of equations, and differential equations, with reference to computers. Prerequisites: MA244 with minimum grade of C; MA334 or CS155 or CS177 with minimum grade of C. (3)

MA545. Linear Algebra and Matrices. Introduction to vector spaces, linear transformations, matrices, eigenvalues, eigenvectors, matrix decompositions, and numerical methods in linear algebra. Prerequisites: MA250 with minimum grade of C; MA345 with minimum grade of C. (3)

MA546. Advanced Calculus I. Sets, relations and functions, sequences of real numbers and sequences in  $\mathbb{R}$ , continuous and differentiable function on  $\mathbb{R}$ . Prerequisites: MA244 with minimum grade of C; MA250 with minimum grade of C. (3)

MA547. Advanced Calculus II. Riemann-Stieltjes integral, measure and Lebesgue integral, convergence of infinite series of functions, Fourier series, some Hilbert space theory. Prerequisite: MA546 with minimum grade of C. (3)

MA548. Enumerative Combinatorics. A study of basic enumeration techniques, recurrence relations, generating functions, the inclusion-exclusion principle, Ramsey theory, partially-ordered sets, and combinatorial designs. Prerequisite: MA145 with a minimum grade of C; MA250 with a minimum grade of C. (3)

MA549. Graph Theory. Basic parameters and properties of graphs, representations, trees, connectedness, Eulerian and Hamiltonian cycles and paths, matchings, edge and vertex colorings, independent sets and cliques, planar graphs, directed graphs, multigraphs. Prerequisites: MA145 with minimum grade of C; MA 250 with minimum grade of C. (3)

MA550. Differential Equations II. Theory and techniques of solving ordinary differential equations, partial differential equations, boundary value problems, applications, numerical methods, and stability. Prerequisite: MA350 with minimum grade of C. (3)

MA560. Research Methods in Mathematics. An overview of research methods. Practice in the methods for the formulation and solution of problems. Prerequisites: MA244 with minimum grade of C; MA250 with minimum grade of C. (3)

MA575. Time Series and Forecasting. Introduction to financial time series analysis with hands-on estimation of mean and conditional heteroscedastic processes using statistical software. Prerequisites: MA145; MA425. (3)

MA580. Experimental Design and Analysis of Variance. Completely randomized design and analysis, randomized block design and analysis, factorial experiments, split-plot design and analysis, repeated measurement experiments and analysis, analysis of covariance. Prerequisite: MA223 with a minimum grade of C; or consent of instructor. (3)

MA585. Introduction to Life Contingencies. Introduction to survival models, life tables, contingent payment models, and contingent annuity models using tools of mathematical statistics. Prerequisite: MA524. (3)

MA625. Applied Regression Analysis. Learn how to use regression to represent a relationship between explanatory variables and their associated response. Emphasis will be on analyzing actual datasets. The following topics will be covered: simple linear regression, multiple regression, prediction, variable

selection, residual diagnostics, auto-regression, and logistic regression. Prerequisite: MA223 Elementary Probability & Statistics (3)

MA633. Differential Geometry. Basic properties of curves and surfaces in three-dimensional space, arc length, curvature, torsion, Frenet-Serret formulas, surface normal, tangent plane, fundamental forms of surface theory. (3)

MA635. Topology. Study of sets, relations, functions, products, cardinality, metric spaces, topological spaces, convergence, continuity, separation axioms, connectedness, compactness, homotopy, and fundamental group. (3)

MA640. Seminar in Contemporary School Mathematics. Survey of the major issues and curricular trends in mathematics for secondary schools (7-12). Prerequisite: secondary mathematics teaching experience or consent of instructor. (3)

MA642. Groups and Fields. Introduction to the algebraic theory of groups and fields. Use of a computer algebra system to explore applications to related areas. Prerequisite: MA445 with a minimum grade of C. (3)

MA643. Number Theory. Study of prime numbers, congruences, quadratic residues, and numerical functions. (3)

MA644. Rings and Modules. Rings, Ideals, Quotient Rings, Domains, Polynomial Rings, Modules, Modules over PIDs, Commutative Rings. Prerequisite: MA445 with a minimum grade of C. (3)

MA647. Complex Analysis. Study of complex numbers, analytic functions, integrals, power series, residues and poles, and conformal mapping. (3)

MA648. Independent Study in Mathematics. Study of topics in specialized area not covered by regular course offerings. (1)

MA649. Independent Study in Mathematics. (2)

MA650. Independent Study in Mathematics. (3)

MA661. Special Topics in Mathematics. Study of topics in specialized area not covered by regular course offerings. (1)

MA662. Special Topics in Mathematics. (2)

MA663 Special Topics in Mathematics. (3)

MA664. Computational Cryptography. Classical and modern cryptosystems, elliptic curves, hashing, digital signatures, factoring, discrete logarithm problem, pseudo-random numbers, identification and authentication schemes, applications. Prerequisite: MA443 or MA445 or MA464 or MA510 with a minimum grade of C. (3)

MA670. CAS Seminar. Introduction to the use of a computer algebra system (CAS) for exploring advanced mathematics. Prerequisite: MA250 with a minimum grade of C. (1)

MA675. Multivariate Methods. Introduction of statistical methods to analyze multivariate data, with emphasis on implementation using statistical software, and interpretations of these methods. Prerequisite: MA323 with a minimum grade of C. (3)

MA678. Mathematical Modeling. Introduction to mathematical descriptions of physical phenomena, computational methodologies, and empirical interpretations of numerical data. Prerequisites: MA244; MA345; MA344 or CS155 or CS177 all with a minimum grade of C. (3)

MA694. Thesis. A written report based upon investigation of some subject of the completion of a creative project. See Thesis Plan for additional information. (3)

MA695. Thesis. Second semester. (3)

MA696. Thesis. Second semester (2)

MA697. Thesis. Second semester (1)

## MATHEMATICS EDUCATION (MD)

MD611. Internship in Numbers and Operations. Supervised teaching practicum and online seminars in which candidate acquires experience working with a range of students and adult learners on Number and Operations concepts. Corequisite: MD621. (1)

MD612. Internship in Rational Numbers and Proportional Thinking. Supervised teaching practicum and online seminars in which candidate acquires experience working with a range of students and adult learners on Rational Number and Proportional Thinking concepts. Corequisite: MD622. (1)

MD616. Internship in Geometry and Measurement. Supervised teaching practicum and online seminars in which candidate acquires experience working with a range of students and adult learners on Geometry and Measurement concepts. Corequisite: MD626. (1)

MD617. Internship in Algebraic Reasoning. Supervised teaching practicum and online seminars in which candidate acquires experience working with a range of students and adult learners on Algebraic Reasoning concepts. Corequisite: MD627. (1)

MD621. Numbers and Operations. The course is designed to develop an understanding of the learning and teaching of pre-number concepts, counting and cardinality, and numbers and operations in base ten. Emphasis will be given to how children think about and learn these concepts and how they fit into the elementary school curriculum. Corequisite: MD611. (3)

MD622. Rational Numbers and Proportional Thinking. The course is designed to develop an understanding of the learning and teaching of rational numbers and ratio and proportional relationships. Emphasis will be given to how children think about and learn these concepts and how they fit into the elementary school curriculum. Corequisite: MD612. (3)

MD624. Data and Probability. The course is designed to develop understanding of probabilistic reasoning and the collection, exploration, and analysis of data. Emphasis will be given to how children think and learn about these concepts and how they fit into the elementary school curriculum (3)

MD626. Geometry and Measurement. This course is designed to develop an understanding of the teaching and learning of geometry and measurement. Emphasis will be given to how children think about and learn these concepts and how they fit into an elementary mathematics curriculum. Corequisite: MD616. (3)

MD627. Algebraic Reasoning. This course will focus on the content and complexities of teaching and assessing algebraic reasoning in grade 1-6 settings. Course content will include examination of representation and analysis of mathematical situations and structures. Attention will be given to patterns, functions, and the transition from arithmetic to algebra. Corequisite: MD617. (3)

## NURSING (NS)

NS601. Informatics for Advanced Nursing Roles. Overview of informatics, the transformation of data into information, knowledge, decisions, and actions to improve outcomes. Prerequisite: Admission to the MSN program. (3)

NS602. Quality and Safety in Advanced Nursing Roles. Examine and evaluate strategies to create and sustain safe healthcare systems based upon research, expert recommendations, and public opinion. Prerequisite: Admission to the MSN program. (3)

NS603. Advanced Diagnostics & Reasoning for Primary Care. Preparation for clinical reasoning using theoretical, ethical, economic, and communication principles with emphasis on selecting and ordering appropriate procedure, performing advanced nursing skills, and interpreting diagnostic results to improve healthcare outcomes. Prerequisite: NS628 with an exam average of 80 percent or higher. (3)

NS604. Evidence-Based Practice: Synthesis and Translation. Analysis and critique of evidence to translate and integrate scholarship into advanced nursing roles. Prerequisite: Admission to the MSN program. (3)

NS610. Policy, Politics, and Advocacy in Advanced Practice Nursing. Examines health policy development and the advanced nursing role in advocacy and influencing policy in health care delivery. Prerequisites: BSN; instructor consent. (3)

NS625. Advanced Pharmacology. Comprehensive study for the management of drug therapy in diverse populations. Meets requirements for prescription writing by nurse practitioners. Prerequisite: BSN or instructor consent. (4)

NS627. Advanced Health Assessment Practicum. Practice of advanced health assessment skills in the clinical setting to prepare for provision of primary health care to rural families. Prerequisite: NS628 with an exam average of 80% or higher. (.5)

NS628. Advanced Health Assessment. Systematic approach to health assessment building upon basic health history and physical assessment skills. Prerequisite: BSN or instructor consent. (3.5)

NS635. Nurse Educator Practicum. A precepted advanced clinical experience in a selected clinical focus area. Prerequisites: Preparation of customized "Specialty Area Clinical Action Plan" designed to meet individualized learning needs; NS643; NS644. (3)

NS636. Advanced Pathophysiology. Explores the physiologic human response to illness. Prerequisite: Graduate status or consent of the instructor. (4)

NS637. Primary Care I Practicum. Preparation for providing primary health throughout the lifespan. Integration of theory and practice is guided by experienced practitioners. Prerequisites: NS628 with an exam average of 80% or higher; NS627 with a minimum grade of B. (4)

NS638. Primary Care I. Preparation to provide primary care to rural pregnant women/families. Emphasizes need identification to achieve optimal health. Prerequisites: NS601; NS602; NS603; NS604; NS610; completion of NS627 with a grade of > B, completion of NS625, NS628\*, and NS636 with an exam average of 80% or higher. \* If NS628 was completed prior to the spring semester immediately preceding enrollment into NS638, the student must complete a faculty supervised, comprehensive physical assessment, according to NS628 evaluation criteria. This assessment must be completed by the end of the first week of the NS638 fall semester and must be completed with 80% accuracy. Failure to complete the above will prohibit the student from progressing into NS638. (3)

NS641. Internship: Nursing Education. Supervised and precepted practicum experience in the nurse educator role. 90 hours of clinical/classroom experience. Prerequisites: NS643; NS644. (1)

NS642. Advanced Roles Seminar I. Presents theoretical content pertinent to the family nurse practitioner advanced nursing practice role. Co-requisites: NS637; NS638; or instructor consent. Prerequisites: NS627; NS628. (1)

NS643. Advanced Nursing Roles I: Nurse Educator. Explores implementation of advanced nursing specialty role of nurse educator in academic and practice settings, emphasis on role related to curriculum development. Three hours class and six hours lab per week. Prerequisite: Instructor consent. (4)

NS644. Advanced Nursing Roles II: Nurse Educator. Continues exploration of advanced theoretical and empirical knowledge related to nursing education; focuses on development of learning objectives, a variety of learner-centered teaching strategies, and classroom/clinical evaluation techniques for nursing education. Explores a variety of teaching/learning issues influencing the nurse educator role. Three hours class and six hours lab per week. Prerequisites: NS643 or instructor consent. (4)

NS645. Advanced Roles Seminar II. Presents theoretical content pertinent to the family nurse practitioner advanced nursing practice role. Prerequisite: NS642. (1)

NS647. Primary Care II Practicum. Development of FNP as primary care provider in family practice setting. Integration of theory into practice guided by experienced practitioners. Prerequisites: NS637; NS638. (4)

NS648. Primary Care II. Preparation to provide primary care to rural families. Emphasizes need identification to achieve optimal health. Prerequisite: NS638 an exam average of 80% or higher; Corequisites: NS645; NS647. (3)

NS650. Topics and Issues in Nursing. Directed study of special topics and issues in nursing through seminars, forums, etc. (1)

NS651. Topics and Issues in Nursing. (2)

NS652. Topics and Issues in Nursing. (3)

NS661. Independent Study. (3)

NS662. Independent Study. (2)

NS663. Independent Study. (1)

NS670. Psychotherapeutic Frameworks and Modalities. An exploration of a variety of counseling and psychoanalytic theories to provide a foundation for practice for psychiatric-mental health nurse practitioners. Corequisites: NS671; NS672; NS673. (3)

NS671. Neuroscience of Brain and Behavior. Examines brain structure and function, relevant neurochemical communication pathways and targets for the psychopharmacological treatment of mental disorders. Corequisites: NS670; NS672; NS673. (1)

NS672. Diagnosis of Mental Disorders. Develop a flexible and comprehensive interview style for conducting a psychiatric evaluation, examining mental status and synthesizing the findings to prioritize the differential diagnosis and initiate treatment planning. Corequisites: NS670; NS671; NS673. (2)

NS673. Psychopharmacology. Develop an evidence-based and rational approach to treating mental disorders across the lifespan. Corequisites: NS670; NS671; NS672. (2)

NS674. Population Mental Health I. Explore social and environmental risk factors for mental health problems at the community and population level. Emphasis is on advocating for mental health by improving mental health literacy and reducing stigma and discrimination. Corequisite: NS675. Prerequisite: NS673. (1)

NS 675. PMHNP Clinical Role Practicum: Adult. Preceptor guided clinical practice experience with a focus on adult mental health care. Emphasis on refining evaluation, diagnostic, and evidence-based treatment (Psychopharmacologic and psychotherapeutic) skills. Corequisite: NS674. Prerequisite: NS 673. (3)

NS676. Population Mental Health II. Examine the evidence for team-based, collaborative and integrated care service models in the care of at-risk populations with comorbidities (mental, physical, substance use). Emphasis is on leading change to improve access to mental health care, quality of care and outcomes. Corequisite: NS677. Prerequisites: NS674; NS675. (1)

NS677. PMHNP Clinical Role Practicum: Children and Adolescents. Preceptor guided clinical practice experience with a focus on child and adolescent mental health care. Emphasis on refining evaluation, diagnostic, and evidence-based treatment (Psychopharmacologic and psychotherapeutic) skills. Corequisite: NS676. Prerequisite: NS 674; NS675. (3)

NS 681. Nursing Curriculum: Development, Assessment and Evaluation. Students will explore theories and models that drive curriculum development, assessment, and evaluation. Focus on curriculum components, which include student-learner needs, policies, and standards. Prerequisites: Admission into the Nurse Educator Post-MSN Program or consent of instructor. (3)

NS682. Assessment and Evaluation in Nursing Education. Prepare nurse educators to evaluate learners appropriately and effectively in both the classroom and clinical settings. Prerequisites: NS681; Admission into Post-Masters Certificate Nurse Educator Program; or consent of instructor. (3)

NS683. Foundation of Teaching and Innovative Learning Strategies. Evidence-based foundation for teaching and learning strategies for nursing education. Corequisite: NS681. Prerequisites: Admission into Post-Masters Nurse Education Program; or consent of instructor. (3)

NS684. Synthesis of Nurse Educator Role Practicum. Students will incorporate the Nurse Educator courses' learning outcomes through a precepted educator practicum experience, including the leader of

an educational change project in their geographic area; and online assignments. Prerequisites: admission to the Nurse Educator Post-MSN certificate or instructor consent; NS683. (3)  
NS694. Thesis. A written report based upon investigation of a nursing problem. See Department Thesis Guidelines for additional information. (3)  
NS695. Thesis. Second semester. (3)

#### PHILOSOPHY (PL)

PL697. Independent Study in Philosophy. A study of a major trend or issue in philosophy with emphasis on interdisciplinary connections. (1)  
PL698. Independent Study in Philosophy. (2)  
PL699. Independent Study in Philosophy. (3)

#### PHYSICS (PH)

PH501. Optics. Geometrical and physical optics; Fourier analysis; interference, diffraction, double refraction, gratings and light in matter. Prerequisites: MA244; PH231 or consent of instructor. (3)  
PH502. Modern Physics. Theory of special relativity, quantum physics, atomic structure, nuclear physics, elementary particles. Selected topics chosen from recent developments in physics. Prerequisites: PH231; MA244 or consent of instructor. (3)  
PH503. Mechanics. Selected topics in Newtonian mechanics, including kinematics and dynamics of particles, oscillations, gravitation, Lagrangian and Hamiltonian dynamics, central-force motion, noninertial reference frames, and rigid-body dynamics. Prerequisites: PH231; MA244 or consent of instructor. (3)  
PH504. Electromagnetics. Electric fields, potential and dielectrics, magnetic fields, magnetic properties of matter; Maxwell's equations and electromagnetic waves. Prerequisites: PH231; MA244; or consent of instructor. (3)  
PH505. Quantum Mechanics. The fundamental postulates of quantum mechanics and their applications to selected systems. Topics include one-dimensional systems, perturbation theory, three-dimensional systems, angular momenta, one-electron atoms, Hartree-Fock formalism, variational principles and quantum theory of scattering. Prerequisites: PH360/PH502 or consent of instructor. (3)  
PH520. (Cross-listed as BI/CH520). Engaging Learners in Science. Interested in teaching science? Try your hand at engaging peers in lab and classroom guided by research on learning. Two lectures and one two-hour lab. Open to graduate students in the sciences. Prerequisites: Declared major in biology, chemistry or physics (course is not available for Physics minors); sophomore standing; completion of 100 level courses in the science major/interest in teaching. (3)  
PH570. Mathematical Physics. Selected topics in vector analysis, coordinate transformations, Fourier series, Legendre and Bessel functions, and partial differential equations. Emphasis on practical applications in physics. Prerequisites: MA350; PH231; or consent of instructor. (3)  
PH578. Interdisciplinary Research. Original research for students of superior ability in majors other than engineering physics, physics, or physics education. May be repeated once for credit. (1)  
PH579. Interdisciplinary Research. Original research for students of superior ability in majors other than engineering physics, physics, or physics education. May be repeated once for credit. (2)  
PH614. Biological Imaging. Presents the methods and techniques of cellular imaging in an experiential laboratory setting. Prerequisites: PH341; PH345 or UI330. (3)  
PH618. Topics in Physics Education. A review of the basic content of physics coupled with pedagogical models appropriate for teaching in the elementary or secondary classroom. This course is not intended for students with an undergraduate physics major. (3)  
PH625. Biological Physics. Presents the fundamentals and applications of biological physics. Prerequisites: BI173; PH231. (3)

## POLITICAL SCIENCE (PS)

PS502. Fundamentals of Public Administration. A contemporary view of public and nonprofit agencies from an internal and external perspective. Introduction of graduate students to the concepts and functions of administrative organizations. Prerequisite: Acceptance to MPA or Accelerated MPA program; or consent of instructor. (3)

PS505. Organization Theory and Behavior. This course will introduce students to the major concepts of organization theory and organizational behavior. Topics include organization structure and design, bureaucracy, the systems concept, leadership, culture, job satisfaction, and motivation. Prerequisite: Acceptance to MPA or Accelerated MPA program; or consent of instructor. (3)

PS518. Public Policy Analysis. This course is a systematic introduction to the conduct of policy analysis. It is designed for practitioners and for those seriously interested in how policy analysts do their work. Prerequisite: Acceptance to MPA or Accelerated MPA program; or consent of instructor. (3)

PS545. Research Methods for Public Administrators. This course provides a foundation in the theory and practice of applied research methodology for public administrators, from conceptualization to practical data analysis. Prerequisite: Acceptance to MPA or Accelerated MPA program; or consent of instructor. (3)

PS603. Public Personnel Administration. An analysis of public agency personnel practices, procedures, and issues. Exposes students to the history, concepts, research and operation of government personnel administration. (3)

PS615. Government Budgeting. Procedures and decision-making strategies involved in the preparation, authorization, and expenditure of the federal budget. (3)

PS625. Administrative Law and Procedure. An analysis of rules, procedures and decision-making practices of public agencies at the state and federal level. (3)

PS630. Seminar in American Government. A study of problems facing national, state, and local government with emphasis on the one problem area chosen by the student. (3)

PS635. International Relations in Social Science Curriculum. Oriented toward developing a viable course in international relations involving the origin, history, functional structure, and objectives of international relations as a field of social science for the secondary school curriculum. (3)

PS640. Seminar in Twentieth Century Political Thought. Study of twentieth century political philosophies. (3)

PS655. Federalism. This course covers the theory and practice of federalism and intergovernmental relations. (3)

PS687. Independent Study for Political Science. Directed individual study of special topics of particular interest to the student. (1)

PS688. Independent Study for Political Science. (2)

PS689. Independent Study for Political Science. (3)

PS691-696. Topics in Political Science. Analysis of variable topics in Political Science, such as interest groups, rational choice theory or environmental politics. May be repeated for credit when different topics are offered. (3)

PS697. Internship. Provides graduate students with an alternative academic and practical learning experience with a public agency or nonprofit organization. Introduces the student to first-hand experiences in the operations and management practices of public agencies. For those presently employed in public agencies, internships will be in a different type of employment situation. (3)

## PSYCHOLOGY (PY)

PY25. Maturity and Aging. Investigation of the physical, intellectual, social and cultural influences on post-adolescent development. (3)

PY526. Consumer Psychology. Theory and research related to understanding consumer behavior in terms of product/service perceptions, purchase decisions, and consumer satisfaction. (3)

PY529. The Psychology of Death and Dying. An examination of the processes of death, dying and bereavement in contemporary society. Topics will include the physiology, demography and classification of death, developmental changes in attitudes toward death, reactions to the knowledge of impending death and the needs of the dying patient; the process of mourning and the needs of the bereaved; ethical issues related to death and dying; and the development of death education. (3)

PY531. Psychological Testing. Technical and methodological principles of test construction, as well as an overview of psychological tests employed in various applied settings. (3)

PY540. Personnel Psychology. Theory, research, and practice in the understanding of such topics as performance appraisal, personnel selection, criterion development/validation, and others. (3)

PY555. Health Psychology. Applications of psychology which contribute to the promotion of health and the prevention of disease through behavior change in health enhancing directions. Topics to be covered include health promotion and wellness, psychosomatic illness, risk factor identification, and disease prevention, and career opportunities in health psychology for administrators, service providers, and consultants. (3)

PY556. Organizational Psychology. Theory, research, and practice in the understanding of such topics as job satisfaction, work motivation/performance, leadership, conflict resolution, and others. (3)

PY557. Psychometrics. Consideration of assumptions and techniques in psychometrics, including assessment, reliability and validity, test construction, measurement theory, and scaling. (3)

PY561. Advanced Social Psychology. Survey of topics in the study of human social interaction with an emphasis on experimental approaches to studying social behavior. (3)

PY571. Introductory Behavioral Statistics. An introduction to descriptive and inferential statistics used in the reporting of educational and psychological research. (3)

PY575. Theories of Leadership. Discussion-based course examining effective leadership strategies across a wide variety of organizational settings. (3)

PY657. Stereotyping and Prejudice. Seminar focused on social psychological research on stereotyping, prejudice, and discrimination. (3)

PY670. Job Analysis and Compensation. Introduction to different methods of job analysis and evaluation as well as important issues related to employee compensation and benefits. (3)

PY671. Design and Analysis II. Correlation and regression analysis, including bivariate and multiple regression, coding of categorical variables, and testing for mediation and moderation. (3)

PY675. Legal and Ethical Considerations in I-O Psychology. Legal and ethical considerations in I-O psychology, including equal employment opportunity, uniform guidelines for selection, and relevant major court decisions. (3)

PY681. Program Design and Evaluation. Systematic examination of the theory and practice of research strategies for planning and evaluating various programs. (3)

PY692. Independent Study in Psychology. May be repeated for up to 9 hours of credit. (3)

PY696. Thesis Research. Conducting research related to the student's thesis. May be repeated for up to 6 hours of credit. (3)

PY697. Thesis Writing. Writing the thesis document. May be repeated for up to 6 hours of credit. (3)

PY699. Internship in I/O Psychology. Experience in applying industrial-organizational psychological principle, theory, and research to work in organizational settings such as corporations, government, and nonprofits. May be repeated for up to 12 hours of credit. (6)

PY930. Applied Regression Analysis. An introduction to applied multiple regression/correlation analysis. Topics include matrix algebra, partial and semi-partial correlation, and hierarchical modeling. Prerequisite: PY571 or equivalent course in statistics. (3)

#### QUANTITATIVE METHODS (QM)

QM558. Principles of Supply Chain Management. Design, planning, execution, control, and monitoring of supply chain activities with the objective of creating net value, building a competitive infrastructure, leveraging worldwide logistics, synchronizing supply with demand and measuring performance globally. Prerequisite: QM352 with a minimum grade of C. (3)

#### RECREATION (RC)

RC630. Program Delivery in Leisure Services. Comprehensive analysis of levels of leisure service delivery including needs assessment, program planning, inclusion and diversity issues, policy implementation, evaluation of program impact. Prerequisite: Graduate standing. (3)

RC680. Recreation in Community Development. An analysis of the role of recreation programming and facilities in the community, with emphasis on the importance of inclusion of leisure services in community development. Prerequisite: Graduate standing. (3)

#### SCIENCE TEACHING (ST)

ST601. Introduction to Science Education. Overview of current thinking and trends in science education, focusing on issues in science teaching, learning and learners, curriculum, and assessment. Emphasis on application of the ideas to science in the classroom, including practical techniques and multimedia strategies for science teaching and learning. Lightly blended course format. Students must have internet access. Prerequisite: Consent of instructor. (3)

ST603. Research Methods in Science Teaching. An overview of assumptions, limitations, and methods of research in science education with emphasis on classroom situations and application to published research; preparation of a proposal for classroom-based research. (3)

ST610. Integrated Science. An emphasis on the integrated nature of science in the natural environment and the design, development and study of teaching units integrating various topics from the fields of biology, chemistry, geosciences, and physics that are appropriate for science classes in a variety of settings, including the public schools. Prerequisite: Consent of Instructor. (3)

ST650. Leadership in STEM Education. Leadership principles and the roles and responsibilities of STEM Education specialists. Applications of models to examples. Prerequisites: ST603; admission to MNS in STEM Education; or consent of instructor. (3)

ST660. Advanced Topics in Science Education. An in-depth consideration of subject matter that is not a part of the established curriculum. Topics available can be obtained from the department chairperson. Lecture, discussion, and practical application sessions. Prerequisite: ST603 or consent of instructor. (3)

ST667-669. Independent Study in Science Education. Directed individual study in science education. (May be taken for 1, 2, or 3 hours of credit and may be repeated up to a maximum of 6 hours.)

Prerequisite: Admission to the graduate program of the MNS in Science Education. Departmental approval of study plan and compliance with university guidelines for independent studies. (1)

#### SECONDARY EDUCATION (SE)

SE500. Technology in Instruction. Study of the internet and its uses in education, including the design of educational web pages and planning of internet-based activities for students. In addition, this course will give students a background for the management issues surrounding the development and use of information technology in education. Prerequisite: EM102 or consent of instructor. (3)

SE600. Multimedia in Education. This is a product-oriented course that examines the role of a variety of media sources in the classroom. Working with sound, photos, and video to design multimedia presentations will be a focal point of the course, and the integration of multimedia productions to in the content curriculum will be addressed. (3)

SE602. Effective Literacy Instruction at the Middle and Secondary Levels. Implementation of effective literacy programs that support content area learning and literacy through use of materials and methods that meet the needs of diverse learners. Prerequisite: Graduate Status. (3)

SE612. Responsive Literacy Interventions for Middle and High School Students with Academic Challenges. Literacy assessment techniques and interventions for middle and high school students with academic challenges. Prerequisites: Graduate Status; SE602. (3)

SE617. Foundations of Educational Technology. An introduction to educational technology and integration into educational programs through examination of history, philosophy, theory, planning, funding, and current issues and trends in technology. (3)

SE618. Assessment Using Technology. Principles of developing and using formal and informal assessments that integrate technology for making instructional and curricular decisions. (3)

SE638. Improvement of Instruction and Assessment. The class is designed for those teachers who are interested in increasing their knowledge and understanding of the teaching process and effective procedures for the improvement of instruction, classroom management, and assessment in the learning environment. Prerequisite: Graduate Status. (3)

SE641. Teaching in Multicultural Society. The foundations of multicultural education are considered along with approaches to multicultural education and teaching strategies applicable to all ages/grades/subjects. Prerequisite: Graduate Status. (3)

SE642. Secondary Curriculum Development. Designed to provide individuals with understanding of the theory and practice of developing curriculum and training materials in an educational setting. May be repeated for credit. Prerequisite: Graduate Status. (3)

SE650. Introduction to Teaching Methods in Middle and Secondary Schools. Exploration of evidence-based practices related to effective teaching in middle and secondary schools and the social, legal and historical context in which those practices occur. Prerequisite: Full or probationary acceptance into the Masters of Arts in Teaching. Pre- or Corequisites: EX390 or ES635; SE602. (3)

SE651. Introductory Practicum I in Middle and Secondary Schools. Field experience for implementing competencies: differentiation, using assessment data, addressing diversity, developing collaborations, managing classrooms and professional development. Prerequisites: Admission to the MAT program; EX390 or EX635; SE602; SE650. Corequisites: SE652 or SE653. (3)

SE652. Intermediate Methods of Teaching in Middle Schools. Interdisciplinary methods and teaching strategies integrating effective methods for implementing educational technology in to instruction at the middle school level. Prerequisites: EX390 or EX635; SE602; SE650. Corequisites: SE651. (4)

SE653. Intermediate Methods of Teaching in Secondary Schools. Interdisciplinary methods and teaching strategies integrating effective methods for implementing educational technology in to instruction at the middle and secondary school levels. Prerequisites: EX390 or EX635; SE602; SE650. Corequisite: SE651. (4)

SE654. Advanced Methods of Teaching in Middle and Secondary Schools. Advanced application of evidence-based practices organization, curriculum, assessment and management of the secondary classroom. Prerequisites: SE602; SE650; SE652; SE653. Corequisites: SE655; SE660. (3)

SE655. Techniques of Teaching STEM Content. Research based methods for engaging students in content, development of a unit with aligned standards, lessons and assessments. Prerequisites: Admission to the MAT program; SE650; SE651; SE652 or SE653. Corequisites: SE654; SE660. (3)

SE660. Intermediate Practicum II in Middle and Secondary Schools. Field experience for implementing advanced competencies: differentiation, using assessment data, addressing diversity, developing collaborations, managing classrooms and professional development. Prerequisites: Full or probationary admission to the MAT program; EX390 or EX635; SE602; SE650; SE651; SE652 or SE653. Corequisites: SE654; SE655. (3)

SE670. Culminating Internship in Middle and Secondary Schools. Culminating practicum requiring a demonstration of content knowledge, differentiated instruction, curriculum implementation, critical thinking, classroom management, communication, assessments, professionalism, and collaboration. Prerequisite: Completion of all courses required for the MAT program. (8)

SE680. Topics in Middle and Secondary Education. Directed study of contemporary issues in middle level and secondary education. (1-3)

SE683. Instructional Design and Technology. Design and development of instruction for classrooms incorporating computers and multimedia tools to enhance learning through instructional materials and web pages. (3)

SE685. Planning for Technology in the School District or Organization. An examination of technology in school districts combined with an exploration of issues and trends from current literature and planning for future technology needs. (3)

SE698. Independent Study in Secondary Education. Independent work in a specialized area not covered by regular course offerings. Prerequisite: Consent of instructor. (1-3)

#### SPANISH (SN)

SN635. Hispanic Civilization as a Background to Literature. Course offered in English to familiarize teachers with the historical, sociological, and political factors underlying artistic and literary movements in the Iberian Peninsula. (3)

SN636. Hispanic American Civilization as a Background to Literature. Course offered in English to familiarize teachers with the historical, sociological, and political factors underlying artistic and literary movements in Latin America. (3)

#### SPORT MANAGEMENT (SM)

SM540. Legal Aspects of Sport and Physical Activity. This course is designed to introduce the student to the various legal principles applicable to the sport industry. Prerequisite: Senior or graduate standing or consent of instructor. (3)

SM570. Management and Leadership in Sport Organizations. This course will provide students with the opportunity to understand and apply contemporary management concepts to the operations of sport organizations. (3)

SM610. Principles and Practices of Sport Management. Sport management principles and practices for international, collegiate and professional sport. Prerequisite: Graduate standing. (3)

SM612. Topics, Issues and Trends in Sport. Directed study of special topics, issues and trends in sport through seminar. Prerequisite: Six hours of graduate credit in Athletic Administration or consent of instructor. (3)

SM655. Design and Operations of Sport Related Facilities. Prepares the prospective and practicing athletic administrator in the design and operations of sport related facilities. (3)

#### TESOL (TL)

TL525. English as a Second/Foreign Language: Learning and Teaching. Basic theories of second language acquisition and their implications for second language teaching, including work with ESOL students and development of personal theories of second language learning and teaching. (3)

TL530. Practicum in TESOL. Provides students with practical classroom experience in teaching ESOL. Students who pursue DESE ELL certification acquire experiences in planning for and working with ELLs in both elementary and secondary settings. (3)

TL585. Methods and Techniques for Teaching ESOL. Introduces students to research supported principles and methods for teaching ESO/EFL. Emphasis on curriculum development, problem-solving, adopting/adapting appropriate teaching methods and materials to teach language skills. (3)

TL610. Developing Intercultural Awareness and Competence. The course focuses on diverse worldviews, ethnic heritages and historical contributions of people from different regions of the world. The course provides an opportunity to develop appropriate teaching strategies and materials to use in an intercultural/international classroom setting. (3)

TL620. Approaches to Teaching Grammar. Structural, transformational, and traditional approaches to the teaching of grammar. The class will be concerned with the ways in which they differ, and the underlying theories (philosophies) that gave rise to each approach. (3)

TL625. Materials Development and Assessment Tools for ESOL. Advanced course in the analysis and preparation of materials for teaching ESOL and the basics of test development in ESOL. (3)

TL630. Special Problems in TESOL. Professional seminar which focuses on current issues in the Teaching of English as a Second/Foreign Language. Topics vary from term to term according to the interests of the students. (3)

TL648. Foundations in Linguistics. A foundation course which uses Chomsky's generative paradigm to provide students with the skills needed to conduct basic linguistic analysis. Primary focus will be linguistic analysis, particularly in sociolinguistics, semantics, phonetics, phonology, morphology, syntax, and language acquisition. This course is offered as a multimedia online course. Computer literacy and e-mail access required. (3)

TL650. Strategies and Techniques for Teaching Academic Language Skills to ELLs. Introduces current approaches and effective practices in teaching academic language skills to English language learners with an emphasis on research-supported instructional strategies and techniques to teach oral language, vocabulary, content-based reading and writing and strategy-based instruction. (3)

TL652. Computer-Assisted-Language Learning. Introduces the most up-to-date methods for integrating current computer technology into a classroom with non-native English learners. Emphasis on students' development of a technology-integrated curriculum plan for the classroom. (3)

#### THEATRE (TH)

TH663. Independent Study. (3)

#### TELECOMMUNICATIONS & COMPUTER NETWORKING (TN)

TN562. Networking I. Comprehensive overview of networking; from fundamentals to advanced applications and services. The course emphasizes concepts and skills required to design networks, while providing opportunities for practical application and hands-on experience. Topics include data networks and the Internet, layered communications, networking models, networking services and protocols. (3)

TN563. Local Area Network Switching. Switching and operation of networking technologies and protocols. Topics include operation and security configurations of VLAN, trunking, VTP (VLAN Trunking Protocol), inter-VLAN routing and layer two networks. Prerequisite: TN475. (3)

TN564. Telecommunications and Networking II. Advanced networking course focusing on the purpose, nature, and operations of routers and routing protocols. The course emphasizes IOS installations, configurations and maintenance of routers. Details of routing protocols including both distance vector and link state algorithms. Configuration and troubleshooting of routing protocols in routed networks. Prerequisite: TN562. (3)

TN565. Network Management. Design, performance analysis, monitoring, optimization, and troubleshooting of modern data communication networks. Topics include managing TCP/IP networks using SNMP, protocol analysis, remote management, and performance improvement. Prerequisite: TN563. (3)

TN566. IP Telephony. Theories of Voice over IP (VoIP) and data networking. Topics include TCP/IP network, voice packetizing and compression, VoIP protocols and architecture, Quality of Service (QoS) and security of IP telephony systems. Prerequisite: TN563. (3)

TN625. Wireless Communications and Mobile Data Networks. Topics in analog cellular phone systems (AMPS); digital cellular standards. GSM, IS-95; short message service (SMS); 2.5 G data services; cellular standards (CDMA 2000 and WCDMA/UMTS); Wireless LANs (IEEE 802.11); Bluetooth; Mobile IP; ad hoc and sensor networks. Prerequisite: TN562. (3)

TN635. Network Security. Topics in security services, threats, and vulnerabilities for networked environments. Principles of cryptography, security protocol design and analysis, node and service authentication, address spoofing, hijacking, SYN floods, sniffing, viruses, intrusion detection, firewalls, and ethical and legal issues. Prerequisite: TN564. (3)

#### UNIVERSITY STUDIES (UI)

UI504. Leaders of Social Change. A course in rhetorical criticism, exploring how rhetorical theories help us process and appreciate the substance of speeches and the effectiveness of speakers. (3)

UI505. Health-Related Quality of Life Across the Life Span. A critical exploration of "Quality of Life" or overall well-being related to health conditions among pediatric, adult, and geriatric populations across the life span. (3)

UI508. African Americans during the Era of Segregation and Jim Crow. A study of African Americans from the end of the Civil War to the beginning of the Civil Rights Movement. (3)

#### ZOOLOGY (ZO)

ZO501. Fundamental Concepts of Zoology. Diversity of animal life with emphasis on invertebrates. Comparison of the major animal phyla emphasizing integration of function and form. Does not count toward completion of a graduate degree. Prerequisite: Admission to Graduate Study in Department of Biology; 30 semester hours of acceptable undergraduate credit in science and mathematics. Two hours lecture; one 2-hour lab. (3)

ZO515. Field Herpetology. Biology of amphibians and reptiles through field experiences. Prerequisites: BI 283 with a minimum grade of C. One lecture and three other class periods. (3)

ZO614/014. Developmental Biology. The differentiation of germ layers into tissues and organs with an emphasis on genetic processes and morphological patterns. Corequisite: ZO014. Prerequisite: BI283. Three hours lecture; one two-hour lab. (4)

ZO620. Animal Behavior. An evolutionary approach to the study of behavior of the individual and group. Topics include proximate and ultimate explanations of behavior. Prerequisites: BI283; MA134 or MA135 or MA139 or MA140. (3)

ZO630. Invertebrate Zoology. Invertebrate biology, diversity, phylogeny, structure, life history, development, and additional selected topics in invertebrate zoology. Prerequisite: ZO310. Studio style course: three 2-hour periods. (4)

ZO641. Parasitology. Introduction to the symbiotic association known as parasitism, with special emphasis on animal parasites. Protozoa, platyhelminths, and nematodes are stressed, particularly host-parasite relationships and life cycles. Prerequisite: BI310. One hour lecture; two 2-hour labs. (3)

ZO645. Aquatic Entomology. Introduces students to the biology, ecology, and taxonomy of aquatic insects that live in streams, lakes, and wetlands. Emphasis on taxonomic identification of the regionally common aquatic insects. Studio-style course in which two two-hour class periods will involve both lecture and lab activities. Prerequisite: BI310. (3)

ZO651. Vertebrate Histology. Vertebrate tissue preparation, tissue composition, and tissue identification. Two lectures and one two-hour lab. Prerequisite: BI310 or ZO331. (3)

ZO659. Mammalogy. An introduction to the ecology, zoogeography, structure/function, evolution, and behavior of mammals. Prerequisite: BI283. One hour lecture; two 2-hour labs. (3)

ZO660. Herpetology. An introduction to the biology of the amphibians and reptiles. Evolutionary history, ecology, behavior, physiology, and distribution. Prerequisite: BI283. (3)

ZO665. Entomology. Insect biology, diversity, structure, physiology, behavior, control and additional selected topics in entomology. Prerequisite: BI283; or AO120 and AY101 and HO130. Two hours lecture; one 2-hour lab. (3)

ZO666. Ornithology. The physical structure, habits, ecology, geographical distribution, physiology, evolution, and conservation of birds are discussed. The emphasis will be on current topics in the scientific literature. Prerequisite: BI310. Two hours lecture; one 2-hour lab. (3)

ZO669. Vertebrate Adaptations. A survey of vertebrate adaptations to aerial, arboreal, aquatic, and terrestrial environments. Mechanistic and morphological adaptations for feeding, thermoregulation, locomotion, reproduction and sensory systems are among the topics included for study. Prerequisite: BI283. One hour lecture; two 2-hour labs. (3)

ZO678. Ichthyology. An introduction to the evolution, zoogeography, taxonomy, and ecology of fishes with particular reference to Missouri fishes. Prerequisite: ZO310. Two hours lecture; one 2-hour lab. One Saturday and one week-end field trip may be required. (3)