

Academic Regulations

Course Numbering System and Requirements

Only courses numbered 500 to 699 may be applied toward the master's degree. Courses numbered 500 to 599 are open to graduate students, seniors, and specially qualified juniors. Courses numbered 600 through 699 are open to graduate students only. Courses numbered 700-899 are open only to students in doctoral programs.

Prerequisites

Prerequisites may be met by approved equivalent courses taken at other universities. You should consult your academic advisor if you have a question about prerequisites. Students who enroll in courses for which they do not meet the prescribed prerequisites may be required to withdraw from those courses. Prerequisite courses below 500-level are not eligible for Graduate School financial assistance.

Grading System

The grading system of the University which applies to graduate students is as follows:

- A- High Competence (4.0)
- B- Competence (3.0)
- C- Minimum Competence (2.0)
- D- Limited or Incomplete Competence (1.0)
- F- Inadequate Competence for Credit
- W- Official Withdrawal
- IN- Incomplete Work
- IP- Work in Progress

Only courses with a grade of "C" or higher can be used toward completion of degree requirements.

IN – Incomplete Work

"IN" is the symbol used when the instructor lacks sufficient evidence to award a letter grade. The purpose of an "IN" is to provide the time necessary for a student to complete coursework which, through no fault of the student's, was not completed in the normal time allowed. Reasonable time necessary for completion is decided by the student and the faculty member teaching the course. The "IN," once assigned, remains on the official academic record

upon conversion to a grade or permanent "I."

The "IN" should not be mistakenly considered as an incentive for the faculty to recommend or for students to believe that this extension permits students merely to retake courses, or to extend the time for the completion of the prescribed work beyond the end of the semester of enrollment, as a means of removing the "Incomplete."

At the time the "IN" is assigned, the instructor and students must sign a contract specifying what must be done to complete the "IN" and the date by which the "IN" must be converted. Copies of the contract must be provided to the student, faculty member, graduate advisor, and Graduate School office. An "IN" must be converted not later than four weeks before the end of the next regular semester. Under unusual circumstances, the student may be granted an extension to the end of the semester with the approval of the instructor involved, provided that the request was received prior to the normal deadline for the removal of incompletes. If the instructor does not submit a letter grade by the specified deadline, an "I" will remain permanently upon the student's record and may not thereafter be removed. Once a permanent "I" is recorded for a course, if a student must complete the course to fulfill degree requirements, the student will have to register for the course again and satisfactorily complete the course requirements.

Contracts are available in the Graduate School, 200 Bradley Hall, or from the graduate coordinator.

IP – Work in Progress

"IP" may be assigned to a student in a graduate course when the instructor agrees that the student requires more than one semester to complete the course. Normally, "IP" grades will only be assigned for thesis courses, other courses involving extensive projects involving research/creative production, or independent study courses. At the time the "IP" is assigned, the instructor and student must sign a contract specifying what must be done to complete the "IP" and the date by which the "IP" must be converted. The "IP," once assigned, remains on the official academic record upon conversion to a grade or a permanent "I." Copies of the contract must be provided to the student, faculty member, graduate advisor, and Graduate School Office. If the "IP" is not removed by the specified date, it

will be recorded as a permanent "I." Once a permanent "I" is recorded for a course, if a student must complete the course to fulfill degree requirements, the student will have to register for the course again and satisfactorily complete the course requirements.

Contracts are available in the Graduate School, 200 Bradley Hall, or from the graduate coordinator.

Graduate Student Policy Violation Issues and Grievance Procedures

The policy violation issues of a graduate student may be academic or non-academic in nature. In the following sections the definitions, policies and grievance procedures to deal with the issues are delineated. The primary source of procedures for dealing with these issues is the Faculty Handbook. The Student Handbook also has a section dealing with policy violation issues. It also uses as its primary source the Faculty Handbook. These handbooks can be found in the Bradley University web pages. The following is not intended and may not supersede any of the policies of the Faculty Handbook. It does in certain cases provide for input from individuals that are primarily associated with graduate programs and students.

Academic Issues

Academic issues are concerns regarding breach of academic integrity by a student or a student's allegation of unfair academic evaluation by an instructor. A breach of academic integrity is either cheating or plagiarism by a student.

Definitions

- **Cheating** is officially defined as giving or attempting to give, or obtaining or attempting to obtain, information relative to an examination or other work that the student is expected to do alone and not in collaboration with others, or the use of material or information restricted by the instructor. Each instructor will indicate beforehand work that may be done in collaboration with other students.
- **Plagiarism** is reproducing from published or unpublished print or electronic media, without quotations or citations, another's sentences as your own, adopting a particularly apt phrase as your own, paraphrasing someone else's argument as your own, presenting someone else's line of thinking in the development of a thesis as though it were your own, and someone else's project work or results thereof as your own.

Policies

- **Cheating.** A "zero" or whatever is the equivalent of the failing lowest grade possible, shall be assigned for that piece of work to any student cheating on a non-final examination or other class assignment. A "zero" or whatever is the equivalent of the lowest failing grade

possible shall be assigned on a final examination to any student cheating on a final examination. An "F" shall also be assigned as the course grade to any student cheating on a comprehensive final examination.

- **Plagiarism.** A "zero" or whatever is the equivalent of the lowest failing grade possible shall be assigned for that piece of work to any student plagiarizing on a non-final piece of work. In the case of a student plagiarizing on a final research paper or project, an "F" shall also be assigned as the course grade.
- **Repeated Cheating or Plagiarism.** For twice-repeated or aggravated offences of cheating or plagiarism, additional action, including dismissal from the University, may be taken pursuant to the Student Handbook procedures related to the University Judicial System and the disciplinary sanctions for violation of University regulations.

University Student Grievance Policy

If a student objects to instructor's conclusion that a breach of academic integrity has occurred, or if the student alleges an unfair academic evaluation by an instructor, or if the student has non-academic concerns, the student may take recourse to the grievance procedures to resolve the issue. The student shall first exhaust the informal grievance procedures before resorting to the formal grievance procedures.

The grievance process shall be completed as expeditiously as possible. The recommended timelines may be exceeded only under compelling circumstances.

Academic Issues

Informal Academic Grievance Procedures

- The student shall first consult his or her graduate program coordinator or director to seek a course of action to resolve the issue. The graduate program coordinator or director shall advise the student of the procedures to be followed to resolve the issue. If a conflict of interest exists between the student and the graduate program coordinator or director the student may seek the advice of the department chairperson of the department offering the program in which they are enrolled. If there is a question of the procedures to follow, the academic ombudsman should be consulted.
- The student shall then appeal in writing to the instructor's department chair to resolve the issue. If there is a conflict of interest between the student and the chairperson, the student should appeal in writing to the dean of the college to resolve the issue. The instructor shall provide in writing to the chair the instructor's conclusions pertaining to breach of academic integrity by the student.
- The department chairperson shall consider the issue and try to resolve it by meeting with the concerned parties within five business days after receiving the student's appeal in writing.

- If the issue is not resolved at the level of the department chairperson, the chairperson shall forward all paperwork related to the issue including the student's appeal to the director of graduate programs of the college to which the department belongs, and request that the director resolve the issue. The chairperson shall submit to the director a memo summarizing discussions with the concerned parties and the chair's decision. If the position of director of graduate programs does not exist within the college all paperwork related to the issue including the students appeal shall be forwarded to the dean of the college to which the department belongs.
- If the issue is not resolved at the level of the director of graduate programs, the director shall forward all paperwork related to the issue, including the student's appeal, to the dean of the college to which the department belongs, and request that the dean resolve the issue. The director shall submit to the dean a memo summarizing discussions with the concerned parties and the director's decision.
- The dean of the college or the dean's designee(s) shall consider the issue and shall try to resolve the issue by meeting with the concerned parties within ten business days after receiving the request from the department chair. Due process requirements for a fair hearing shall be provided to all parties involved. The record of the hearing before the dean or dean's designee(s) shall consist of written statements of the parties involved in support of their positions provided prior to the hearing and a transcript of the hearing.
- If the issue is not resolved at the level of the dean of the college, the student may submit an appeal in writing within five business days after receiving the dean's decision, to the dean of the Graduate School to resolve the issue. The student shall inform the dean of the college about the appeal to the dean of the Graduate School.
- The dean of the college shall submit all paperwork related to the issue including the record of the hearing, to the dean of the Graduate School and the dean's or dean's designee(s)' decision, and if the dean's designee(s) rendered the decision, the dean shall indicate whether or not the dean agrees with the decision.
- The dean of the Graduate School or the dean's designee(s) drawn from the Executive Committee of the Graduate Faculty shall consider the issue and shall try to resolve the issue by meeting with the concerned parties within ten business days after receiving the appeal from the student. Due process requirements for a fair hearing shall be provided to all parties involved. The record of the hearing before the dean or dean's designee(s) shall consist of written statements of the parties involved in support of their positions

provided prior to the hearing and a transcript of the hearing. The dean shall provide the student the final decision in writing.

If the issue is not resolved at the level of the dean of the Graduate School, the student may resort to the formal grievance procedures, within five days of receiving the final written decision by the dean of the Graduate School, by appealing to the chairperson of the University Student Grievance Committee.

Non-Academic Issues

Definition

Non-academic issues include concerns regarding access or participation in courses, harassment and racial discrimination based on age, color, creed, disability, ethnicity, marital status, national origin, race, religion, sex, sexual orientation or veteran status, or any other derogatory or discriminatory act by an instructor, a staff member, or a fellow student.

Informal Non-Academic Grievance Procedures

The student shall meet with the associate provost for student affairs to seek a course of action to resolve the non-academic issue. The associate provost for student affairs shall advise the student about the informal grievance procedures to be followed to resolve the issue, and facilitate the informal grievance process.

Formal Grievance Process Academic and Non-Academic

If the issue (academic or non-academic) is not resolved through the informal grievance process, the student may seek a resolution of the issue through the formal grievance process delineated in the Faculty Handbook. The University Student Grievance Committee shall conduct formal hearings after the chairperson of the committee receives a written request from the student to begin the formal grievance process.

University Student Grievance Committee

1. The function of the University Student Grievance Committee shall be:
 - a) To conduct formal hearings, upon request from a student or an instructor regarding academic or non-academic issues as defined before.
 - b) To submit findings to the appropriate administrative officer (provost and vice president of academic affairs for academic matters and the associate provost for student affairs for non-academic matters. If a conflict of interest exists, then, to the appropriate vice president or the president of the university). Should the committee find evidence that the grievance was appropriate, it will forward specific suggestions for rectifying such evaluation or treatment.

2. The University Student Grievance Committee shall be constituted as set forth in the Faculty Handbook, the expectation being that the faculty members will be taken from the graduate faculty and the students being graduate students in cases involving individuals associated primarily with the Graduate School and its programs.
3. The Committee shall elect its chairperson and establish its internal operating procedures in accordance with the formal student grievance policy published in the Faculty Handbook and the university policies on affirmative action, discrimination, etc. The procedures shall be made available to all parties involved in the grievance process.

Dismissal for Non-Academic Reasons

Bradley graduate students must abide by all University regulations. Students who violate University regulations may be subject to disciplinary sanctions including dismissal or suspension as listed in the Bradley Student Handbook. Handbooks are available from the Student Activities Office located in the lower level of the Student Center.

Transcript of Credits

A transcript of credits is an authentic copy of the student's academic record. No partial transcript will be issued. Transcripts are released only by written request of the student. This order must be placed in person or by mail to the Registrar's Office, and be accompanied by a \$4.00 fee per copy requested. For other methods of ordering transcripts, please see bradley.edu/registrar/transcripts.

Bradley University does not issue nor certify copies of transcripts from other institutions.

Graduate School Policies

Student Course Load

The Graduate School requires that a minimum of 30 semester hours be successfully completed for the master's degree. Specific programs may require additional hours.

A full-time student takes 9 semester hours of coursework during a semester of the regular academic year; the maximum permitted is 12 semester hours. Full-time graduate assistants may not enroll in more than 9 semester hours nor work more than 20 hours each week without written permission of their graduate coordinator and the dean of the Graduate School. During the summer, a full-time graduate course load is 6 semester hours each session.

Half-time enrollment shall be considered a minimum of four semester hours.

Graduate School Dismissal Policy

A graduate student must have a minimum cumulative GPA of 3.0 (B) in graduate coursework at the University to be in academic good standing at the graduate level. A graduate student whose cumulative grade point average in graduate coursework drops below 3.0 will be placed on academic probation. While a student is on probation, the student's record will be reviewed at the end of each term. A graduate student who earns a term GPA below 3.0 while on probation will be dismissed from the program. A graduate student will be removed from probation when the student's cumulative grade point average in graduate course work reaches or exceeds 3.0. Graduate students cannot be removed from probation until the end of an official university semester. No changes in status or financial assistance will be made until the end of the semester and will not be effective until the following semester.

A graduate student who receives grades lower than "B" for 6 or more semester hours in graduate coursework will be dismissed. Graduate students receiving grades of lower than B will be reminded of this policy each semester.

Academic good standing does not automatically ensure continuation in a graduate program. A student may be dismissed for factors other than grades upon the recommendation of a committee of department faculty, the student's advisor, the program coordinator/director, the chair

of the department/director of graduate program, the dean of the college, and the dean of the Graduate School.

Dismissed students may petition for reinstatement into the program from which they have been dismissed by filing a Petition for Reinstatement to Graduate Study. Dismissed students are allowed to make only one petition for reinstatement to the program from which they have been dismissed. If the student is dismissed a second time after reinstatement, no additional petition for reinstatement will be considered. The program coordinator/director, the department chairperson, and the dean of the Graduate School must approve the petition for reinstatement. Petitions for reinstatement are available in the Graduate School office or on the Graduate School web site bradley.edu/grad/.

A student who has been dismissed for any of the reasons specified above may apply for admission to another program or as a student-at-large. The application process for seeking admission to a different program or as a student-at-large shall be the same as for new graduate students.

Time Limit for Degree/Certificate Completion

Graduate program curricula continually evolve to stay current in disciplinary and industrial standards. Furthermore, a graduate student examines a developing body of knowledge, and it is difficult to integrate that body of knowledge if a program extends beyond five years. Therefore, candidates for a degree or certificate should complete all requirements within five years following the recording of their first graduate grades, including graduate courses taken as a student-at-large, and courses transferred into their graduate program from Bradley University or any other accredited institution of higher learning.

Graduate students are expected to stay current in their field. If they wish to use courses for the degree or certificate that were taken prior to the five-year limitation, they must have these courses validated by the program coordinator. Credit will be allowed for courses that extend beyond the limit if the coordinator confirms to the dean of

the Graduate School that the candidate is proficient in the subjects. Students should begin the approval process by contacting their graduate program coordinator.

Step-Out Policy

Graduate students may be allowed to step-out of their graduate program for one semester (fall or spring) without being dropped from the program or changing graduation requirements. If a graduate student must take a second consecutive semester off during their program, he or she must reapply for admission to the program. This reapplication does not guarantee admission to the program, and students who are readmitted may be subject to new degree requirements. A renewal of financial assistance is not guaranteed for individuals that must reapply. Students are not required to enroll during summer or interim sessions. Students who are not in good academic standing are required to reapply for admission as students on academic probation.

Students whose time limit for completion of degree/certificate has expired must submit a request to extend time with the readmission application. The request to extend time for completion of degree must be submitted in writing to the Graduate School.

Change of Program

Students who are currently enrolled may apply for a Change of Program. A student wishing to change his or her program must complete a *Change of Program* form and submit it to the Graduate School a minimum of two weeks prior to the semester in which they wish to start the new program. Additional materials or test scores may be required at the discretion of the Graduate School and the department for the Change of Program to be approved. Admission to a degree program does not guarantee a Change of Program will be approved.

Repeated Courses

Upon approval of the dean of the Graduate School, a graduate student may repeat a maximum of two courses in which he or she received grades of C or below. Both the first and second grades received for the course are averaged to calculate the graduate student's overall grade point average; however, semester hours for the course shall count only once toward the degree requirement.

Audited Courses

All Bradley students (undergraduate, graduate, full-time and part-time) in good academic standing registered for a given academic term, along with individuals admitted "at large," for a given academic term may request permission to enroll as an "auditor." Permission to audit a course must

be approved by both the instructor and the chairperson of the department offering the course. Enrollment is contingent on having available space in the class. Except in special circumstances to be determined by the instructor and department chairperson, courses involving laboratory or studio work cannot be audited. Regular class attendance by persons not on the class roster is not permitted.

Forms for audit registration are available in the Registrar's Office or on-line. Audit registrations are accepted by the Registrar's Office only after the first day of classes of each academic term.

The extent to which an auditor participates in a course and the requirements for satisfactory performance must be specified by the instructor when approval is granted. Instructors are not obligated to grade any course work performed by the auditor. Courses taken for audit do not earn academic credit, do not apply toward any academic degree and do not count toward a student's full-time or part-time load for purposes of financial aid, loan deferments or visa status. Courses taken for audit are recorded on the student's permanent academic record as completed satisfactorily ("X"), completed unsatisfactorily ("UX"), or withdrawn ("W").

After the last day for adding classes with special permission, anyone who is registered as an auditor may not change the audit registration to a "for credit" status, i.e. a regular registration; likewise, a student registered for credit may not change to audit status. Deadlines associated with courses taken for credit and courses taken for audit are identical.

All individuals will be charged a non-refundable fee for audited courses. The current fee is published in the Schedule of Classes. Persons who have audited a course may petition to earn credit by proficiency examination; however, the charge for a proficiency examination for credit is based on the standard tuition structure determined by the Controller's Office with a credit granted for charges associated with auditing.

Transfer of Credit

For a coherent program, master's degree candidates should take all of their graduate coursework at one institution or consortium. Bradley will, however, accept 6 semester hours of transfer credit from another accredited institution, providing that (1) the grade in each graduate course offered for transfer is at least a B, and (2) the graduate coordinator recommends its acceptance to the dean of the Graduate School. In rare instances, and upon written approval of the dean of the Graduate School, more than 6 semester hours may be transferred; but in no instances will Bradley accept more than 12 semester hours of transfer credit. Grades of the courses transferred are not included in the calculation of the graduate grade point average. Students applying to have course credits transferred must submit an official transcript from the

other institution and a *Request to Transfer Graduate Credit* form to the Graduate School. This transcript will be kept in the student's graduate file.

Any graduate course completed elsewhere cannot be transferred if eight years pass between completion of the course and completion of the Bradley University graduate program. Regardless of transfer of courses into a graduate program, the five-year time limit for degree/certificate completion shall be retained.

In rare instances, courses beyond the eight-year limit may be considered for transfer upon the recommendation of the graduate coordinator and approval by the dean of the Graduate School. Please see the Time Limit for Degree/Certificate Completion policy in this Catalog. Courses taken between the spring and fall semesters will be considered as being taken during "summer." This includes Bradley courses taken during May three-week, May eight-week, Summer 1, and Summer 2 sessions. "Summer" will count as one semester in the determination of the age of the course.

Courses used to earn a graduate degree at Bradley or any other university may not be used as credit towards another graduate degree at Bradley.

Extension credit is acceptable for transfer if it is taken from an accredited institution and is approved by the procedures outlined above. Correspondence courses and equivalency credit by examination are not acceptable.

Age of Courses Eligible to Meet Prerequisite Requirements

Courses that serve as prerequisites for a degree or certificate program and that do not count directly toward graduate degree or certificate completion may be accepted to meet a prerequisite requirement provided they have been completed no longer than five years prior to the time the student begins his/her graduate program at Bradley University. Courses beyond the five-year limit may be accepted in rare cases at the discretion of the department with referral to the Graduate School and approval by the dean of the Graduate School.

Progression Toward Degree

1. Graduate Program of Study

Within the first semester of a degree seeking student's graduate coursework, a completed Program of Study form must be approved by the program graduate coordinator and dean of the Graduate School. The Program of Study form must identify all program requirements including requirements beyond those listed in the graduate catalog. Revisions to the Program of Study are initiated by submission by the student of a Change of Program of Study form. This must be approved by the program coordinator and dean of the Graduate School.

The dean of the Graduate School and the program

coordinator will use the Program of Study form to determine the student's qualifications for and progress toward completion of his or her master's degree.

2. Comprehensive Assessment

Each department offering a graduate program requires a comprehensive assessment of the student's total experience as it relates to fulfilling the objectives of the program of study. The department offering the program shall determine the form and content of the assessment. The type of comprehensive assessment should be specified in the student's Program of Study. The student is responsible for making arrangements with the program coordinator for completing the assessment. At least two weeks before the date on which the degree is to be conferred, the coordinator must report the quality of the assessment to the Graduate School as Pass, Pass with Distinction, or Fail. The results of the assessment, as reported by the coordinator, will be posted on the student's transcript.

Students who receive a Fail on the assessment will be given only one additional opportunity for reassessment. The time frame in which the reassessment will take place is determined by the program, but must be within the time limit prescribed for finishing the degree.

3. Thesis

Departments of the University govern the thesis option. Those students selecting this option must obtain information about thesis requirements from their graduate coordinator. The general format and procedures for thesis filing are available from the Graduate School or on the Web at bradley.edu/grad.

4. Application for Graduation

Students must apply for graduation either online using Webster or by submitting the printed Graduate Application for Graduation form to the Graduate School. The application must be submitted when the candidate is registering for his or her final semester of study. Students finishing during a summer session should make application at the beginning of the term in which they plan to complete their requirements. The Graduate Application for Graduation form can be found online at www.bradley.edu/grad/.

Applicants failing to complete all requirements for graduation in the semester for which they applied must reapply later.

5. Removal of Conditional Status

A student must be in academic good standing to graduate. The student also must have met all conditions placed on him or her by the department and have been approved for unconditional status.

6. Attendance at Commencement

A commencement convocation is held at the completion of the fall and spring semesters. Students are encouraged to attend.

Facilities and Services

Bradley University provides a comfortable setting designed for living and learning. A beautiful 85-acre campus contains both historic buildings and state-of-the-art learning centers. Surrounded by an historic residential district, the campus has restaurants, shops, and a super-market within walking distance.

Bradley continuously updates facilities to keep pace with new methods of teaching and learning. In recent years complete renovations have taken place in Olin Hall (science), Constance Hall (music), and Bradley Hall. In Fall 2008, the new state-of-the-art Markin Family Student Recreation Center will open, offering a swimming pool, exercise facilities, and practice space for intramural sports. It will serve as the social hub for student life on campus, house the Wellness Program, Counseling Services, the Health Center, and labs to support the Department of Nursing. A 600-space parking deck will also open this fall. Work has begun on the new Athletic Performance Center and the Puterbaugh Men's Basketball Practice Facility. The APC will be home court for women's basketball and volleyball and provide a spacious venue for concerts and other performances. Bradley recently launched a major capital campaign that will bring more renovations and new facilities to campus.

St. James Place, a student residential community, provides suite-style living for upperclass students and outdoor intramural facilities—Meinen Field. In addition to these playing fields, the university has lighted tennis courts on campus. A food court in Williams Hall offers a variety of dining options for all students seven days a week until 8 p.m.

Bradley University Bookstore

The Bradley Bookstore provides the books and supplies necessary for coursework at the university. A large selection of emblematic clothing and gifts, as well as medical, reference, and general reading books, are available at the bookstore. Any book not carried in stock can be special ordered. All students, faculty, and staff with a valid school ID may purchase academically priced software online at campusestore.com. For your convenience, greeting cards, snacks, and soda are also stocked at the bookstore.

Personal checks written for up to \$30 can be cashed for a small fee. Discover, Visa, MasterCard, or American Express cards or Quick Cash are accepted at the Bradley Bookstore. Barnes & Noble gift cards are also accepted and available for purchase to be used at any Barnes & Noble college bookstore or superstore.

Computing Services

Computing Services supports both the academic and administrative aspects of university computing. Computing Services supports campus-wide computer networks, connections to the Internet, and electronic mail. Bradley is a member of Internet2, which provides high-speed network access to more than 300 research-oriented universities, laboratories, and companies. In addition, Internet2 participation provides high-speed access to all major research networks in the United States, as well as access to the major international research networks.

Academic resources include a variety of computer systems and software used for instruction, research, and public service. Student workstations are located in the Cullom-Davis Library and many academic buildings. All residence hall rooms and St. James suites have network connections giving access to the campus network as well as the Internet. Students are encouraged to bring their own workstations with them to campus. There is no charge to access the campus data network or the Internet. HelpDesk services are available in the Reserves area of the Library.

Student e-mail accounts

E-mail and network access accounts are automatically established for every student at Bradley University. You will receive your account and password when you arrive on campus. *Bradley uses e-mail as an official means of communication with students, so you should check your account on a regular basis.*

Romeo B. Garrett Cultural Center

Located at 824 North Duryea Place (across from Williams Hall), the Garrett Center houses the office of Multicultural Student Services. Multicultural Student Services functions to meet the various needs of international students and

Directory

About Peoria

Bradley University

1501 W. Bradley Ave., Peoria, IL 61625
(309) 676-7611 • bradley.edu

Bookstore

(309) 677-2320

Center for Student Health Services

(309) 677-2700
Markin Center

Computing Services Technology HelpDesk

(309) 677-2964

Controller's Office

(309) 677-3120
103 Swords Hall

Cullom-Davis Library

Circulation, (309) 677-2825
Hours Open, (309) 677-2824
Interlibrary Loan, (309) 677-2837
Reference, (309) 677-3502
Renewals, (309) 677-2826
Reserves, (309) 677-3315

Financial Assistance Office

(309) 677-3089
100 Swords Hall

Graduate School

(309) 677-2375
200 Bradley Hall
bugrad2@bradley.edu
bradley.edu/grad/

Multicultural Student Services Office

(309) 677-2646
Garrett Center

Registrar's Office

(309) 677-3101
11 Swords Hall

Schedule of Classes

bradley.edu/classes

Peoria, Illinois is a metropolitan area of 350,000 people, conveniently located halfway between Chicago and St. Louis. Peoria is large enough to provide a wide range of recreational, cultural, and professional activities, and yet is small enough to maintain a shared community spirit.

Peoria's downtown business district and riverfront have been revitalized with art galleries, restaurants, and boutiques. Providing a healthy business climate, Peoria is home to Caterpillar Inc. and a number of innovative technological firms. It is also a medical center for central Illinois. Peoria is proud to be home to Bradley University and joins in welcoming you to your graduate school experience.

Contents

Academic Calendar, 4
Bradley University, 6
Founding of Bradley, 7
Accreditation, 8

The Graduate School

Vision and Mission, 9
Degrees Offered, 11
Admission, 12
Fees And Expenses, 17
Financial Assistance, 19
Academic Regulations, 21
Graduate School Policies, 25
Facilities And Services, 28
Student Affairs, 31

Graduate Programs

Graduate School Interdisciplinary Program, 34

Professional Master of Arts in Elementary Math, Science,
And Technology Education, 34

Foster College of Business Administration, 39

Master of Science in Accounting, 39
Executive Master of Business Administration, 42
Master of Business Administration, 45
Master of Science in Quantitative Finance, 51

Slane College of Communications and Fine Arts, 55

Art, 55

College of Education and Health Sciences, 59

Educational Leadership and Human Development, 61
Annual Institutional Title II Report Card: 2006-2007, 71
Curriculum and Instruction, 73
Nursing, 81
Physical Therapy, 83

College of Engineering and Technology, 89

Civil Engineering, 90
Electrical Engineering, 95
Industrial Engineering, 98
Manufacturing Engineering, 98
Mechanical Engineering, 101

College of Liberal Arts and Sciences, 107

Biology, 107

Chemistry, 109
Computer Science and Information Systems, 110
English, 113
Liberal Studies, 115

Administration and Faculty, 120

Index, 127

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Bradley University is committed to a policy of non-discrimination and the promotion of equal opportunities for all persons regardless of age, color, creed, disability, ethnicity, marital status, national origin, race, religion, sex, sexual orientation, or veteran status. The University also is committed to compliance with all applicable laws regarding non-discrimination, harassment, and affirmative action.

Federal regulations require universities to make student consumer information available to prospective and current students concerning: financial assistance information; institutional programs and policies; graduation rates; safety programs, policies, and crime statistics; athletic program participation rates and financial support data; and rights under Family Education Rights and Privacy Act. This information may be obtained by requesting the Student-Right-to-Know and Campus Security Act Compliance Report from Bradley University's Office of University Relations at (309) 677-3164 or by viewing the University Web site at www.bradley.edu/police/.

This Catalog represents the University's best effort to communicate information on academic programs, policies, rules, and regulations that were in effect at the time of its printing. Students should be aware that the University reserves the right to modify these programs, policies, rules, and regulations at any time within a student's term of residence. The University's policy is to provide notice of any such modifications sufficiently in advance of their implementation to ensure adjustments without undue inconvenience. Before pre-registering for any academic term, students should contact the administrative office of their academic department or college to verify the most current information.

Academic Calendar

The academic calendars are subject to revision. Students should refer to the most recent *Schedule of Classes* for important dates each semester.

2008-2009

First Semester

August 18, Monday	Reporting date for faculty
August 23, Saturday	Residence halls open
August 27, Wednesday	Classes begin
October 11, Saturday	Fall Recess begins
October 15, Wednesday	Classes resume
November 26, Wednesday	Thanksgiving Recess begins
December 1, Monday	Classes resume
December 9, Tuesday	Last day of classes
December 10, Wednesday	Study Day
December 11, Thursday	Final Examinations begin
December 17, Wednesday	Final Examinations end
December 20, Saturday	Commencement

January Interim

January 5, Monday	First day of classes. Classes meet Monday – Saturday
January 19, Monday	Final Examinations will be held in the morning only

Second Semester

January 12, Monday	Reporting date for new faculty
January 18, Sunday	Residence halls open
January 21, Wednesday	Classes begin
March 14, Saturday	Spring Recess begins
March 23, Monday	Classes resume
May 5, Tuesday	Last day of classes
May 6, Wednesday	Study Day
May 7, Thursday	Final Examinations begin
May 13, Wednesday	Final Examinations end
May 16, Saturday	Commencement

Summer Sessions

May 18, Monday	May Interim I begins
(No classes on Memorial Day Holiday)	
June 5, Friday	May Interim I ends
June 8, Monday	Summer Session I begins
July 10, Friday	Summer Session I ends
July 13, Monday	Summer Session II begins
August 14, Friday	Summer Session II ends

2009-2010

First Semester

August 17, Monday	Reporting date for faculty
August 22, Saturday	Residence halls open
August 26, Wednesday	Classes begin
October 10, Saturday	Fall Recess begins
October 14, Wednesday	Classes resume
November 25, Wednesday	Thanksgiving Recess begins
November 30, Monday	Classes resume
December 8, Tuesday	Last day of classes
December 9, Wednesday	Study Day
December 10, Thursday	Final Examinations begin
December 16, Wednesday	Final Examinations end
December 19, Saturday	Commencement

January Interim

January 4, Monday	First day of classes. Classes meet Monday – Saturday
January 18, Monday	Final Examinations will be held in the morning only

Second Semester

January 11, Monday	Reporting date for new faculty
January 17, Sunday	Residence halls open
January 20, Wednesday	Classes begin
March 13, Saturday	Spring Recess begins
March 22, Monday	Classes resume
May 4, Tuesday	Last day of classes
May 5, Wednesday	Study Day
May 6, Thursday	Final Examinations begin
May 12, Wednesday	Final Examinations end
May 15, Saturday	Commencement

Summer Sessions

May 17, Monday	May Interim I begins
May 17, Monday	May Interim II begins
(No classes on Memorial Day Holiday)	
June 4, Friday	May Interim I ends
June 7, Monday	Summer Session I begins
July 9, Friday	Summer Session I ends
	May Interim II ends
July 12, Monday	Summer Session II begins
August 13, Friday	Summer Session II ends

2010-2011

First Semester

August 16, Monday	Reporting date for faculty
August 21, Saturday	Residence halls open
August 25, Wednesday	Classes begin
October 9, Saturday	Fall Recess begins
October 13, Wednesday	Classes resume
November 24, Wednesday	Thanksgiving Recess begins
November 29, Monday	Classes resume
December 7, Tuesday	Last day of classes
December 8, Wednesday	Study Day
December 9, Thursday	Final Examinations begin
December 15, Wednesday	Final Examinations end
December 18, Saturday	Commencement

January Interim

January 3, Monday	First day of classes. Classes meet Monday - Saturday
January 17, Monday	Final Examinations will be held in the morning only

Second Semester

January 10, Monday	Reporting date for new faculty
January 16, Sunday	Residence halls open
January 19, Wednesday	Classes begin
March 12, Saturday	Spring Recess begins
March 21, Monday	Classes resume
May 3, Tuesday	Last day of classes
May 4, Wednesday	Study Day
May 5, Thursday	Final Examinations begin
May 11, Wednesday	Final Examinations end
May 14, Saturday	Commencement

Summer Sessions

May 16, Monday	May Interim I begins
May 16, Monday	May Interim II begins
(No classes on Memorial Day Holiday)	
June 3, Friday	May Interim I ends
June 6, Monday	Summer Session I begins
(No classes on Fourth of July Holiday)	
July 8, Friday	Summer Session I ends
	May Interim II ends
July 11, Monday	Summer Session II begins
August 12, Friday	Summer Session II ends

2011-2012

First Semester

August 15, Monday	Reporting date for faculty
August 20, Saturday	Residence halls open
August 24, Wednesday	Classes begin
October 8, Saturday	Fall Recess begins
October 12, Wednesday	Classes resume
November 23, Wednesday	Thanksgiving Recess begins (no classes)
	Classes resume
November 28, Monday	Last day of classes
December 6, Tuesday	Study Day
December 7, Wednesday	Final Examinations begin
December 8, Thursday	Final Examinations end
December 14, Wednesday	Commencement
December 17, Saturday	

January Interim

January 2, Monday	First day of classes. Classes meet Monday - Saturday
January 16, Monday	Final Examinations will be held in the morning only.

Second Semester

January 9, Monday	Reporting date for new faculty
January 15, Sunday	Residence halls open
January 18, Wednesday	Classes begin
March 10, Saturday	Spring Recess begins
March 19, Monday	Classes resume
May 1, Tuesday	Last day of classes
May 2, Wednesday	Study Day
May 3, Thursday	Final Examinations begin
May 9, Wednesday	Final Examinations end
May 12, Saturday	Commencement

Summer Sessions

May 14, Monday	May Interim I begins
May 14, Monday	May Interim II begins
No classes on Memorial Day Holiday	
June 1, Friday	May Interim I ends
June 4, Monday	Summer Session I begins
No classes on Fourth of July Holiday	
July 6, Friday	Summer Session I ends
	May Interim II ends
July 9, Monday	Summer Session II begins
August 10, Friday	Summer Session II ends

Bradley University

The University

Bradley University is an independent, privately endowed, coeducational institution. Located on an 85-acre campus in Peoria, Illinois, Bradley was founded in 1897 as Bradley Polytechnic Institute by Lydia Moss Bradley as a memorial to her children and husband, Tobias. It became a four-year college in 1920 and in 1946 became a university and began offering graduate programs. Bradley is accredited by the North Central Association of Colleges and Schools.

With approximately 5,300 undergraduate and 800 graduate students, Bradley is the ideal size for living and learning. Bradley provides a broad choice of academic and preprofessional programs with more than 100 programs of study in five colleges: the College of Liberal Arts and Sciences, College of Education and Health Sciences, College of Engineering and Technology, Foster College of Business Administration, and Slane College of Communications and Fine Arts. Through its Graduate School, Bradley awards 14 degrees in over 30 academic areas, including a doctor of physical therapy degree. Programs offered through Continuing Education extend the resources of the university to promote lifelong learning.

The average class size is 24 students and the student-to-faculty ratio is 14:1. Bradley has more than 300 full-time faculty who are both active researchers and committed teachers, providing personalized attention in learning and academic advising. All courses are taught by professors, not graduate assistants, and team projects and collaboration are emphasized in every area of university life. After class, Bradley students have abundant opportunities for involvement in campus life—including more than 240 clubs and organizations, NCAA Division I athletics, intramural and club sports, study abroad, and the Lewis J. Brammer Center for Student Leadership and Public Service.

Technology is integrated across the campus—from the digital editing suites used by communication students to the robotics used in the engineering labs. Students can borrow wireless laptops to use in Cullom-Davis Library, work in computer labs across campus, and have access to the Internet in every residence hall. Of the 300 universities participating in Internet2, Bradley is one of the few non-doctoral research institutions offering access

to this high-performance network for faculty research and student-faculty collaborative projects.

Bradley students do exceptionally well in their chosen careers and advanced studies after graduation. Last year the overall placement rate for Bradley graduates was 96 percent. Graduates of Bradley University have become leaders in every field of endeavor.

Our Vision

Bradley University is committed to excellence. Already one of the best private comprehensive universities in the Midwest, Bradley will be one of the finest institutions of its type in the nation.

Our Mission

Bradley University is committed to nurturing the multifaceted development of students to enable them to become leaders, innovators, and productive members of society. Our graduates are prepared for life and professions in a changing world and they are able to cross academic, geographic, and cultural boundaries. A Bradley education is characterized by small classes, active learning, mentoring by highly qualified faculty, challenging academic programs, opportunities for study abroad, and numerous cocurricular activities.

We recruit, develop, and support faculty who are passionate educators and outstanding scholars whose research and creative contributions benefit society. We expect and reward pedagogy and scholarship of exceptional quality and influence.

A distinctive feature of Bradley University is our cohesive sense of community that unites faculty, students, staff, and alumni. Our tradition of collective responsibility is founded on a commitment to the values of academic freedom, civility, diversity, and respect for the individual. Our exemplary system of shared governance both represents and sustains our sense of community and fundamental values.

We promote and facilitate collaboration among all members of the University community. Students learn teamwork and leadership through group projects and col-

laborate with faculty on research and creative production. Likewise, faculty collaborate with colleagues across departmental, college, and institutional boundaries to elevate the quality and impact of their work. The University's strategic partnerships with business, cultural, and governmental institutions provide benefits to the community and society and create additional learning opportunities for students.

Founding of Bradley

On April 10, 1897, ground was broken for Bradley Hall. What had been prairie-land cornfield was transformed into a seat of learning because of the remarkable courage, strength, and determination of one woman, Mrs. Lydia Moss Bradley.

Lydia Moss Bradley had seen all of her hopes, ambitions, and dreams for her six children end in their untimely deaths. She and her husband, Tobias Bradley, had devoted much time, thought, and discussion to how their wealth might be used as a fitting memorial to their deceased offspring and considered establishing an orphanage.

Unfortunately Tobias died in May of 1867, before their dream could be realized. Alone, Mrs. Bradley devoted herself unreservedly to the achievement of their goal. After some study and travel to various institutions, Mrs. Bradley decided that, instead of an orphanage, she wanted to found a school where young people could learn how to do practical things to prepare them for living in the modern world. In 1892 she purchased a controlling interest in Parsons Horological School in LaPorte, Indiana, the first school for watchmakers in America, and moved it to Peoria. She specified in her will that the school should be expanded after her death to include a classical education as well as industrial arts and home economics: "...it being the first object of this Institution to furnish its students with the means of living an independent, industrious and useful life by the aid of a practical knowledge of the useful arts and sciences."

In October 1896 Mrs. Bradley was convinced by Dr. William Rainey Harper, president of the University of Chicago, to move ahead with her plans and establish the school during her lifetime. Bradley Polytechnic Institute was chartered on November 13, 1896. Mrs. Bradley initially provided seventeen and a half acres of land; funds for two campus buildings, including laboratory equipment and library books; and annual operating expenses.

Contracts for Bradley Hall and Horology Hall (later re-

named Westlake) were awarded and work moved ahead quickly. Fourteen faculty and 150 students began classes in Bradley Hall on October 4, 1897—with 500 workers still hammering away. (The Horological Department added another eight faculty and 70 students.) Bradley Polytechnic Institute was formally dedicated on October 8, 1897. Its first graduate, in June 1898, was Corinne Unland.

By 1899 there were 350 pupils in the School of Arts and Science at Bradley, about equally divided between men and women. Instruction was offered in biology, chemistry, food work, sewing, English, German, French, Latin, Greek, history, manual arts, drawing, mathematics, and physics. Pleased with its progress, Mrs. Bradley transferred to the school the rest of her estate, including nearly 1,000 different pieces of property, reserving its use and profits during her lifetime. At Founder's Day in 1906 she announced an additional gift to build Hewitt Gymnasium, now Hartmann Center for the Performing Arts. Mrs. Bradley died on January 16, 1908, at the age of 91.

The Institute continued to grow and develop to meet the educational needs of the region. Bradley became a four-year college offering bachelor's degrees in 1920 and a full university offering graduate programs in 1946, when it was renamed Bradley University.

Today, Bradley alumni total more than 60,000 worldwide. Prominent alumni include David Markin '53, president and chairman, Checker Motors Co., L.P.; General John Shalikashvili '58, retired chairman of the Joint Chiefs of Staff; Keith Bane '61, founder of Nextel and retired president, global strategy and corporate development, Motorola, Inc.; Richard Teerlink '61, retired chairman, Harley-Davidson, Inc.; Wendy Ross '64, assistant managing editor, *Washington Post*; Gerald Shaheen '66 MA '68, retired group president, Caterpillar Inc.; Charlie Steiner '71, commentator, Los Angeles Dodgers; Dr. Nora Zorich '75, vice president, research and development, director of new drug development, Proctor & Gamble Pharmaceuticals; Stephen Gorman MBA '78, executive vice president, operations, Delta Air Lines; Renée C. Byer '80, winner of the Pulitzer Prize, senior photographer, *Sacramento Bee*; Kary G. McIlwain '81, president and CEO, Young & Rubicam Chicago; Brad Cohen '96, teacher, motivational speaker, and author of *Front of the Class* (Best Education Book, 2005, and the basis of a Hallmark Hall of Fame movie); and Tami Lane '96, winner of an Academy Award, prosthetic make-up artist.



Accreditation

Bradley University is accredited by the Higher Learning Commission and is a member of the North Central Association of Colleges and Schools:

**30 N. LaSalle St., Ste. 2400,
Chicago, Illinois, 60602-2504;
(312) 263-0456;
www.ncahigherlearningcommission.org.**

Bradley also has a number of select undergraduate and graduate programs that are accredited by the following:

- AACSB International – The Association to Advance Collegiate Schools of Business
- American Chemical Society
- American Council for Construction Education
- American Dietetic Association (didactic program approval)
- Association for Childhood Education International
- Commission on Accreditation in Physical Therapy Education (CAPTE)
- Council for Accreditation of Counseling and Related Educational Programs (CACREP)
- Council for Exceptional Children
- Council on Accreditation of Nurse Anesthesia Educational Programs
- Council on Social Work Education (CSWE)
- Educational Leadership Constituent Council
- Engineering Accreditation Commission and the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 - telephone (410) 347-7700.
- National Association for the Education of Young Children
- National Association of Schools of Art and Design
- National Association of Schools of Music
- National Association of Schools of Theatre
- National Council for Accreditation of Teacher Education
- National Council for the Social Studies
- National Council of Teachers of Mathematics
- National League for Nursing Accrediting Commission (NLNAC)
- National Science Teachers Association

THE GRADUATE SCHOOL

Vision

The Graduate School of Bradley University will make available to individuals desiring post-baccalaureate studies a selection of rigorous, high-quality professional degrees and certificate programs that will enhance their professional skills and intellectual development. It will be recognized for the quality of the advanced study, research, and creative production produced by the students and faculty. Students completing programs of study shall be recognized at the local, state, and national levels for their excellence in research, creative production, professional service, or performance in the workplace.

Mission

The mission of The Graduate School, working with the graduate faculty, is to provide leadership and administrative assistance to the faculties of the colleges and departments of the university for the purpose of developing and maintaining high-quality professional post-baccalaureate programs. In accordance with the theme of Bradley's post-baccalaureate programs, "Professional Programs for Emerging Leaders," these programs are designed to prepare individuals for professional leadership, with advanced skills in analysis, communication, creative production, technology, and interpersonal relations. The programs meet the diverse needs of individuals by offering students the opportunity to work closely with faculty, in small classes, on a flexible schedule.

The Graduate School shall serve as an advocate before the university administration and the community in support of the students, faculties, departments, and colleges that are participants in the University's post-baccalaureate programs. It shall provide for the welfare of the students and faculties by identifying the needs of these constituencies and pursuing avenues for meeting these needs.

The Graduate School

The Graduate School at Bradley University targets areas of special strength for the offering of select graduate programs in 30 different areas designed to prepare students for rewarding careers. The strength of Bradley's graduate programs lies in the outstanding quality of its faculty, who mentor students in a genuine academic community. With a strong commitment to facilitate student learning, the faculty strives to advance knowledge relevant to society's local, regional, and global needs.

Bradley University offers state-of-the-art facilities, a diverse cultural environment, and a beautiful campus. In this setting, graduate programs rapidly adapt to external forces that call for students to synthesize information and integrate knowledge as they prepare for careers in the twenty-first century—a century that promises continued technological change.

Professional Programs for Emerging Leaders

Each semester nearly one thousand graduate students from a wide variety of institutions study in 30 different subject areas. The various post-baccalaureate programs consist of masters' degrees, the doctor of physical therapy degree, and graduate certificate programs. These graduate programs are intended to promote the professional development of graduate students by engaging them in research, creative production, workplace-oriented experiences, and theoretical studies. Emphasis is placed on developing leadership, technology, research, and teamwork skills through collaborations with nearly two hundred graduate faculty members, the University's strategic partners, and other students.

Role of the Graduate School

The Graduate School serves as the administrative unit that provides guidance and leadership for initiating and maintaining post-baccalaureate programs of the highest quality. Its administrative roles include assisting departments offering these programs in the following ways:

- recruiting and retaining students
- maintaining student records
- awarding financial aid, including assistantships

- assisting in raising funds in support of the programs
- approving membership to the Graduate Faculty
- assuring uniformly high quality by establishing standards for all programs
- acting as the administrator for interdisciplinary programs
- approving students for graduation.

The Dean of the Graduate School, in conjunction with the Executive Committee of the Graduate Faculty, develops policies and procedures that guide all activities relating to post-baccalaureate education at Bradley. Another important role of the Graduate School is to act as an advocate before the university administration in support of departments and colleges offering graduate programs.

Chief among the various roles of the Graduate School is providing for the welfare of the graduate students and the members of the graduate faculty by identifying the needs of both of these constituencies. These needs are brought to light by seeking input through the Executive Committee of the Graduate Faculty, program coordinators, department chairs/directors, and the Graduate Student Advisory Committee. Once the needs are identified, the Dean of the Graduate School is charged with the responsibility of seeking a means to meeting these needs as expeditiously as possible.

Campus Visits

If you are considering graduate study and would like to tour the Bradley University campus, please contact the Graduate School office at (309) 677-2375 or bugrad2@bradley.edu.

Contact the Graduate School

Visit 200 Bradley Hall

Call (309) 677-2375

E-mail bugrad2@bradley.edu

Visit Online www.bradley.edu/grad

Degrees Offered

Graduate School Interdisciplinary Program

Professional Master of Arts in STEM Education P.M.A.
Elementary Math, Science, and Technology Education

Foster College of Business Administration

Accounting M.S.A.
Business Administration M.B.A.
Finance
Management
Marketing
Executive Master of Business Administration M.B.A.
Quantitative Finance M.S.

Slane College of Communication and Fine Arts

Art M.A. and M.F.A.
Ceramics
Drawing/Illustration
Interdisciplinary Art Studies
Painting
Photography
Printmaking
Sculpture
Visual Communication & Design

College of Education and Health Sciences

Curriculum and Instruction M.A.
Assessment
Early Childhood Education
Educational Technology
Gifted Education
Literacy and Reading
Middle School Education
Multidisciplinary
Science Education
Special Education
Curriculum and Instruction—Learning Behavioral
Specialist I
Additional endorsement options in education available:
Learning Behavior Specialist I Endorsement
Reading Endorsement
Middle Level Education Endorsement
Human Development Counseling M.A.
Community and Agency Counseling
School Counseling

Leadership in Educational Administration M.A.
Leadership in Human Service Administration M.A.
Nursing Administration M.S.N.
Nursing-General M.S.N.
Nurse Administered Anesthesia M.S.N.
Physical Therapy D.P.T.

College of Engineering and Technology

Civil Engineering M.S.C.E.
Electrical Engineering M.S.E.E.
Industrial Engineering M.S.I.E.
Manufacturing Engineering M.S.M.F.E.
Mechanical Engineering M.S.M.E.

College of Liberal Arts and Sciences

Biology M.S.
Chemistry M.S.
Computer Information Systems M.S.
Computer Science M.S.
English M.A.
Liberal Studies M.L.S.

Graduate Certificate Programs

College of Education and Health Science

Certificate in Curriculum and Instruction Cert.
Assessment
Early Childhood Education
Educational Technology
Gifted Education
Literacy and Reading
Middle School Education
Multidisciplinary
Science Education
Certificate in School Counseling Cert.
Certificate in Nurse-Administered Anesthesia Cert.
Certificate in Educational Administration (Type 75) Cert.
National Board Certified Teachers Fast Track Type 75 Cert.

General Admission Information

Eligibility

(see also: *Admission Requirements*)

Applications for graduate study are welcome from any student who holds a bachelor's degree from a regionally accredited college or university, or the international equivalent, and to certain qualified Bradley University seniors (see Categories of Admission below).

Categories of Admission

1. **Unconditional.** This classification denotes a graduate student who is admitted to a degree program. At the undergraduate level the student must have achieved a 3.0 grade point average on a 4.0 scale in the last 60 hours of undergraduate coursework. Applicants with previous graduate coursework must have achieved a 3.0 grade point average on a 4.0 scale in all graduate coursework, and have completed a minimum of 12 graduate credit hours for the graduate grade point average to be considered for admission. Admission is competitive and based on an applicant's entire portfolio (see "Admission Requirements"). Achieving the minimum required grade point average does not guarantee admission to a program.
2. **Conditional.** This status may be given if the student's last 60-hour grade point average is below a 3.0 and above a 2.5 on a 4.0 scale. It may also be given if the student's scores on standardized tests fall below the requirement in the discipline; if the student does not have sufficient undergraduate preparation; or in fine arts performance areas, if, in the judgment of the faculty, the quality of work is not totally acceptable. If undergraduate deficiencies are a cause of conditional admission, the faculty in the discipline shall specify the additional coursework prerequisites and/or a standard of achievement in prescribed coursework which will remove the deficiencies.

Students admitted in conditional status must fulfill the conditions of their admission as individually specified. Once the student has met these conditions, the Removal of Conditional Status form must be com-

pleted and filed in the Graduate School. Graduate students cannot be removed from conditional admission status until the end of an official university semester. No changes in status or financial assistance will be made until the end of the semester and will not be effective until the following semester.

Students granted conditional admission are not eligible for financial assistance.

3. **Graduate Student-at-Large.** This admission status is for a student who has a bachelor's degree from an accredited institution, wishes to register for graduate or undergraduate courses, and is not currently seeking a graduate degree from Bradley University. The student must have achieved a 2.75 grade point average on a 4.0 scale in the last 60 hours of undergraduate coursework. In rare cases, exceptions to the grade point average requirement may be made for graduate students-at-large with the consent of the Dean of the Graduate School. Graduate students-at-large do not qualify for scholarships or assistantships.

At the time of application, a graduate student-at-large must provide an Application for Graduate Admission, application fee, and official transcripts. Students who have met the prerequisites may enroll in most graduate courses. Students who enroll in courses for which they are not qualified may be dropped from the course.

Admission as a graduate student-at-large does not constitute admission to a degree program. Should the student wish to apply to a degree program, all requirements for admission to that program must be met. A maximum of 9 semester hours with grades of B or better earned as a graduate student-at-large may be applied to a degree program, with approval of the program's graduate coordinator.

4. **Bradley Seniors Taking Courses for Graduate Credit.** Bradley seniors who are within 6 semester hours of graduation, or who are registering for the semester during which they will complete their bachelor's degree requirements, may register for graduate courses

for graduate credit provided they also have a cumulative grade point average of 3.0 or greater. They must also have the approval of: 1) their undergraduate advisor, 2) the instructor of the course who determines if the course is appropriate for graduate credit, and 3) the graduate program director/coordinator if the course is part of a graduate program, or the department chairperson if the department does not house a graduate program. The senior may not take more than 9 semester hours of courses for graduate credit while registering as a senior. These hours will not be counted toward the baccalaureate degree. The student must secure the approval signatures on the form, Application for Graduate Credit for a Senior, and file it with the Registrar. Forms may be obtained from the Registrar's Office and the Graduate School.

Former Students

Students who have received an undergraduate or graduate degree from Bradley must reapply for admission if they wish to register for additional coursework.

Admission Requirements

Before being considered for admission, degree-seeking students must submit the following materials. Some departments have additional requirements. Be certain to check individual programs for admission requirements. Please note: all forms are available in the Graduate School or on the web at bradley.edu/grad/.

1. **Application Form.** All applicants must submit an Application for Graduate Admission, signed and dated by the applicant.
2. **Application Fee.** All applicants must submit a non-refundable application fee, payable by check or money order to Bradley University, at the time of application. The fee for domestic applicants is \$40 and \$50 for international applicants. This fee cannot be waived or deferred. Applications submitted without an application fee will not be processed. Fees are subject to change without notice.
3. **Transcripts.** Applicants are required to provide one official transcript sent directly from the Registrar's office at the institution from which they receive their bachelor's degree or the international equivalent. Additional transcripts may be required at the discretion of the Graduate School. Applicants should submit additional official transcripts from post-baccalaureate coursework for consideration. Applicants who have completed graduate-level coursework should submit all transcripts reflecting graduate coursework. International applicants see requirements for international students (below).

4. **Experience and Objectives.** Applicants must provide a short admissions essay on each of the following topics:
 - a. Explain achievements and work experience that you consider relevant to your interest in and capacity for graduate study.
 - b. Briefly state your career objectives and how the graduate program you have selected will assist you in attaining these goals.
5. **Recommendations.** Applicants must provide two letters of recommendation sent directly to the Graduate School from individuals who can comment on the applicant's potential for success in a graduate program. Recommendation forms are available through the Graduate School or on the Web at bradley.edu/grad/. Certain programs may require additional recommendations.
6. **Entrance Examinations.** Certain programs require entrance examinations (e.g. GRE, GMAT, MAT, portfolio, et al.) as part of the application process. Students can find these requirements within the information described by each program. Official score reports should be sent to the Graduate School if applicable.

Testing Information: Information about the GRE and the Test of English as a Foreign Language (TOEFL) may be obtained from the Educational Testing Service, Box 955, Princeton, NJ, 08540. All current testing and registration information on GRE and TOEFL is available on the Internet at www.ets.org. Local administration of the GRE and TOEFL is available through the Prometric Testing Center, 7501 N. University Ave., Peoria, IL, 61614, (309) 683-4653. Information about the GMAT is available on the Web at www.mba.com. To have scores sent to the Graduate School, indicate the Bradley institutional code 1070. Information about International English Language Testing System (IELTS) is available through their Web sites, www.ielts.org or www.ceil.org, or British Council Offices. Additional information is also available through the Graduate School.

MAT information and test registration are available through the College of Education and Health Sciences, Westlake Hall 218, (309) 677-3181.

7. **Language Proficiency.** All applicants to the Graduate School (degree seeking as well as students-at-large) whose native language is not English are required to submit official evidence of language proficiency. This requirement is in effect for all applicants regardless of citizenship or immigration status. Non-native English speakers who have earned a degree from a U.S. institution or from an institution in a country where the official language is English are exempt from this requirement. Language proficiency is determined by

results on the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS).

TOEFL Requirement. The minimum TOEFL requirement on the Paper Based Test (PBT) is a 550, the Computer Based Test (CBT) equivalent score of 213, or the internet-based TOEFL (iBT) equivalent score of 79. The IELTS is an acceptable substitute for TOEFL. The minimum band requirement is 6.5. A departmental program may require higher scores than the Graduate School minimum. No applicant with less than a 550 PBT (213 CBT; 79 iBT; 6.5 IELTS) will qualify for financial assistance.

Additional information about TOEFL testing and registration is available through their Web sites at www.toefl.org or www.ets.org and U.S. Embassies, Consulates and advising centers throughout the world. Bradley's institutional code for score reporting is 1070.

Additional information about IELTS testing and registration is available through their Web sites at www.ielts.org or www.ceii.org, British Council offices throughout the world, and IDP Education Australia.

International Applicants

For admission purposes, an international applicant is not a U.S. citizen. "International," therefore, includes permanent residents, asylees, and other temporary visa holders. International students must meet the admission requirements of the Graduate School as stated above. In addition, the following is required.

1. **Transcripts.** All applicants must submit official documentation of their academic records and certification of their degree(s). The names of these documents differ from country to country, but are commonly referred to as transcripts, relevé de notes, marksheets, or statements of marks. The documentation should include, semester by semester, or year by year, the courses taken, the examination results received, the grading scale or system used, and the degree and date it was awarded. If the documents are not prepared in English, an official, literal translation must accompany the original document.

From institutions in countries such as India, Pakistan, Bangladesh, and Nepal, the Graduate School accepts marksheets as official if "attested" by the registrar, controller of examinations, or other officially authorized office, when they are sent directly from the university office to the Graduate School. Alternatively, marksheets may be considered official if enclosed in an official university envelope that has been sealed, stamped, dated, and signed by an authorized university official and received by the Graduate School unopened. The

Graduate School requires marksheets from all examination sessions reflecting all examinations passed, failed, and/or repeated. **Consolidated marksheets and college transcripts are not accepted.**

From institutions in China, the Graduate School requires an official Chinese transcript accompanied by an official, literal translation. In addition, the certificate of graduation and certificate of degree awarded (in Chinese, accompanied by an official translation) are required.

Applicants should alert the Graduate School as to how their name appears on the transcripts or marksheets if the family name is abbreviated or their name is reported in a manner different from how it appears on the application. Confusion and inconsistency in the reporting of names on documents is a common cause for delay in the processing of applications.

2. **Financial Certification.** All international applicants intending to enter the U.S. on an F-1 student visa are required to present the *Certificate of Eligibility Form I-20* when applying for a visa. International applicants who are not or will not be in F-1 status are not required to provide financial certification. The Graduate School will issue the Form I-20 to applicants who have been approved for admission and who provide the required financial certification documentation.

The financial certification requirements are described in detail on the Bradley University *Financial Information and Certification* form provided to all international applicants. All applicants are required to document their ability to finance their education and living expenses for the length of time estimated to complete a master's degree (two years). Certification requirements normally include:

- a. a notarized affidavit of support from the applicant's sponsor (normally parents or family) indicating the intent and ability to provide at least \$21,000 each year for two years.
 - b. an official bank statement (signed, dated, and current) from the sponsor indicating an account balance of at least \$21,000. The bank statement should report money in the local currency, the current exchange rate, and the U.S. dollar equivalent. Bank statements should be current at the time of application or within six months of enrollment. Estimated expenses are subject to change without notice.
 - c. a Bradley University Financial Information and Certification form, which can be downloaded from the Graduate School Web site at bradley.edu/grad/.
3. **Language Proficiency.** See "*Language Proficiency*" under "*Admission Requirements*" above.

Permanent Residents/Immigrants

Applicants who are permanent residents/immigrants must submit proof of their immigration status along with their application. Applicants may submit a copy (front and back) of their Alien Registration Card when applying for admission. Before students can register, they must present the original card to the Graduate School. (See "Language Proficiency" under "Admission Requirements" above.)

Application or Admission Deferral

Applicants or admitted students wishing to defer their application or admission to a subsequent semester must complete a *Request for Deferral of Application or Admission* form and return it to the Graduate School prior to the start of the semester for which they intend to apply or are admitted. The form is available in the Graduate School or on the Web at www.bradley.edu/grad/.

Applicants may defer their application or admitted students may defer their admission for one consecutive semester (excluding summer and interim sessions) without reapplying. If an applicant does not complete the application process for a second consecutive semester, the applicant must reapply by submitting a new *Application for Graduate Admission* form and application fee to the Graduate School. If an admitted student does not attend for a second consecutive semester after admission, the student must reapply by submitting a new *Application for Graduate Admission* form and application fee to the Graduate School. Additional application materials may be required at the discretion of the Graduate School and the department.

Registration

Academic Calendar

Bradley University's academic calendar consists of two fifteen-week semesters (fall and spring). A three-week interim (mid-May to mid-June), an eight-week summer session, and two five-week summer sessions (early June to mid-July and mid-July to mid-August) are also offered. A three-week January interim is also offered. (See "Academic Calendar.")

Schedule of Classes

Bradley's Schedule of Classes lists specific registration information on the courses to be offered and is available on the Bradley University Web site at bradley.edu/classes/.

Application Deadlines

The Graduate School processes applications on a rolling, or continuous, basis for most programs. The recommended dates by which applications and supporting materials should be sent to the Graduate School are: May 15 for fall, October 15 for spring, and April 15 for summer admission. For full consideration, applicants must submit a complete application and all supporting materials no later than two

weeks prior to the beginning of any term to be reviewed for admission for that term. Beyond that time the review of applications cannot be guaranteed. Because some departments have specified deadlines, be certain to check individual programs for deadline information.

Registration

Bradley University uses a web-based registration system. Using their BUnetID available upon admission, students may register by visiting webster.bradley.edu. Instructions for online registration are included in the *Schedule of Classes* each semester (bradley.edu/classes).

Schedule Change After Registration

Once a student has registered, changes to that schedule (additions and deletions) may be made by using the online system. Instructions are outlined in the Schedule of Classes.

For all schedule changes after the deadlines for online registration, students must obtain the *Late Add Request* from the Registrar's Office and follow the procedures outlined below.

To add a class(es), the signatures of the graduate coordinator (or, for business only, the associate dean of the College), the instructor of the added class, the department chair for the added class, and the dean of the Graduate School must be obtained.

Partial drops may be done online up until the last day for dropping classes outlined in the *Schedule of Classes*.

Graduate students who wish to withdraw from all classes in which they are registered should initiate a *Request for Withdrawal* at the Graduate School, 200 Bradley Hall.

Graduate Certificate Programs

Graduate certificate programs are relatively short-term programs that offer students a coherent body of knowledge practical to the workplace; they are not degree programs. They may be post-baccalaureate or post-masters. Certificate programs consist of no fewer than 12 semester hours of 500- and/or 600-level courses. Students admitted to a graduate certificate program will be required, at a minimum, to meet the same academic requirements as those defined by the Graduate School for degree-seeking students. The department(s) offering the program may set additional admission requirements. The application process is the same as for all other graduate programs. Recognition of the courses taken and the completion of the course of study will be noted on the student's transcript. For information on specific certificate programs, refer to the departmental sections of this catalog or to the Graduate School's web page at bradley.edu/grad.

Student Eligibility and Admission Criteria

1. An earned baccalaureate degree or its equivalent from a regionally accredited college or university is

required for admission to a post-baccalaureate program. An earned master's degree or its equivalent from a regionally accredited college or university is required for admission to a post-master's program.

2. Students who are currently enrolled in the Graduate School and who wish to pursue a graduate certificate program must apply for admission to the program before completing the second course required by the certificate program.
3. Courses that satisfy the requirements for a certificate program may be used to satisfy the requirements for a master's degree if applicable and at the discretion of the degree program coordinator/director.
4. Courses taken prior to admission to a certificate program are not a guaranteed means of admission to that certificate program or to a graduate degree program. Admission to or completion of a certificate program may be used as evidence in support of a student's application for admission to a graduate degree program, but the certificate itself is not a prerequisite and does not guarantee admission.
5. All courses used to satisfy the certificate program requirements, with limited exceptions, must be taken at Bradley University unless the certificate program is taught jointly with another institution.
6. Students admitted to a graduate certificate program will be required, at a minimum, to meet the same academic requirements as those defined by the Graduate School for degree-seeking students. Individual departments may apply more stringent academic requirements.
7. The student's official transcript shall contain the listing of courses taken in this program and will also indicate successful completion of the program.
8. The student will be required to complete the certificate program within the time limit specified for graduate programs by the Graduate School.
9. Students enrolled will have access to the same campus services as other graduate students.
10. Students seeking only a graduate certificate, with limited exceptions, will not be eligible for financial aid, with the exception of loans.
11. The Graduate School will issue the certificates of completion.
12. Students completing a certificate program will not participate in the University's commencement exercises. Departments have the discretion to offer certificate award ceremonies.

Fees and Expenses

Application Fee

All applicants must submit a non-refundable application fee, payable by check or money order to Bradley University, at the time of application. The fee for domestic applicants is \$40 and \$50 for international applicants. This cannot be waived or deferred. Applications submitted without an application fee will not be processed. Fees are subject to change without notice.

Applicants for the Master of Liberal Studies degree program are not required to pay this fee.

Checks or money orders should be made payable to Bradley University.

2008-2009 Tuition

Tuition rates and fees are subject to change. Tuition for the 2008-2009 academic year is as follows:

\$615 per semester hour

Tuition rates are subject to change for 2008-2009 and subsequent academic years. Current tuition and fees are published each semester in the Schedule of Classes (bradley.edu/classes).

All courses taken in the College of Engineering and Technology are assessed a tuition surcharge of \$5.00 per semester hour to support lab equipment.

Tuition for all classes in the MLS program is \$320.00 per semester hour for the 2008-2009 academic year.

Senior citizens (individuals 62 or older) may take classes at the rate of \$25.00 per credit hour for part-time course work. Enrollment is subject to availability of classroom space. Contact Continuing Education for admission information.

Tuition and any fees must be paid by the deadline and in accordance with the instructions found in the current Schedule of Classes (bradley.edu/classes). Students who have not made arrangements for payment by the deadline will be dropped from all classes. Questions regarding payment should be directed to the Controller's Office, 100 Swords Hall, (309) 677-3120.

Interim and Summer Sessions

See the Schedule of Classes (bradley.edu/classes) for specific details concerning payment.

Deferred Payment Plan

The University offers a Deferred Payment Plan that requires payment at registration of 25 percent of the total tuition due. This payment may be made in the form of cash or check, credit card, or a combination. The balance is charged a one-time deferral charge of 4 percent and is payable in three equal installments beginning approximately one month after registration.

A late fee of \$25 per month is assessed for each payment not received by the date stipulated on the deferred payment agreement. For further information contact Student Fees, Controller's Office, 100 Swords Hall, Bradley University, Peoria, IL 61625; (309) 677-3120.

Employees who work for employers who pay a percentage of their tuition costs contingent upon successful course completion may be eligible for a full semester's deferral if the employer is enrolled and approved in this program. Under this program tuition payments are deferred until the 60th day after the end of the semester. A \$40 fee must be paid by the student at the time of enrollment to participate in this special deferral program. Students should check with their employer to find out if their company is enrolled in the program.

Refunds

Students who withdraw from a class may be eligible for a partial tuition refund, depending on the date on which the course was dropped. Students who drop all classes and officially withdraw from the University may be eligible for a partial refund of tuition, room, and board, depending on the date of the withdrawal.

Students should check deadlines and procedures for requesting refunds in the current Schedule of Classes (bradley.edu/classes).

Room and Board

Housing is available both on and off campus. On-campus room and board fees vary with housing options and meal plans. Bradley also owns a student apartment complex one block from campus. For more information, contact the Executive Director of Residential Living and Leadership, Sisson Hall, Bradley University, Peoria, IL 61625.

Other Fees

Activity Fee

Graduate students pay a \$25 activity fee per semester.

Health Fee

All students registering for 7 or more hours will be assessed a \$72.00 health fee per semester at the time of registration.

Vehicle Registration

The fee for automobile registration is \$50.00 for the academic year. These fees are not refundable.

Thesis Binding Fee

Graduate students required to write a thesis must pay a fee of \$20.00 per copy (three copies required) for thesis binding and handling. This fee, which is subject to change, must be paid to either the Graduate School or the Controller's Office prior to submitting the completed thesis to the Graduate School. The thesis must be signed by the coordinator and, if the fee is paid in the Controller's Office, stamped by the Controller's Office showing that the fee has been paid.

Cap, Gown, and Hood Purchases

Graduate students electing to participate in commencement and hooding ceremonies must rent their cap, gown, and hood at the bookstore. Forms for students to indicate size of cap and gown are mailed to students during the semester preceding their graduation once they have filed the *Graduate Application for Graduation* form with the Graduate School. There is a \$15.00 late fee assessed for orders made after the indicated deadline.

Financial Assistance

The Graduate School awards scholarships and assistantships on a competitive basis to new and continuing graduate students who are admitted unconditionally to a graduate program or have removed the conditional status. Awards range from partial tuition support to full tuition support that may include a stipend. In general, financial assistance is available within these broad categories:

- Scholarships
- Fellowships
- Assistantships
- Loans

Students interested in financial assistance should apply according to these deadlines:

March 1

Deadline to apply for the Caterpillar Master's Fellowship for students who will begin study in the following fall term.

April 1

Deadline to apply for assistantships for the upcoming academic year.

Students interested in financial support must complete the Financial Assistance section on the *Application for Graduate Admission*. In some cases, i.e., Caterpillar Fellowship and others, special applications must also be completed.

Students must have a minimum 3.0/4.0 graduate cumulative grade point average to maintain graduate assistantships, fellowships, and scholarships. Students who are placed on academic probation or dismissed will lose their financial assistance. Once a student is removed from probation or reinstated to a program, the student may re-apply for financial assistance.

Academic good standing does not automatically ensure continuation of financial assistance. Financial assistance may be revoked for academic or non-academic reasons at any time upon the recommendation of the faculty mentor, graduate coordinator, department graduate committee, dean of the college, and the dean of the Graduate School.

For the graduate grade point average to be considered for financial assistance eligibility, applicants must have a minimum of 12 credit hours of graduate coursework complete at the time of application.

Assistantships

Graduate assistantships are available in most departments that offer graduate programs and in certain administrative areas. Academic departments award assistantships for research, teaching assistance, and other academic activities, annually or semi-annually, on a competitive basis, with scholastic ability and evidence of special qualifications being the most important criteria. Students must have an undergraduate 60-hour grade point average of 3.0/4.0, or a graduate grade point average of 3.0/4.0, to be eligible for a graduate assistantship. Full-time graduate assistants are given a 20-hour per week assignment by the awarding department and receive a stipend and waiver of 100% of actual tuition costs, with a maximum tuition award per academic year. Part-time graduate assistants are given a 10-hour per week assignment by the awarding department and receive a stipend and waiver of 50% of actual tuition costs, with a maximum award per academic year. Detailed information on eligibility and policies is available at www.bradley.edu/grad or in the Graduate School, 200 Bradley Hall.

Other Scholarships

Diversifying Higher Education Faculty in Illinois Program (DFI): this scholarship of up to \$14,000 annually provides financial assistance to Illinois residents who are members of traditionally underrepresented racial minority groups (Black, Hispanic, Asian American, American Indian, or Alaskan Native) to pursue and complete graduate or professional degrees at Illinois institutions of higher education. Descriptions of eligibility and application procedures are available from the Graduate Office.

For more information regarding additional scholarship opportunities, contact the Graduate School in 200 Bradley Hall, or 677-2375.

Caterpillar Masters Fellowships

Caterpillar Masters Fellowships are awarded annually on a competitive basis to outstanding students who have graduated from an accredited university, demonstrated superior academic achievement, and are committed to

research or creative production. Students must have an undergraduate 60-hour grade point average of 3.5/4.0 to be eligible for a Caterpillar Masters Fellowship. The Fellowships provide: an annual stipend between \$8,000 and \$12,000 in addition to a full tuition waiver, an educational environment that provides a unique transition for students preparing for doctoral degrees or professional degree programs, innovative curricula designed for business, industry, and public sector needs, a student-selected project guided by a faculty mentor, interdisciplinary teamwork on problem-solving research, and flexibility to adapt specific interests and aspirations of students.

Loans

Federal Direct Subsidized Loans: Graduate students, both full and half time, are eligible to borrow up to \$8,500 each academic year under this program. For additional information contact the Financial Assistance Office, Swords Hall, (309) 677-3089.

Unsubsidized Federal Direct Loans: This loan program offers long-term educational loans to qualified graduate students. Students are eligible to borrow up to \$12,000 each academic year. For additional information, contact Student Financial Services, 100 Swords Hall, (309) 677-3089.

International Students

International (F-1) students are eligible to apply for Graduate Scholarships, Graduate Assistantships, and the Caterpillar Master's Fellowship only. No separate application form is required for Graduate Scholarships. Caterpillar Master's Fellowship applications are considered for fall applicants only. See the application form for details and deadlines.

For more information, visit www.bradley.edu/grad or the Student Financial Services, 100 Swords Hall, where applications, eligibility requirements, policies, and specific program details are available.

Cooperative Education/Internship Program

Graduate students may gain career-related work experience by participating in Bradley's Cooperative Education/Internship Program. Cooperative education/internship experiences are related to students' academic and career interests and provide opportunities for professional development that integrate classroom theory with supervised work experience. Students have a choice of two options to follow. The part-time option allows students to attend classes while working part time with a local employer. The full-time option allows students to work full time during an academic semester or summer. Both options correspond with the academic calendar.

While on a full-time cooperative education/internship assignment, students are considered to have full-time student status, making normal progress toward a degree in a recognized university program and are entitled to all student privileges at Bradley University if they are registered for a credit or noncredit course at the university.

Newly admitted graduate students must be unconditionally admitted to a degree program in order to qualify, and continuing students must have at least a 3.0 grade point average in graduate courses. Graduate students do not receive graduate credit for cooperative education/internship experience; graduate assistantships do not count as cooperative education/internship experience.

In order to be referred to an employer or participate in a cooperative education/internship work assignment, students must be attending Bradley University. They also must be either registered for a minimum of three hours of non-cooperative education/internship credit or be on a full-time cooperative education assignment. A work assignment will not be approved retroactively. Although every effort is made to assist students in obtaining a cooperative education/internship position, no student is guaranteed referral or placement.

Eligibility for employment of nonimmigrant (F-1) students is defined on an individual basis according to regulations set forth by the Bureau of Citizenship and Immigration Services (BCIS) and the Bureau of Immigration and Customs Enforcement (BICE), formerly referred to as INS—the Immigration and Naturalization Service. For clarification of eligibility criteria and how it applies to you, please contact the Multicultural Student Services Office or consult the BCIS Web site at www.immigration.gov.

Academic Regulations

Course Numbering System and Requirements

Only courses numbered 500 to 699 may be applied toward the master's degree. Courses numbered 500 to 599 are open to graduate students, seniors, and specially qualified juniors. Courses numbered 600 through 699 are open to graduate students only. Courses numbered 700-899 are open only to students in doctoral programs.

Prerequisites

Prerequisites may be met by approved equivalent courses taken at other universities. You should consult your academic advisor if you have a question about prerequisites. Students who enroll in courses for which they do not meet the prescribed prerequisites may be required to withdraw from those courses. Prerequisite courses below 500-level are not eligible for Graduate School financial assistance.

Grading System

The grading system of the University which applies to graduate students is as follows:

- A- High Competence (4.0)
- B- Competence (3.0)
- C- Minimum Competence (2.0)
- D- Limited or Incomplete Competence (1.0)
- F- Inadequate Competence for Credit
- W- Official Withdrawal
- IN- Incomplete Work
- IP- Work in Progress

Only courses with a grade of "C" or higher can be used toward completion of degree requirements.

IN – Incomplete Work

"IN" is the symbol used when the instructor lacks sufficient evidence to award a letter grade. The purpose of an "IN" is to provide the time necessary for a student to complete coursework which, through no fault of the student's, was not completed in the normal time allowed. Reasonable time necessary for completion is decided by the student and the faculty member teaching the course. The "IN," once assigned, remains on the official academic record

upon conversion to a grade or permanent "I."

The "IN" should not be mistakenly considered as an incentive for the faculty to recommend or for students to believe that this extension permits students merely to retake courses, or to extend the time for the completion of the prescribed work beyond the end of the semester of enrollment, as a means of removing the "Incomplete."

At the time the "IN" is assigned, the instructor and students must sign a contract specifying what must be done to complete the "IN" and the date by which the "IN" must be converted. Copies of the contract must be provided to the student, faculty member, graduate advisor, and Graduate School office. An "IN" must be converted not later than four weeks before the end of the next regular semester. Under unusual circumstances, the student may be granted an extension to the end of the semester with the approval of the instructor involved, provided that the request was received prior to the normal deadline for the removal of incompletes. If the instructor does not submit a letter grade by the specified deadline, an "I" will remain permanently upon the student's record and may not thereafter be removed. Once a permanent "I" is recorded for a course, if a student must complete the course to fulfill degree requirements, the student will have to register for the course again and satisfactorily complete the course requirements.

Contracts are available in the Graduate School, 200 Bradley Hall, or from the graduate coordinator.

IP – Work in Progress

"IP" may be assigned to a student in a graduate course when the instructor agrees that the student requires more than one semester to complete the course. Normally, "IP" grades will only be assigned for thesis courses, other courses involving extensive projects involving research/creative production, or independent study courses. At the time the "IP" is assigned, the instructor and student must sign a contract specifying what must be done to complete the "IP" and the date by which the "IP" must be converted. The "IP," once assigned, remains on the official academic record upon conversion to a grade or a permanent "I." Copies of the contract must be provided to the student, faculty member, graduate advisor, and Graduate School Office. If the "IP" is not removed by the specified date, it

will be recorded as a permanent "I." Once a permanent "I" is recorded for a course, if a student must complete the course to fulfill degree requirements, the student will have to register for the course again and satisfactorily complete the course requirements.

Contracts are available in the Graduate School, 200 Bradley Hall, or from the graduate coordinator.

Graduate Student Policy Violation Issues and Grievance Procedures

The policy violation issues of a graduate student may be academic or non-academic in nature. In the following sections the definitions, policies and grievance procedures to deal with the issues are delineated. The primary source of procedures for dealing with these issues is the Faculty Handbook. The Student Handbook also has a section dealing with policy violation issues. It also uses as its primary source the Faculty Handbook. These handbooks can be found in the Bradley University web pages. The following is not intended and may not supersede any of the policies of the Faculty Handbook. It does in certain cases provide for input from individuals that are primarily associated with graduate programs and students.

Academic Issues

Academic issues are concerns regarding breach of academic integrity by a student or a student's allegation of unfair academic evaluation by an instructor. A breach of academic integrity is either cheating or plagiarism by a student.

Definitions

- **Cheating** is officially defined as giving or attempting to give, or obtaining or attempting to obtain, information relative to an examination or other work that the student is expected to do alone and not in collaboration with others, or the use of material or information restricted by the instructor. Each instructor will indicate beforehand work that may be done in collaboration with other students.
- **Plagiarism** is reproducing from published or unpublished print or electronic media, without quotations or citations, another's sentences as your own, adopting a particularly apt phrase as your own, paraphrasing someone else's argument as your own, presenting someone else's line of thinking in the development of a thesis as though it were your own, and someone else's project work or results thereof as your own.

Policies

- **Cheating.** A "zero" or whatever is the equivalent of the failing lowest grade possible, shall be assigned for that piece of work to any student cheating on a non-final examination or other class assignment. A "zero" or whatever is the equivalent of the lowest failing grade

possible shall be assigned on a final examination to any student cheating on a final examination. An "F" shall also be assigned as the course grade to any student cheating on a comprehensive final examination.

- **Plagiarism.** A "zero" or whatever is the equivalent of the lowest failing grade possible shall be assigned for that piece of work to any student plagiarizing on a non-final piece of work. In the case of a student plagiarizing on a final research paper or project, an "F" shall also be assigned as the course grade.
- **Repeated Cheating or Plagiarism.** For twice-repeated or aggravated offences of cheating or plagiarism, additional action, including dismissal from the University, may be taken pursuant to the Student Handbook procedures related to the University Judicial System and the disciplinary sanctions for violation of University regulations.

University Student Grievance Policy

If a student objects to instructor's conclusion that a breach of academic integrity has occurred, or if the student alleges an unfair academic evaluation by an instructor, or if the student has non-academic concerns, the student may take recourse to the grievance procedures to resolve the issue. The student shall first exhaust the informal grievance procedures before resorting to the formal grievance procedures.

The grievance process shall be completed as expeditiously as possible. The recommended timelines may be exceeded only under compelling circumstances.

Academic Issues

Informal Academic Grievance Procedures

- The student shall first consult his or her graduate program coordinator or director to seek a course of action to resolve the issue. The graduate program coordinator or director shall advise the student of the procedures to be followed to resolve the issue. If a conflict of interest exists between the student and the graduate program coordinator or director the student may seek the advice of the department chairperson of the department offering the program in which they are enrolled. If there is a question of the procedures to follow, the academic ombudsman should be consulted.
- The student shall then appeal in writing to the instructor's department chair to resolve the issue. If there is a conflict of interest between the student and the chairperson, the student should appeal in writing to the dean of the college to resolve the issue. The instructor shall provide in writing to the chair the instructor's conclusions pertaining to breach of academic integrity by the student.
- The department chairperson shall consider the issue and try to resolve it by meeting with the concerned parties within five business days after receiving the student's appeal in writing.

- If the issue is not resolved at the level of the department chairperson, the chairperson shall forward all paperwork related to the issue including the student's appeal to the director of graduate programs of the college to which the department belongs, and request that the director resolve the issue. The chairperson shall submit to the director a memo summarizing discussions with the concerned parties and the chair's decision. If the position of director of graduate programs does not exist within the college all paperwork related to the issue including the students appeal shall be forwarded to the dean of the college to which the department belongs.
- If the issue is not resolved at the level of the director of graduate programs, the director shall forward all paperwork related to the issue, including the student's appeal, to the dean of the college to which the department belongs, and request that the dean resolve the issue. The director shall submit to the dean a memo summarizing discussions with the concerned parties and the director's decision.
- The dean of the college or the dean's designee(s) shall consider the issue and shall try to resolve the issue by meeting with the concerned parties within ten business days after receiving the request from the department chair. Due process requirements for a fair hearing shall be provided to all parties involved. The record of the hearing before the dean or dean's designee(s) shall consist of written statements of the parties involved in support of their positions provided prior to the hearing and a transcript of the hearing.
- If the issue is not resolved at the level of the dean of the college, the student may submit an appeal in writing within five business days after receiving the dean's decision, to the dean of the Graduate School to resolve the issue. The student shall inform the dean of the college about the appeal to the dean of the Graduate School.
- The dean of the college shall submit all paperwork related to the issue including the record of the hearing, to the dean of the Graduate School and the dean's or dean's designee(s)' decision, and if the dean's designee(s) rendered the decision, the dean shall indicate whether or not the dean agrees with the decision.
- The dean of the Graduate School or the dean's designee(s) drawn from the Executive Committee of the Graduate Faculty shall consider the issue and shall try to resolve the issue by meeting with the concerned parties within ten business days after receiving the appeal from the student. Due process requirements for a fair hearing shall be provided to all parties involved. The record of the hearing before the dean or dean's designee(s) shall consist of written statements of the parties involved in support of their positions

provided prior to the hearing and a transcript of the hearing. The dean shall provide the student the final decision in writing.

If the issue is not resolved at the level of the dean of the Graduate School, the student may resort to the formal grievance procedures, within five days of receiving the final written decision by the dean of the Graduate School, by appealing to the chairperson of the University Student Grievance Committee.

Non-Academic Issues

Definition

Non-academic issues include concerns regarding access or participation in courses, harassment and racial discrimination based on age, color, creed, disability, ethnicity, marital status, national origin, race, religion, sex, sexual orientation or veteran status, or any other derogatory or discriminatory act by an instructor, a staff member, or a fellow student.

Informal Non-Academic Grievance Procedures

The student shall meet with the associate provost for student affairs to seek a course of action to resolve the non-academic issue. The associate provost for student affairs shall advise the student about the informal grievance procedures to be followed to resolve the issue, and facilitate the informal grievance process.

Formal Grievance Process Academic and Non-Academic

If the issue (academic or non-academic) is not resolved through the informal grievance process, the student may seek a resolution of the issue through the formal grievance process delineated in the Faculty Handbook. The University Student Grievance Committee shall conduct formal hearings after the chairperson of the committee receives a written request from the student to begin the formal grievance process.

University Student Grievance Committee

1. The function of the University Student Grievance Committee shall be:
 - a) To conduct formal hearings, upon request from a student or an instructor regarding academic or non-academic issues as defined before.
 - b) To submit findings to the appropriate administrative officer (provost and vice president of academic affairs for academic matters and the associate provost for student affairs for non-academic matters. If a conflict of interest exists, then, to the appropriate vice president or the president of the university). Should the committee find evidence that the grievance was appropriate, it will forward specific suggestions for rectifying such evaluation or treatment.

2. The University Student Grievance Committee shall be constituted as set forth in the Faculty Handbook, the expectation being that the faculty members will be taken from the graduate faculty and the students being graduate students in cases involving individuals associated primarily with the Graduate School and its programs.
3. The Committee shall elect its chairperson and establish its internal operating procedures in accordance with the formal student grievance policy published in the Faculty Handbook and the university policies on affirmative action, discrimination, etc. The procedures shall be made available to all parties involved in the grievance process.

Dismissal for Non-Academic Reasons

Bradley graduate students must abide by all University regulations. Students who violate University regulations may be subject to disciplinary sanctions including dismissal or suspension as listed in the Bradley Student Handbook. Handbooks are available from the Student Activities Office located in the lower level of the Student Center.

Transcript of Credits

A transcript of credits is an authentic copy of the student's academic record. No partial transcript will be issued. Transcripts are released only by written request of the student. This order must be placed in person or by mail to the Registrar's Office, and be accompanied by a \$4.00 fee per copy requested. For other methods of ordering transcripts, please see bradley.edu/registrar/transcripts.

Bradley University does not issue nor certify copies of transcripts from other institutions.

Graduate School Policies

Student Course Load

The Graduate School requires that a minimum of 30 semester hours be successfully completed for the master's degree. Specific programs may require additional hours.

A full-time student takes 9 semester hours of coursework during a semester of the regular academic year; the maximum permitted is 12 semester hours. Full-time graduate assistants may not enroll in more than 9 semester hours nor work more than 20 hours each week without written permission of their graduate coordinator and the dean of the Graduate School. During the summer, a full-time graduate course load is 6 semester hours each session.

Half-time enrollment shall be considered a minimum of four semester hours.

Graduate School Dismissal Policy

A graduate student must have a minimum cumulative GPA of 3.0 (B) in graduate coursework at the University to be in academic good standing at the graduate level. A graduate student whose cumulative grade point average in graduate coursework drops below 3.0 will be placed on academic probation. While a student is on probation, the student's record will be reviewed at the end of each term. A graduate student who earns a term GPA below 3.0 while on probation will be dismissed from the program. A graduate student will be removed from probation when the student's cumulative grade point average in graduate course work reaches or exceeds 3.0. Graduate students cannot be removed from probation until the end of an official university semester. No changes in status or financial assistance will be made until the end of the semester and will not be effective until the following semester.

A graduate student who receives grades lower than "B" for 6 or more semester hours in graduate coursework will be dismissed. Graduate students receiving grades of lower than B will be reminded of this policy each semester.

Academic good standing does not automatically ensure continuation in a graduate program. A student may be dismissed for factors other than grades upon the recommendation of a committee of department faculty, the student's advisor, the program coordinator/director, the chair

of the department/director of graduate program, the dean of the college, and the dean of the Graduate School.

Dismissed students may petition for reinstatement into the program from which they have been dismissed by filing a Petition for Reinstatement to Graduate Study. Dismissed students are allowed to make only one petition for reinstatement to the program from which they have been dismissed. If the student is dismissed a second time after reinstatement, no additional petition for reinstatement will be considered. The program coordinator/director, the department chairperson, and the dean of the Graduate School must approve the petition for reinstatement. Petitions for reinstatement are available in the Graduate School office or on the Graduate School web site bradley.edu/grad/.

A student who has been dismissed for any of the reasons specified above may apply for admission to another program or as a student-at-large. The application process for seeking admission to a different program or as a student-at-large shall be the same as for new graduate students.

Time Limit for Degree/Certificate Completion

Graduate program curricula continually evolve to stay current in disciplinary and industrial standards. Furthermore, a graduate student examines a developing body of knowledge, and it is difficult to integrate that body of knowledge if a program extends beyond five years. Therefore, candidates for a degree or certificate should complete all requirements within five years following the recording of their first graduate grades, including graduate courses taken as a student-at-large, and courses transferred into their graduate program from Bradley University or any other accredited institution of higher learning.

Graduate students are expected to stay current in their field. If they wish to use courses for the degree or certificate that were taken prior to the five-year limitation, they must have these courses validated by the program coordinator. Credit will be allowed for courses that extend beyond the limit if the coordinator confirms to the dean of

the Graduate School that the candidate is proficient in the subjects. Students should begin the approval process by contacting their graduate program coordinator.

Step-Out Policy

Graduate students may be allowed to step-out of their graduate program for one semester (fall or spring) without being dropped from the program or changing graduation requirements. If a graduate student must take a second consecutive semester off during their program, he or she must reapply for admission to the program. This reapplication does not guarantee admission to the program, and students who are readmitted may be subject to new degree requirements. A renewal of financial assistance is not guaranteed for individuals that must reapply. Students are not required to enroll during summer or interim sessions. Students who are not in good academic standing are required to reapply for admission as students on academic probation.

Students whose time limit for completion of degree/certificate has expired must submit a request to extend time with the readmission application. The request to extend time for completion of degree must be submitted in writing to the Graduate School.

Change of Program

Students who are currently enrolled may apply for a Change of Program. A student wishing to change his or her program must complete a *Change of Program* form and submit it to the Graduate School a minimum of two weeks prior to the semester in which they wish to start the new program. Additional materials or test scores may be required at the discretion of the Graduate School and the department for the Change of Program to be approved. Admission to a degree program does not guarantee a Change of Program will be approved.

Repeated Courses

Upon approval of the dean of the Graduate School, a graduate student may repeat a maximum of two courses in which he or she received grades of C or below. Both the first and second grades received for the course are averaged to calculate the graduate student's overall grade point average; however, semester hours for the course shall count only once toward the degree requirement.

Audited Courses

All Bradley students (undergraduate, graduate, full-time and part-time) in good academic standing registered for a given academic term, along with individuals admitted "at large," for a given academic term may request permission to enroll as an "auditor." Permission to audit a course must

be approved by both the instructor and the chairperson of the department offering the course. Enrollment is contingent on having available space in the class. Except in special circumstances to be determined by the instructor and department chairperson, courses involving laboratory or studio work cannot be audited. Regular class attendance by persons not on the class roster is not permitted.

Forms for audit registration are available in the Registrar's Office or on-line. Audit registrations are accepted by the Registrar's Office only after the first day of classes of each academic term.

The extent to which an auditor participates in a course and the requirements for satisfactory performance must be specified by the instructor when approval is granted. Instructors are not obligated to grade any course work performed by the auditor. Courses taken for audit do not earn academic credit, do not apply toward any academic degree and do not count toward a student's full-time or part-time load for purposes of financial aid, loan deferments or visa status. Courses taken for audit are recorded on the student's permanent academic record as completed satisfactorily ("X"), completed unsatisfactorily ("UX"), or withdrawn ("W").

After the last day for adding classes with special permission, anyone who is registered as an auditor may not change the audit registration to a "for credit" status, i.e. a regular registration; likewise, a student registered for credit may not change to audit status. Deadlines associated with courses taken for credit and courses taken for audit are identical.

All individuals will be charged a non-refundable fee for audited courses. The current fee is published in the Schedule of Classes. Persons who have audited a course may petition to earn credit by proficiency examination; however, the charge for a proficiency examination for credit is based on the standard tuition structure determined by the Controller's Office with a credit granted for charges associated with auditing.

Transfer of Credit

For a coherent program, master's degree candidates should take all of their graduate coursework at one institution or consortium. Bradley will, however, accept 6 semester hours of transfer credit from another accredited institution, providing that (1) the grade in each graduate course offered for transfer is at least a B, and (2) the graduate coordinator recommends its acceptance to the dean of the Graduate School. In rare instances, and upon written approval of the dean of the Graduate School, more than 6 semester hours may be transferred; but in no instances will Bradley accept more than 12 semester hours of transfer credit. Grades of the courses transferred are not included in the calculation of the graduate grade point average. Students applying to have course credits transferred must submit an official transcript from the

other institution and a *Request to Transfer Graduate Credit* form to the Graduate School. This transcript will be kept in the student's graduate file.

Any graduate course completed elsewhere cannot be transferred if eight years pass between completion of the course and completion of the Bradley University graduate program. Regardless of transfer of courses into a graduate program, the five-year time limit for degree/certificate completion shall be retained.

In rare instances, courses beyond the eight-year limit may be considered for transfer upon the recommendation of the graduate coordinator and approval by the dean of the Graduate School. Please see the Time Limit for Degree/Certificate Completion policy in this Catalog. Courses taken between the spring and fall semesters will be considered as being taken during "summer." This includes Bradley courses taken during May three-week, May eight-week, Summer 1, and Summer 2 sessions. "Summer" will count as one semester in the determination of the age of the course.

Courses used to earn a graduate degree at Bradley or any other university may not be used as credit towards another graduate degree at Bradley.

Extension credit is acceptable for transfer if it is taken from an accredited institution and is approved by the procedures outlined above. Correspondence courses and equivalency credit by examination are not acceptable.

Age of Courses Eligible to Meet Prerequisite Requirements

Courses that serve as prerequisites for a degree or certificate program and that do not count directly toward graduate degree or certificate completion may be accepted to meet a prerequisite requirement provided they have been completed no longer than five years prior to the time the student begins his/her graduate program at Bradley University. Courses beyond the five-year limit may be accepted in rare cases at the discretion of the department with referral to the Graduate School and approval by the dean of the Graduate School.

Progression Toward Degree

1. Graduate Program of Study

Within the first semester of a degree seeking student's graduate coursework, a completed Program of Study form must be approved by the program graduate coordinator and dean of the Graduate School. The Program of Study form must identify all program requirements including requirements beyond those listed in the graduate catalog. Revisions to the Program of Study are initiated by submission by the student of a Change of Program of Study form. This must be approved by the program coordinator and dean of the Graduate School.

The dean of the Graduate School and the program

coordinator will use the Program of Study form to determine the student's qualifications for and progress toward completion of his or her master's degree.

2. Comprehensive Assessment

Each department offering a graduate program requires a comprehensive assessment of the student's total experience as it relates to fulfilling the objectives of the program of study. The department offering the program shall determine the form and content of the assessment. The type of comprehensive assessment should be specified in the student's Program of Study. The student is responsible for making arrangements with the program coordinator for completing the assessment. At least two weeks before the date on which the degree is to be conferred, the coordinator must report the quality of the assessment to the Graduate School as Pass, Pass with Distinction, or Fail. The results of the assessment, as reported by the coordinator, will be posted on the student's transcript.

Students who receive a Fail on the assessment will be given only one additional opportunity for reassessment. The time frame in which the reassessment will take place is determined by the program, but must be within the time limit prescribed for finishing the degree.

3. Thesis

Departments of the University govern the thesis option. Those students selecting this option must obtain information about thesis requirements from their graduate coordinator. The general format and procedures for thesis filing are available from the Graduate School or on the Web at bradley.edu/grad.

4. Application for Graduation

Students must apply for graduation either online using Webster or by submitting the printed Graduate Application for Graduation form to the Graduate School. The application must be submitted when the candidate is registering for his or her final semester of study. Students finishing during a summer session should make application at the beginning of the term in which they plan to complete their requirements. The Graduate Application for Graduation form can be found online at www.bradley.edu/grad/.

Applicants failing to complete all requirements for graduation in the semester for which they applied must reapply later.

5. Removal of Conditional Status

A student must be in academic good standing to graduate. The student also must have met all conditions placed on him or her by the department and have been approved for unconditional status.

6. Attendance at Commencement

A commencement convocation is held at the completion of the fall and spring semesters. Students are encouraged to attend.

Facilities and Services

Bradley University provides a comfortable setting designed for living and learning. A beautiful 85-acre campus contains both historic buildings and state-of-the-art learning centers. Surrounded by an historic residential district, the campus has restaurants, shops, and a super-market within walking distance.

Bradley continuously updates facilities to keep pace with new methods of teaching and learning. In recent years complete renovations have taken place in Olin Hall (science), Constance Hall (music), and Bradley Hall. In Fall 2008, the new state-of-the-art Markin Family Student Recreation Center will open, offering a swimming pool, exercise facilities, and practice space for intramural sports. It will serve as the social hub for student life on campus, house the Wellness Program, Counseling Services, the Health Center, and labs to support the Department of Nursing. A 600-space parking deck will also open this fall. Work has begun on the new Athletic Performance Center and the Puterbaugh Men's Basketball Practice Facility. The APC will be home court for women's basketball and volleyball and provide a spacious venue for concerts and other performances. Bradley recently launched a major capital campaign that will bring more renovations and new facilities to campus.

St. James Place, a student residential community, provides suite-style living for upperclass students and outdoor intramural facilities—Meinen Field. In addition to these playing fields, the university has lighted tennis courts on campus. A food court in Williams Hall offers a variety of dining options for all students seven days a week until 8 p.m.

Bradley University Bookstore

The Bradley Bookstore provides the books and supplies necessary for coursework at the university. A large selection of emblematic clothing and gifts, as well as medical, reference, and general reading books, are available at the bookstore. Any book not carried in stock can be special ordered. All students, faculty, and staff with a valid school ID may purchase academically priced software online at campusestore.com. For your convenience, greeting cards, snacks, and soda are also stocked at the bookstore.

Personal checks written for up to \$30 can be cashed for a small fee. Discover, Visa, MasterCard, or American Express cards or Quick Cash are accepted at the Bradley Bookstore. Barnes & Noble gift cards are also accepted and available for purchase to be used at any Barnes & Noble college bookstore or superstore.

Computing Services

Computing Services supports both the academic and administrative aspects of university computing. Computing Services supports campus-wide computer networks, connections to the Internet, and electronic mail. Bradley is a member of Internet2, which provides high-speed network access to more than 300 research-oriented universities, laboratories, and companies. In addition, Internet2 participation provides high-speed access to all major research networks in the United States, as well as access to the major international research networks.

Academic resources include a variety of computer systems and software used for instruction, research, and public service. Student workstations are located in the Cullom-Davis Library and many academic buildings. All residence hall rooms and St. James suites have network connections giving access to the campus network as well as the Internet. Students are encouraged to bring their own workstations with them to campus. There is no charge to access the campus data network or the Internet. HelpDesk services are available in the Reserves area of the Library.

Student e-mail accounts

E-mail and network access accounts are automatically established for every student at Bradley University. You will receive your account and password when you arrive on campus. *Bradley uses e-mail as an official means of communication with students, so you should check your account on a regular basis.*

Romeo B. Garrett Cultural Center

Located at 824 North Duryea Place (across from Williams Hall), the Garrett Center houses the office of Multicultural Student Services. Multicultural Student Services functions to meet the various needs of international students and

students of color. The Center serves as a meeting place for students and community groups as well as a place for social and cultural events. It also has a fully-equipped computer lab and small multicultural library. Named in honor of the late professor emeritus of sociology, Dr. Romeo B. Garrett, the Center is open every day during the regular academic year.

Center for Student Health Services

Student Health Services is an outpatient clinic that provides service to enrolled Bradley students who experience health problems. Students are assisted through advisement, treatment, consultations with health providers, and referral for extended treatment if necessary. While there is no charge for most on-site treatment, services provided through referral to outside agencies are charged by that care provider and are the student's financial responsibility.

The Center's qualified staff of physicians, psychiatrist, counselors, and nurses is located in modern treatment offices in Heitz Hall. They provide a point-of-entry for all university students to receive health care both at the Center and in the Peoria community.

Professional counselors and supportive staff are trained to work with Bradley students in their growth and total development—social, emotional, intellectual, physical, spiritual, and occupational—as well as the environment in which they live.

Personal growth and development issues of adjustment to college, relationship concerns, alcohol and substance abuse, anxiety and stress management, communication skills, eating disorders, assertiveness, and lifestyle choices are some of the issues addressed by the counselors. Visits are confidential and free for Bradley students.

The Center is open during the school year 8:00 a.m.-11:30 a.m. and 1:00-4:30 p.m., Monday-Friday. The Center is open limited hours during breaks and regular summer school sessions. Students are seen on an appointment basis. At times when the Health Center is closed, patients are referred to the after hours number, 677-3200, which connects to OSF St. Francis Phone Nurses Triage.

In addition to regular medical services, Health Services also offers special men's and women's clinics during the regular academic year.

All students are required to have a student health form on file at Health Services before registering. To avoid penalties and delays in registering, return the completed health form and then verify through Health Services that it has been received and is complete.

IMMUNIZATION REQUIREMENT: To comply with Illinois State law, all students registering for classes for the first time in a four-year college must show proof of proper immunization or titer showing immunity to measles, mumps, rubella, tetanus, and diphtheria.

Instructional Technology and Media Services (ITMS)

Instructional Technology and Media Services provides a diverse range of instructional media and production services in support of the academic and administrative needs of faculty, students, and staff. Primary services include: the Instructional Technology Assistance Center (ITAC); Blackboard course management system; technology training; AV equipment and staff assistance; Internet2/IP videoconferencing; digital graphic, photographic, video, and copy production services; and a variety of general media services.

Instructional Technology Assistance Center (ITAC)

Located within Instructional Technology and Media Services, ITAC provides instructional technology training and assistance to faculty, staff, and students as they apply technology to teaching and learning. Services available include application training, instructional design, production seminars, use of mediated facilities, and multimedia support. ITAC also administers and assists faculty in the creation of Web-enhanced supplemental and asynchronous course sites using Blackboard software.

Cullom-Davis Library

The Bradley University Library primarily serves the needs of the University's students and faculty. Its collection encompasses more than 1,304,000 items—including approximately 518,000 books, periodicals, and government documents, 788,000 microforms, and a variety of audiovisual resources, manuscripts, and archival materials. Major microform collections include the Educational Resources Information Center (ERIC) documents, Library of American Civilization, and Library of English Literature. The Library is a depository for both U.S. and Illinois government documents.

The Library's resources and services are housed in the Cullom-Davis Library, which was renovated and enlarged to 107,000 square feet (nearly double its previous size) in 1990. The facility provides seating for 1,000 students.

Among the facilities is the Virginius H. Chase Special Collections Center, established in 1979 in honor of a Peorian who became a widely recognized authority on the botany and natural history of Illinois; it houses and exhibits rare books, manuscripts, archival materials, and other resources that require special management, including the collections of the Peoria Historical Society and the Citizens to Preserve Jubilee College.

About 13,800 music scores, 10,000 recordings, and selected music reference materials are in the Music Resource Collection, which is located on the third floor.

As a participant in OCLC, a computerized bibliographic network, the Library and its clientele have ready access to millions of resources in over 6,000 libraries across the coun-

try and abroad. The Library also provides access to a wide variety of electronic journal indexes and abstracts and to many full text databases at no charge to Bradley students and faculty. Through the University's participation in the Alliance Library System, students and faculty may borrow materials from most other Peoria-area libraries. The Library is a member of CARLI (Consortia of Academic Research Libraries in Illinois), which provides an online catalog and circulation system that incorporates Bradley's holdings and those of most of the other academic libraries in Illinois.

Markin Family Student Recreation Center

A new 130,000-square-foot student recreation center will open in Fall 2008. The Markin Family Student Recreation will include four basketball courts for intramural and recreational games, a championship basketball court, a 1/8-mile running/walking track, climbing wall, juice bar, indoor pool, weight room, exercise rooms, and other amenities.

Safety and Security

Bradley University makes every attempt to provide a safe and secure campus.

The primary function of the University Police Department is to protect life and property within the University community. Its officers are commissioned by the State of Illinois, have full law enforcement powers on and off University property, and are graduates of the Police Training Institute. University Police are on duty 24 hours a day, 365 days a year; conduct foot, bike, and vehicular patrols of the campus and residence halls; and make crime prevention presentations to student groups. University Police also coordinate patrol and call responses with City of Peoria and Peoria County law enforcement agencies.

For the safety of anyone walking alone at night on campus or in the immediate neighborhood, Bradley police escorts can be requested from dusk until dawn for an area generally bounding local neighborhoods. This opportunity replaces the previous "student escort service" and may be modified after the first semester trial period.

Numerous clearly marked emergency telephones are located strategically on campus. All ring directly into a police dispatcher and automatically display the location of the caller so that help can be dispatched.

All residence halls have limited access, with some halls having all outside doors locked on a 24-hour basis and others having main doors unlocked during daytime hours. The residence hall lobby offices are staffed during the afternoon and evening and residence hall student security staff make rounds during the night.

Security-related concerns and campus crime information are reported to the campus community through the *Scout* student newspaper, the University's Web site, AUDIX campus-wide voice mail, and other media. The University

has also instituted a campus mass notification system using text messaging if circumstances warrant such. For more information, see bradley.edu/police.

Students may borrow from the University Police Department engraving equipment to mark valuables such as electronic equipment and bicycles. Literature on safety and security is also available.

A safe campus can be achieved only with the cooperation of the entire University community—students, faculty, staff, and visitors. For a copy of a brochure that includes crime prevention information as well as crime statistics for the campus and local neighborhood, contact University Relations at (309) 677-3164.

Robert H. Michel Student Center

The Student Center symbolizes the philosophy that makes this truly a "campus community center." The Center is the focus of many campus activities. The wide variety of facilities and varied programs make a significant contribution to campus life outside the classroom.

Facilities include: a ballroom, OutTakes convenience store, meeting rooms, pool table, television, browsing lounges, dining center, and Café Bradley featuring Blimpie's, Sunset Strips, Starbucks, and smoothies. In addition, meeting rooms with food service can accommodate 10 to 100 people, and the ballroom can accommodate up to 500 people for a banquet, dance, reception, or lecture.

Telecommunications

The Telecommunications Office operates a telephone switch and voice mail system for the campus. Technical staff support telephone equipment and information outlets in offices, residence hall rooms, and many public areas. Information outlets supply voice, data, and video services through connections to Internet2, AT&T, and other carriers' local and long distance networks. Persons calling campus phones may call direct by dialing (309) 677- or (309) 495- and a phone's four-digit extension.

WCBU FM 89.9

Operated by Bradley University, WCBU is the member-supported public radio service and National Public Radio (NPR) affiliate for central Illinois. WCBU's mission is to provide excellence in music and news programming with a local emphasis, while at the same time providing valuable professional experience for Bradley students.

WCBU provides a full 24-hour schedule of NPR news and information, local news, and classical music on WCBU 89.9 as well as WCBU2, a digital HD Radio service. Additional information and online streaming of both the main and digital channels can be found at the station web site, wcbufm.org.

Student Affairs

The Bradley environment provides opportunities for the deliberate and total development of its students and encompasses experiences beyond the classroom. The Division of Student Affairs is concerned with the whole student and believes that what students learn and experience influences their aspirations, development, and achievements.

Therefore, the Division of Student Affairs enhances students' educational experiences through the mobilization and coordination of resources of the University community in order to develop responsibility within students for growth and development.

The Division complements the academic experience through programming provided by the centers for Student Involvement, Student Development and Health Services, Student Support Services, and the Smith Career Center.

Center for Student Involvement

- Campus Recreation
- Multicultural Student Services and Romeo B. Garrett Cultural Center
- Off-Campus Student and Non-Traditional Student Services
- Parents' Weekend
- Student Organizations
- Student Activities
- Student Government
- Student Media

This Center provides a cohesive plan of programs, activities, events, and services designed to respond to the cultural, social, physical and recreational needs of all students enrolled at Bradley. Opportunities for leadership and group development and organization building are provided for students to learn new skills, broaden their abilities, and manage their organizational activities. Communication between faculty, administration, students, and staff will be encouraged as a means to promote a well-informed campus community regarding student activities and government.

Campus Recreation offers students opportunities to participate in a wide variety of sport and recreational activities. A diversified schedule of activities is maintained for the novice to the advanced competitor.

Multicultural Student Services and the Romeo B. Garrett Cultural Center foster a greater awareness of the multi-

cultural and international experience by responding to social, cultural, educational, and philosophical concerns. The Center serves as a meeting place for students and community groups as well as a place for social and cultural events.

Off-Campus and Non-Traditional Student Services helps coordinate services that are designed to meet the special needs of these students.

Student Activities organizes social life that includes concerts, dances, lectures, and special events such as Campus Carnival, homecoming, and a variety of student committees and programs. The office also registers student organizations and provides information and certain administrative services for more than 200 student groups.

Student government organizations provide leadership opportunities for students to participate in the governing process of the University, particularly as it relates to student concerns and welfare.

Student media, including the weekly newspaper *The Bradley Scout*, the literary publication *Broadside*, and the radio station WRBU, offer communication experiences and opportunities for interested students. All student media bearing the name of or sponsored by the University must be approved and supervised by the Communications Council.

Center for Student Development and Health Services

- Counseling
- Health Services
- Testing and Guidance
- Wellness Program

The Center for Student Development and Health Services offers assistance to students seeking information, services, or resources for their overall well being and development. The Center provides physical and emotional consulting and services to all Bradley University students. Through the Health and Counseling Center, the professional staff offers a holistic approach to student wellness. These services are available without additional expense to students.

Emotional counseling services are provided to aid in the total development of students and to enhance the success of their academic achievement. Services are provided by a psychiatrist and professional licensed counsel-

ors in a confidential and caring environment.

The Student Health Center provides primary physical care for injuries and short-term illnesses and advises students on medical matters. The physicians may also refer students who need more intensive, specialized medical assistance.

The Wellness Program offers information to students about drug and alcohol prevention, nutritional needs, and sexual awareness. The HEAT group is a peer education organization to inform students and promote healthy living on the campus.

The Center for Testing can assist students with assessments of their professional goals. Referrals to the appropriate departments may be made for further information about career and practicum opportunities.

Center for Residential Living and Leadership

- Lewis J. Burger Center for Student Leadership and Public Service
- Judicial System
- Fraternities and Sororities
- Residence Programs
- Residence Halls and Residence Hall Staff

The Center for Residential Living and Leadership is responsible for the general welfare of the residential hall students and members of fraternities and sororities at Bradley University, particularly as it concerns their outside class activities and living environment. This office interacts with all segments of the University, including students, faculty, administrators, parents, and the community. The responsibility of the student judicial system is to protect the rights of the University and the individual student through the University Standards of Conduct.

Smith Career Center

The Smith Career Center assists students in exploring and defining career options, developing job search strategies, obtaining career-related work experience, and identifying and connecting with prospective employers. Innovative services respond to current trends and economic conditions affecting the job market and career opportunities. These include:

- individual career advisement
- job search preparation
- resume development and review
- cooperative education and internships
- career seminars
- job fairs
- graduate and professional school fair
- campus interviews with employers

Extensive web-based resources are available to help students learn more about career information, job availability, employer information, and networking. Through the Web site, students can use eRecruiting to post their resume, view job listings, and sign up for campus recruiting. Also available

are Interview Stream, Optimal Resumé, and Going Global.

Bradley University students must register with the Smith Career Center to obtain an eRecruiting Web account. Having an eRecruiting account allows registered users to submit resumes for the Web Resume Book, review Web job listings, and participate in campus interviews. Registration is restricted to currently enrolled Bradley University students.

Misrepresentation Policy

Pursuant to the *Bradley University Student Handbook, Standards of Conduct*, registrants with the Smith Career Center who misrepresent their credentials are in violation of the University's dishonesty policy. "Dishonesty, including the acquisition of honors, awards, certification or professional endorsements or grades by means of cheating, plagiarism, unauthorized use of a computer, or the University's computing resources, or falsification with respect to any examination, paper, project, application, recommendation, transcript, test, knowingly providing false information or failure to provide correct information, misrepresentation, aiding or abetting another person to do so, or by any other dishonest means whatsoever" (*Bradley University Student Handbook* 2008-2009; page 39, bradley.edu/student_handbook).

If any information provided in a registrant's eRecruiting account, resume, or other application materials/activities is found to be inaccurate, disciplinary action through the Smith Career Center and/or the University's judicial system may be taken. Examples of misrepresentation, as they apply to the Smith Career Center, would include falsifying information provided during an interview, at a career fair, in a written resume or cover letter, and in eRecruiting profiles, resume books, and uploaded resumes.

The following process and sanctions would occur if a registrant were found to be in violation of the aforementioned policy:

Process for Reviewing Probable Misrepresentation

1. The registrant will meet with the Associate Director for Employer Relations.
2. The Associate Director for Employer Relations will determine if the case is referred to the Smith Career Center Review Board.
3. The Smith Career Center Review Board will determine if sanctions will be imposed by the Smith Career Center and/or if the case should be referred to the Student Judicial System.
4. The Executive Director of the Smith Career Center will notify the registrant regarding the final decision.

Sanctions

1. The registrant will be suspended immediately from the eRecruiting database.
2. The Smith Career Center Review Board will determine how long the registrant will be suspended from eRecruiting and reserves the right to suspend a registrant for up to one academic year.

3. The registrant may be referred to the Bradley University Student Judicial System. Decisions made by the Smith Career Center are separate from any rulings and possible actions from the Student Judicial System.

Appeals of the Smith Career Center Review Board

Written appeals may be submitted to the Executive Director of the Smith Career Center within five (5) business days of the decision.

Campus Interview Cancellation/No Show Policy

Cancellations: If you *must* cancel a scheduled campus interview with an employer visiting Bradley University, the deadline for doing so is *24 hours prior* (8:00-5:00 Monday-Friday) to the interview. You are responsible for contacting the Smith Career Center's receptionist at 677-2510 and requesting that your name be removed from a schedule. *Failure to cancel your interview 24 hours prior to the interview will result in the interview being classified as a "no show."*

No Show: A "no show" is defined as a missed scheduled interview where the student does not appear for a scheduled interview and has not notified or given sufficient cancellation notification (as defined above) to the Smith Career Center prior to the interview.

Campus interviews are an important service provided by the Smith Career Center. Failure to follow interview cancellation procedures means an opportunity denied to other students who could have taken advantage of an interview on a campus interview schedule. It also means time and money lost to the employer and a less favorable view of Bradley University and its candidates.

Sanctions: If you violate the interview cancellation policy above—*regardless of the reason* (including illness, emergencies, etc.)—your eRecruiting account will be *immediately deactivated* and you will be required to meet with a Smith Career Center professional staff member within five (5) working days subsequent to the missed interview. You will also be required to submit a ready-to-mail letter of apology to the employer. The letter of apology is to be given to the Smith Career Center's receptionist within three (3) working days from meeting with a Smith Career Center professional staff member. Upon receipt of the letter of apology, your eRecruiting account will be re-activated. If you fail to meet with a professional staff member *and* submit a written letter of apology *and/or* violate the interview cancellation policy more than once, your eRecruiting account will remain inactive and your interview privileges will be revoked indefinitely by the Smith Career Center. (Note: *This policy also applies to After Job Fair and practice interviews.*)

Cooperative Education/ Internship Program

Graduate students may gain career-related work experience by participating in Bradley's Cooperative Education/

Internship Program, which is administered through the Marjorie and Bill Springer Center for Excellence in Internships in the Smith Career Center. Cooperative education/internship experiences are related to students' academic and career interests and provide opportunities for professional development that integrate classroom theory with supervised work experience. Students have a choice of two options to follow. The part-time option allows students to attend classes while working part-time with a local employer. The full-time option allows students to work full-time during an academic semester or summer. Both options correspond with the academic calendar.

While on a full-time cooperative education/internship assignment, students are considered to have full-time student status, making normal progress toward a degree in a recognized university program and are entitled to all student privileges at Bradley University if they are registered for a credit or noncredit course at the university. Also while on full-time assignment, students may register for additional hours of classroom study upon departmental approval.

Newly admitted graduate students must be unconditionally admitted to a degree-seeking program in order to qualify, and continuing students must have at least a 3.0 grade point average in graduate courses. Graduate students do not receive graduate credit for cooperative education/internship experience; graduate assistantships do not count as cooperative education/internship experience.

In order to be referred to an employer or participate in a cooperative education/internship work assignment, students must be attending Bradley University. They also must be either registered for a minimum of three hours of non-cooperative education/internship credit or be on a full-time cooperative education/internship assignment. A work assignment will not be approved retroactively. Although every effort is made to assist students in obtaining a cooperative education/internship position, no student is guaranteed referral or placement.

See additional information on the Cooperative Education/Internship Program under "Financial Assistance."

Center for Student Support Services

The Center for Student Support Services is the major link between academic and student affairs to improve student retention through positive communications and relationships with students, faculty, and staff at Bradley University. The Center offers academic support services to assist students in their academic goals. The Office for Student Accessibility arranges for reasonable and appropriate accommodations for students with physical limitations. Students with medical emergencies can ask their physician to notify the university by contacting the executive director at (309) 677-3658. The Center for Learning Assistance provides accommodations for students with documented learning disabilities.

GRADUATE SCHOOL INTERDISCIPLINARY PROGRAM

Professional Master of Arts in Elementary Math, Science, and Technology Education

Kelly McConaughay,
Program coordinator

The Professional Master of Arts (PMA) degree program in Elementary Math, Science, and Technology Education is a professional master's degree for elementary (K-8) teachers. The program offers teachers learning experiences that will allow them to enhance their competence as teachers of mathematics, science, and technology. The program's goal is to prepare teachers who are leaders in Math, Science, and Technology Education who are committed to providing all students the best educational opportunities possible. Graduates of the program will be able to:

- demonstrate significant growth in their math and science content mastery
- integrate technologies as tools of math and science instruction
- design and implement inquiry-based approaches to instruction that respond to the needs of a diverse student population
- translate real-world events and phenomena into effective instructional practices
- use various forms of assessment to inform their work in the classroom
- exhibit the attributes of self-efficacy consistent with being a life-long learner related to being a math, science, and technology educator
- use research to inform practice
- provide service to the education community as a teacher leader.

Admission Requirements

Applicants must meet all entrance requirements of the Graduate School and hold current teacher certification. Students progress through the program as a cohort. A new cohort will begin no more than once per calendar year. Check with the Graduate School for the next cohort start date.

Degree Requirements

The program requires 33 hours of graduate-level courses to be completed in 33 months. Students are expected to successfully complete a STEM Education Project (MST 685) that integrates appropriate demonstrations of research and leadership skills and inquiry-based teaching and learning as part of the comprehensive assessment of their learning in the program.

Course of Study

Summer I

MST 600, 601, or 609 Science Through Inquiry	3
MST 610 Math Through Inquiry	3
MST 611 Directed Research in Science & Math Internship ...	1
MST 612 Introduction to Teacher Leadership	1
	<hr/>
	8

Fall I

Elective (chosen from approved list).....	3
	<hr/>
	3

Spring I

MST 650 Inquiry-based Curriculum: Development and Analysis	3
	<hr/>
	3

Summer II

MST 620, 621, or 629 Science Through Inquiry II	3
MST 660 Research in Math and Science.....	2
	<hr/>
	5

Fall II

MST 670 Action Research: Methods and Practice.....	3
	<hr/>
	3

Spring II

Elective (chosen from approved list).....	3
	<hr/>
	3

Summer III	
MST 680 Nature of Inquiry and Innovation.....	3
MST 681 Advanced Teacher Leadership.....	2
MST 685 STEM Education Project.....	1
	6
Fall III	
MST 685 STEM Education Project.....	2
	2
Total hours required	33

Electives

- MST 630 Teaching Science Using Robotic Platforms
- MST 631 The Science of Foods and Nutrition
- MST 632 The Science of Matter
- MST 633 Pharmacology and the Human Brain
- MST 634 Crime Scene Science
- MST 635 The Science of Global Climate Change
- MST 636 The Science of Computer Games
- MST 637 Scientific Myths and Misconceptions
- MST 639 Special Topics

Course Descriptions

MST 600 Investigative Math, Science, and Technology for Educators: Energy 3 hrs.

Course integrating math, science, and technology in an investigative format. Emphasis on using scientific methods to explore thematic material. Course taught in an inquiry-based, investigative format that includes application to pre K-12 classrooms. Introductory course of a two-courses sequence. Course content integrated along the theme of energy. Prerequisite: Graduate student standing; satisfactory score on pretest or suitable remediation.

MST 601 Investigative Math, Science, and Technology for Educators: Motion 3 hrs.

Course integrating math, science, and technology in an investigative format. Emphasis on using scientific methods to explore thematic material. Course taught in an inquiry-based, investigative format that includes application to pre K-12 classrooms. Introductory course of a two-course sequence. Course content is integrated along the theme of motion. Prerequisite: Graduate student standing; satisfactory score on pretest or suitable remediation.

MST 609 Investigative Math, Science, and Technology for Educators: Special Topics 3 hrs.

Course integrating math, science, and technology in an investigative format. Emphasis on using scientific methods to explore thematic material. Course taught in an inquiry-based, investigative format that includes application to pre K-12 classrooms. Introductory course of a two-course sequence. Course content is integrated along a major theme. Prerequisite: Graduate student standing; satisfactory score on pretest or suitable remediation.

MST 610 Math Through Inquiry 3 hrs.

Investigation of important ideas of mathematics and mathematical models. Topics include: classic problems, number patterns, infinity, topology, chaos, and fractals. Prerequisite: Graduate student standing; satisfactory score on pretest or suitable remediation.

MST 611 Directed Research in Science and Math

Internship 1 hr.

Students work with a faculty member from a STEM (science, technology, engineering, or math) discipline in a guided research internship. Prerequisite: Graduate student standing.

MST 612 Introduction to Teacher Leadership 1 hr.

Introduction to teacher leadership roles in contemporary schools through inter- and intra-personal leadership development. Prerequisite: Graduate student standing.

MST 620 Topics in Investigative Math, Science, and Technology for Educators II: Evolution 3 hrs.

Course integrating math, science, and technology in an investigative format. Emphasis on using scientific methods to explore thematic material. Course taught in an inquiry-based, investigative format that includes application to pre K-12 classrooms. Second course of a two-course sequence. Course content is integrated along the theme of evolution. Prerequisite: B or better in one course from MST 600-609, or graduate student standing and consent of instructor.

MST 621 Investigative Math, Science, and Technology for Educators II: Environmental Science 3 hrs.

Course integrating math, science, and technology in an investigative format. Emphasis on using scientific methods to explore thematic material. Course taught in an inquiry-based, investigative format that includes application to pre K-12 classrooms. Second course of a two-course sequence. Course content is integrated along the theme of environmental science. Prerequisite: B or better in one course from MST 600-609, or graduate student standing and consent of instructor.

MST 629 Investigative Math, Science, and Technology for Educators II: Special Topics 3 hrs.

Course integrating math, science, and technology in an investigative format. Emphasis on using scientific methods to explore thematic material. Course taught in an inquiry-based, investigative format that includes application to pre K-12 classrooms. Second course of a two-course sequence. Course content is integrated along a rotating theme. Prerequisite: B or better in one course from MST 600-609, or graduate student standing and consent of instructor.

MST 630 Teaching Science Using Robotics**Platforms 3 hrs.**

Robot building activities designed to teach key technology and science concepts. Addresses the concepts of programming, behaviors, systems, control, sensors, and feedback with an introduction to artificial intelligence as it relates to robotics, the impact of robotics technology on society, and futuristic trends. Prerequisite: B or better in one course from MST 600-609, or graduate student standing and consent of instructor.

MST 631 The Science of Foods and Nutrition 3 hrs.

Application of chemical and biological principles to food and nutrition. Prerequisite: B or better in one course from MST 600-609, or graduate student standing and consent of instructor.

MST 632 The Science of Matter 3 hrs.

Properties and selection of materials for engineering and medical applications. Developments and application of alloys, polymers, ceramics, and composite materials. Interactions with the environment. Recent advances in nanotechnology, and application of synthetic and natural materials in medicine. An inquiry-based course with numerous easy-to-perform workshops. Active participation of the students in developing workshops is aimed at enhancing leadership skills. Small team groups conduct research and develop workshops. Prerequisite: B or better in one course from MST 600-699, or graduate student standing and consent of instructor.

MST 633 Pharmacology and the Human Brain 3 hrs.

Drug use and abuse will be explored from psychological, biological, sociological, and clinical perspectives. Students will gain an understanding of the history of drug use and drug policy and will be encouraged to identify sociological factors that promote abuse and incarceration. Students will be introduced to basic pharmacological principles, gross brain anatomy, and the neurobiology of drug action. Theories of addiction and contemporary treatment paradigms will be explored. Includes laboratory component. Prerequisite: B or better in one course from MST 600-609, or graduate student standing and consent of instructor.

MST 634 Crime Scene Science 3 hrs.

Application of interdisciplinary, inquiry-based, fundamental scientific principles to solve simulated problems within the theme of forensic science. A lab component is included. Prerequisite: B or better in one course from MST 600-609 or graduate student standing and consent of instructor.

MST 635 The Science of Global Climate Change 3 hrs.

Focuses on the global climate change with particular attention to the global heat budget, its interactions with other factors such as greenhouse gasses and anthropogenic alterations to global systems. Instructors will cover basic at-

mospheric and terrestrial science (biology, geology, chemistry, physics, and mathematics) necessary to understand the problem. The consequences of global climate change on society (commerce, international relationships, policy, and national security) will then be discussed. Prerequisite: B or better in one course from MST 600-609, or graduate student standing and consent of instructor.

MST 636 The Science of Computer Games 3 hrs.

Computer gaming, its current uses, and societal impact will be comprehensively explored. Participants will learn rudimentary programming skills needed to develop a basic educational game, evaluate online gaming sites and stand-alone game boxes, review demographics of current gamers, identify the resources (software, hardware, and personnel) needed to create games and run online gaming sites. Participants will also evaluate the gaming industry and its business models for successful game development, become familiar with related computer laws and oversight committees from around the world, review current issues and concerns with games, and look at future gaming trends. Prerequisite: B or better in one course from MST 600-609, or graduate student standing and consent of instructor.

MST 637 Scientific Myths and Misconceptions 3 hrs.

Inquiry-based approach to investigating common myths or popular beliefs using principles of mathematics and sciences. Prerequisite: B or better in one course from MST 600-609, or graduate student standing and consent of instructor.

MST 639 Special Topics 3 hrs.

Inquiry-based approach to investigating science and mathematics content organized around a central theme. Topics will vary by instructor. Prerequisite: B or better in one course from MST 600-609, or graduate student standing and consent of instructor.

MST 650 Inquiry-based Curriculum: Development and Analysis 3 hrs.

Examination of the characteristics of inquiry-based curriculum. Application as a teacher leader to the analysis and modification of existing curricula using research-based qualities of curriculum design. Prerequisite: B or better in one course from MST 600-609.

MST 660 Research in Math and Science 2 hrs.

Students work with a faculty member from a STEM (science, technology, engineering, or math) discipline on a collaborative research project. Prerequisite: Graduate standing and B or better in MST 611.

MST 670 Action Research: Methods and Practice 3 hrs.

Focus on the methods of action research that lead to teachers answering questions about classroom practice with a goal of improving student performance. Prerequisite: Graduate standing.

MST 680 Nature of Inquiry and Innovation **3 hrs.**

Survey of innovations across the sciences and mathematics within a historical and cultural perspective. Comparison of modes of inquiry that lead to these innovations with processes of discovery used in the social sciences and the humanities. Prerequisite: B or better in MST 650.

MST 681 Advanced Teacher Leadership **2 hrs.**

Concepts of shared school leadership designed to develop leadership in teachers who continue to teach students but also have an influence extending beyond the classroom within the school and elsewhere. Prerequisite: B or better in MST 612.

MST 685 STEM Education Project **1-4 hrs.**

Capstone course to enhance STEM content knowledge while integrating concepts from inquiry-based teaching and learning, action research, and teacher leadership. Prerequisite: Graduate standing in an appropriate MPS program; grade of B or better in MST 660 and MST 670.

FOSTER COLLEGE OF BUSINESS ADMINISTRATION

Robert Baer,
Dean

Edward Sattler,
Director of Graduate Programs

Susannah Gawor,
Assistant Director of Graduate Programs

Jack Russell,
Director of the Executive Master of Business Administration

John Gillett,
Director of Master of Science in Accounting Program

Philip Horvath,
Director of Master of Science in Quantitative Finance

The mission of the graduate programs in the Foster College of Business Administration is to develop students' knowledge, skills, and abilities through high-quality programs of instruction. Our goal is to provide an educational experience that will allow for in-depth study in selected areas.

Master of Science in Accounting

John Gillett,
Graduate Program Coordinator

**This program is accredited by AACSB International
—The Association to Advance Collegiate Schools of
Business**

The Department of Accounting offers a graduate program leading to the Master of Science in Accounting (MSA) degree. The program provides graduate education that prepares students to meet professional practice challenges in public, private, and not-for-profit accounting. The program is designed to broaden the student's knowledge, to provide for in-depth study, and to complement theoretical study with relevant and significant research. Graduates should be prepared for meeting the 150-hour CPA examination education requirement and entrance into, or advancement within, their chosen careers.

The program is open to full-time and part-time students. Students may enter the program in August, January, or during the summer.

Entrance Requirements

- a. An undergraduate accounting degree or the equivalent.
- b. AACSB admission requirements as follows:

Admission—MSA

Admission to the Master of Science in Accounting program is based on a thorough review of the required documents as well as any supplemental materials that may be appropriate. The Graduate Admissions Committee of the Department of Accounting makes the admission recommendation.

The required documents are the following:

1. Application form. The application form must be complete with meaningful and well-developed answers to the questions on the goals of the applicant. A check of \$40 for U.S. students or \$50 for international students,

payable to Bradley University, must accompany the application.

2. Transcript(s). Official transcripts (one copy) from each college and university attended must be sent directly from the registrar to: the Graduate School, Bradley University, Peoria, IL 61625.
3. Letters of recommendation. Two current letters of recommendation are required from persons who can comment meaningfully on the applicant's capability for graduate-level study. Character references are not appropriate. Faculty members under whom the applicant has studied and employers are considered appropriate references.
4. GMAT (Graduate Management Admissions Test). The GMAT is a standardized test designed to measure aptitude for graduate study in management. Applicants must arrange to take the test in sufficient time to permit processing of the results. The Bradley University GMAT institutional code is 1070. Information about the GMAT may be obtained by contacting the Graduate School Office or visiting the GMAT Web site at www.gmac.com.

Students currently in a four-year undergraduate accounting program should take the GMAT the first semester of their senior year in order to allow sufficient time for processing of the results.

5. A current resume.
6. TOEFL (Test of English as a Foreign Language). Applicable only to international students whose native language is not English. The test measures proficiency in oral and written English.

600-Level Courses

Graduate courses in business administration at the 600 level are restricted to graduate students who have been admitted to a degree-granting program in the Graduate School. Students-at-large may not take 600-level graduate courses in the Foster College of Business Administration.

In the Department of Accounting's integrated Bachelor Degree (BS or BA) and Master of Science in Accounting degree (MSA) program (commonly referred to as the 3:2 program), admitted students who meet the following criteria can take course work, including 600-level graduate courses, concurrently with their undergraduate courses. Eligible students can then designate to which degree that course work would apply. A course can be used in only one degree, and only appropriate courses can be applied to the MSA.

Admission—BS/BA and MSA

Admission to the 3:2 program is available when students are initially admitted to Bradley as freshmen or during their junior year. The Graduate Admissions Committee of the Department of Accounting makes the admission recommendation.

The required procedures are the following:

Admission as a freshman (early admission): students must be admitted in good standing into the Foster College of Business Administration with an acceptable ACT or SAT score and a class standing usually in the top 25 percent of their high school class. In addition to the material in their application for admittance to Bradley, students must indicate a desire to be in the 3:2 program and may be asked for two letters of recommendation. Under early admission, students must maintain at least a 3.00 GPA at Bradley and complete at least 90 credit hours (including ATG 302) before they can take graduate courses.

Admission as a junior (regular admission): Admission in good standing into the FCBA with a GPA of 3.00 or higher and at least 90 credit hours (including ATG 302) by the end of the term in which the student enrolls. Transfer students must have at least 24 hours at Bradley before admission. Admission for students without a 3.00 GPA will be based on GMAT scores, letters of reference, worthwhile experience, and GPA.

Degree Requirements

The Master of Science in Accounting program is 30 semester hours. At least 15 of these hours consist of courses in accounting. There are also nine elective semester hours of 600-level courses from the Foster College of Business Administration. The six remaining semester hours of elective coursework at the 500 or 600 level may be taken inside or outside of the Foster College of Business Administration. The program allows a maximum of six semester hours to be taken outside of the Foster College of Business Administration and requires a minimum of nine semester hours outside of accounting.

Accounting Courses Required (12 hours)

- ATG 601 Financial Accounting Theory
- ATG 657 Advanced Auditing
- ATG 677 Federal Taxes II
- ATG 690 Applied Professional Accounting Research

For the remaining three required accounting hours students may select courses from one of the following:

- ATG 501 Advanced Accounting II
- ATG 514 Advanced Managerial Accounting
- ATG 526 Fraud Examination
- ATG 547 Internal Auditing
- ATG 561 International Accounting Issues
- ATG 583 Accounting Information Systems
- ATG 585 Contemporary Issues in Accounting
- ATG 590 Professional Accounting Problems

Note:

500-level courses taken to complete requirements in an undergraduate degree cannot be used to complete master's degree requirements.

Elective (9 hours) Foster College of Business

Administration

For choices, see the listing of 600-level courses (with the exception of ATG 604) in the Foster College of Business Administration MBA program and obtain approval from the director of the MSA program.

Other Electives (6 hours)

May be taken in accounting with approval from the director of the MSA program. See "Note" above. May be taken outside of the college with approval from the director of the MSA program. For business course choices, see the listing of 600-level courses (with the exception of ATG 604) in the Foster College of Business Administration MBA program and obtain director of the MSA program approval.

Other Requirements

Applicants should review the Graduate School admission policies, special regulations, registration and fees, and degree regulations located in the front of this catalog.

Comprehensive Examination

Each MSA student must take a written comprehensive examination. This examination covers the graduate work that the student is presenting for the degree. The time, place, and nature of the examination are a part of ATG 690.

Course Descriptions

ATG 501 Advanced Accounting II 3 hrs.

In-depth application of accounting concepts, theories, and conventions to recording and reporting of problems arising from business combinations, branch operations, and business operations in foreign countries. Consolidated balance sheets, income statements, and retained earnings statements. Home office and branch accounting, foreign exchange, foreign subsidiaries. Prerequisite: ATG 302.

ATG 514 Advanced Managerial Accounting 3 hrs.

Specialized topics in strategic cost management. Emphasis on the role of accounting information in strategy development and implementation. Includes topics such as value chain analysis, target costing, activity-based management, theory of constraints, environmental costing, and strategic performance evaluation. (Not open to students who have taken ATG 304 or ATG 614.) Prerequisites: ATG 383; ATG 301.

ATG 526 Fraud Examination 3 hrs.

Techniques for identification and detection of asset misappropriation schemes and fraudulent financial statements. Controls to prevent and detect problems. (Not open to students who have taken ATG 585 as Fraud Examination.) Prerequisites: ATG 301; ATG 383.

ATG 547 Internal Auditing 3 hrs.

Internal audit activity's role in governance, risk, and control. Professional practices framework. Establishing a risk-

based plan, conducting the internal audit engagement, reporting results, monitoring engagement outcomes. Prerequisites: ATG 301 and ATG 383.

ATG 561 International Accounting Issues 3 hrs.

Significant accounting matters experienced by multi-national companies. Accounting matters include currency transactions and translations, transfer pricing, management planning and control, and taxation. Prerequisite: ATG 302.

ATG 583 Accounting Information Systems 3 hrs.

Design and implementation of accounting information systems using database technologies. Not open to students who have taken ATG 667. Prerequisites: ATG 301; ATG 383.

ATG 585 Contemporary Issues in Accounting 3 hrs.

Critical evaluation of concepts, assumptions, principles, and analytical methodologies of accounting and their application to factual situations. Asset valuation and income determination: implications for internal and external uses of accounting information in business decision making. Prerequisite: consent of department chair.

ATG 590 Professional Accounting Problems 3 hrs.

Update and expansion of core knowledge in accounting theory, practice, taxation, and auditing. Prerequisites: ATG 383; ATG 377 or 677; or consent of instructor.

ATG 601 Financial Accounting Theory 3 hrs.

Application of the current authoritative accounting pronouncements to a variety of accounting situations. Conceptual development of analytical tools. Current authoritative and alternative measurement theories. Prerequisites: ATG 302 and Advanced Accounting.

ATG 605 Cooperative Education/Internship in Accounting 1-3 hrs.

Cooperative education or internship assignment. Credit applies to Department of Accounting MSA electives. Pass/Fail. Repeatable to a combined total of three credit hours.

ATG 657 Advanced Auditing 3 hrs.

Problems affecting the auditing profession. Evaluation of alternative solutions and their implications. Prerequisite: ATG 457.

ATG 677 Federal Taxes II 3 hrs.

Tax aspects of formation, distributions, and liquidations of partnerships and corporations. Gift taxes, estate taxes, and family tax planning. Prerequisite: ATG 477.

ATG 690 Applied Professional Accounting Research 3 hrs.

Research methods to identify accounting, auditing, and reporting issues; collect evidence from accounting/auditing literature; identify alternatives; develop recommendations; and communicate oral and written results. Prerequisites: 18 hours of graduate credit, including nine semester hours from ATG 601, 657, and 677.

Executive Master of Business Administration

This program is accredited by AACSB International—The Association to Advance Collegiate Schools of Business.

The Executive Master of Business Administration (EMBA) program is especially designed for experienced professionals wishing to obtain a master's degree in business administration. EMBA students have a number of years of significant, post-baccalaureate career experience and continue to work full time while enrolled in the program. Participants begin the program at the same time and move through the curriculum together, completing the requirements as a group. The collective professional experience of the program participants enriches the educational environment.

Bradley University's EMBA program focuses on leadership and the business issues leaders face everyday. Leadership is a key issue in contemporary organizations. While effective leadership is a critical component of organizational success, studies indicate that organizations are facing a "crisis of leadership." Two-thirds of executives surveyed across the nation indicated that their organizations had too many people who were strong in management but weak in leadership. Bradley University's Executive MBA is jointly sponsored by the Foster College of Business Administration (FCBA) and The Executive Development Center (EDC). One of the five business assistance centers in FCBA, EDC is the Midwest affiliate of the Center for Creative Leadership (CCL), the premier leadership development program in the nation.

Unlike traditional MBA and EMBA programs with their prescribed courses in economics, finance, management, and accounting, Bradley University's EMBA focuses on issues that managers and executives identified as the most pressing problems they faced. The program takes an issues-oriented, problem-solving approach to business. Business issues are addressed from an interdisciplinary perspective. Each issue is approached with insights gained from various business disciplines. Accounting, marketing, management, and finance are integrated throughout the curriculum. Through this award-winning, issues-based, integrated curriculum, program participants will develop the same broad business knowledge and awareness that is expected from any rigorous MBA program.

Through the course of the program, the leadership skills of individual participants will be developed. Faculty will work one-on-one with participants to assess leadership skills and create a personal development plan.

Admissions Information

Requirements

A baccalaureate degree is normally required; however, in exceptional cases, candidates who do not have a baccalaureate degree may be admitted upon the recommendation of the EMBA Admissions Committee and approval by the Graduate School dean and the provost. In these rare cases, noteworthy professional experience, the candidate's ability to handle graduate-level study, and the ability to contribute to the academic experience of others in the class will be considered.

Managerial experience is required for all candidates; five to seven years of managerial experience is preferred. Entrance requirements also include a personal interview, professional recommendations, and a demonstrated ability to accomplish graduate-level business coursework. Evaluation of students for admission is a very individualized process. A prospective student's background, work experience, career goals, and desire to succeed are considered in making an admission decision.

Program Costs

The fee for the 2008-2009 EMBA degree program is \$49,600. Tuition, instructional materials, meals, and the international trip are included in the fee.

Payment Schedule for Program Beginning in 2009

First Payment	\$500
<i>Due immediately upon acceptance into the program</i>	
Second Payment	\$24,550
<i>Due September 1, 2009</i>	
Final Payment	\$24,550
<i>Due April 1, 2010</i>	

Admissions Deadline

The admissions committee follows a "rolling admission" process, whereby each application package is considered separately and measured against acceptance criteria, rather than against the applications of other candidates. Applicants will be evaluated on the following criteria: managerial experience, undergraduate/graduate performance, letters of recommendation, essay, and evidence of readiness for entrance into the program.

The required documents are the following:

1. Application form. The application form must be complete with meaningful and well-developed answers to the questions on the goals of the applicant. All applicants must submit a non-refundable application fee, payable by check or money order, to Bradley University. The fee for domestic applicants is \$40.
2. Transcript(s). Official transcripts from each college and university attended must be sent directly from the registrar to: Associate Dean, Foster College of Business Administration, Bradley University, Peoria, Illinois 61625.

3. Three letters of recommendation. Recommendation forms are included in the application material. Please note that a direct supervisor must be one of the recommenders, unless you are self-employed. These recommendations must be returned in a sealed, signed envelope.
4. Employer letter of sponsorship. This letter should be from a senior official of your employing organization. It should state that your employer endorses your participation in the program, is aware of the time demands, will grant you the necessary time off to attend classes, and, if applicable, is willing to provide financial assistance. Applicants who are self-employed are not required to submit this statement.
5. Personal essay. Directions for the essays can be found in the application form.
6. Interview. Once your application is received, an on-campus interview will be scheduled. Be prepared to describe projects you have handled that demonstrate your management skills. Please include a statement with your application stating times and days that you are available for the interview.

For application materials, please contact: EMBA Director, Foster College of Business Administration, Bradley University, 1501 W. Bradley, Peoria, IL 61625. E-mail: emba@bradley.edu. Phone: (309) 677-2253. You may download the application at bradley.edu/emba.

Progress Toward the Degree

Degree Requirements

The EMBA consists of 19 courses comprising 35 academic credit hours. The program lasts approximately 15 months and meets every other weekend on Friday and Saturday for the program's duration. Two extended periods of study, lasting 7-10 days each, will be required. Students must successfully complete all 21 courses and pass a written comprehensive examination.

Required courses

BUS 621 The Leadership Challenge	3 hrs.
BUS 623 Scanning the Environment	1/2 hr.
BUS 625 External Economic Environment.....	1 hrs.
BUS 627 Managing Technology	2 hrs.
BUS 629 Cost Management.....	11/2 hrs.
BUS 631 Competition and Pricing.....	1 hr.
BUS 633 Creating and Maintaining Customer Satisfaction	3 hrs.
BUS 635 Communication Workshop	11/2 hrs.
BUS 637 Attracting and Developing Talent	2 hrs.
BUS 639 Building Employee Commitment	2 hrs.
BUS 641 Dealing with Problem People	1 hr.
BUS 643 Team Building.....	1 hr.

BUS 645 Acquiring Capital and Making Investment Decisions	3 hrs.
BUS 647 Global Environment and Issues	3 hrs.
BUS 649 Developing Strategy.....	2 hrs.
BUS 651 Performance Measurement and Control Systems	2 hrs.
BUS 653 Strategic Positioning and Maximizing Performance	2 hrs.
BUS 655 Leading Successful Change	11/2 hrs.
BUS 658 EMBA Topics.....	2 hrs.
	35 hrs.

Course Descriptions

BUS 621 The Leadership Challenge 3 hrs.

Exploration of the characteristics and themes of successful leadership. In-depth analysis of the strengths and development needs of participants through 360-degree feedback. Important interpersonal skill foundations in communication, conflict resolution, and trust building are emphasized. One-on-one coaching between participants and staff.

BUS 623 Scanning the Environment 1/2 hr.

Uncertainty in business planning caused by the external environment. Utilization of a conceptual model to organize and frame the discussions of the macroenvironment in which the firm operates.

BUS 625 External Economic Environment 1 hr.

Provide a broad overview of the economic environment in which business firms and consumers carry out their individual economic activities. Review the institutional structure, the social goals, and implicit values of the market system and how they establish the parameters within which choices are made. Overview of how and why business cycles occur. How economic policy, both monetary and fiscal, have impacted the business cycle.

BUS 627 Managing Technology 2 hrs.

Management issues related to providing information technology resources. Impact of product and process-related technologies on development and execution of organizational strategies.

BUS 629 Cost Management 11/2 hrs.

Analysis of the nature of cost. Techniques for accumulation of costs incurred in production and assignment of those costs to products. Methods for reduction and management of non-value-added costs.

BUS 631 Competition and Pricing 1 hr.

Elasticity measurement of market response to price, income, and other influences on competitive structure from commodities to monopoly; pricing strategies based on competitive environment; price, output, and product development for competition among few firms; the techniques of Cournot, Stackelberg, and Von Neumann.

BUS 633 Creating and Maintaining Customer**Satisfaction 3 hrs.**

Customer-focused topics, including effective and efficient product delivery, identifying customer segments that can be served by the firm, offering customer value, and building brand and corporate loyalty.

BUS 635 Communication Workshop 11/2 hrs.

Communication skills, both verbal and written, will be strengthened and learned through practice. Interpersonal and written communication skills and media interviews receive primary emphasis.

BUS 637 Attracting and Developing Talent 2 hrs.

Expose students to the challenges of attracting talent and provide advice on how to develop talent within an organization. Complexities of recruiting in difficult labor markets. Continuous improvement mechanisms to stimulate ongoing talent development.

BUS 639 Building Employee Commitment 2 hrs.

Key themes and practical approaches for enhancing motivation and building high levels of commitment and continuing dedication throughout the workforce. Financial and intrinsic reward systems are emphasized, as are the keys to developing a culture of involvement and credibility.

BUS 641 Dealing with Problem People 1 hr.

Approaches, skills, and strategies for understanding and addressing difficult and problem people in the organization. Application of course materials and learning to on-the-job situations. Examines both human resource and legal ramifications of dealing with problem people.

BUS 643 Team Building 1 hr.

Design, introduction, development, and leadership of cross-disciplinary teams, including virtual teams. The course provides leaders with the background, perspective, and skill to help teams reach their performance potential. Participants receive feedback regarding their on-the-job approach to teams. Areas of need are identified and participant-specific skills and actions are emphasized. Approaches to team rewards and team compensation are studied.

BUS 645 Acquiring Capital and Making Investment Decisions 3 hrs.

Planning and strategies involved in identifying value-enhancing capital projects. Interpreting cash flow figures, identifying risk factors, and employing risk analysis techniques. Strategies for acquiring capital and understanding the impact of capital structure on firm value.

BUS 647 Global Environment and Issues 3 hrs.

Provide an understanding of the forces shaping the international economy. Provide frameworks and guidelines for gathering, sorting, and assessing complex global and regional information to contribute to understanding organizations' strategies and tactics. Emphasis on leadership issues and diverse cultures.

BUS 649 Developing Strategy 2 hrs.

Provide an effective planning framework to integrate strategies with different functional areas. All of the functional areas will be integrated within the strategic planning framework. Emphasis on strategic planning as an ongoing, fluid process that evolves over time and adapts to environmental changes.

BUS 651 Performance Measurement and Control Systems 2 hrs.

Techniques for creation of profit plans and monitoring of success. Design and use of broad-based performance measures such as the balanced scorecard. Identification and control of risks that threaten the attainment of objectives.

BUS 653 Strategic Positioning and Maximizing Performance 2 hrs.

Expose managers to factors that impact different performance measures and provide strategies that maximize performance. Achieve balance at many different levels; incremental/radical strategies, flexibility/control, resources/capabilities, and growth/continuous improvement.

BUS 655 Leading Successful Change 11/2 hrs.

Background, insights, and skills in how to effectively challenge the status quo, create new directions, and lead organizations to embrace and successfully implement needed change. Examination of the forces for change and dynamics of resistance. Participants examine their personal style of change and apply change management strategies to their respective organizations.

BUS 658 EMBA Topics 1/2-2 hrs.

Topics of special interest which may vary each time course is offered. May be repeated under different topics for a maximum of two hours credit. Topic stated in current Schedule of Classes.

Master of Business Administration

This program is accredited by AACSB International—The Association to Advance Collegiate Schools of Business.

The MBA program at Bradley University originated in the late 1940s and emerged as one of the dynamic forces in the College in the 1970s. Subsequently, it earned recognition by receiving accreditation from AACSB. This recognition signals both the achievement of quality standards of long standing and the establishment of a new base upon which to build toward higher levels of excellence.

The MBA program is open to full-time and part-time students, who take classes together. Students may enter the program in August or January and complete their degree in two years. All of the required courses are offered in the evenings. The combination of students from different undergraduate disciplines, with varying levels of work experience, results in a dynamic educational environment beneficial to all.

The curriculum has a general managerial perspective. It stresses the theoretical basis of management disciplines as well as practical applications of theory and current management practices. The curriculum focuses on improving managerial performance in the problem-solving environment and also conceptualizing elements for policy formulating activity.

The study of management approached in this manner is appealing to those interested in the administration of all types of enterprise: health, government, and non-profit organizations, as well as the traditional large and small industrial and service business firms.

The practical applications orientation of the curriculum necessitates the use of a wide variety of pedagogical approaches. Problem-solving situations are used, calling for individual attention, group interaction, computer analysis, and formulation of assumptions to deal with uncertainty. Case analysis is extensively used, focusing both on problem-solving and presentation of conclusions using appropriate oral and written communication skills.

The MBA program is designed to provide each student with a professional business education through:

1. A rigorous body of coursework that reflects current business practices;
2. The development of analytical and interpersonal skills needed to work effectively in a rapidly changing domestic and global economy;
3. The teaching of the social and ethical responsibilities of business in a system of free enterprise.

Progress Toward the Degree

Admission

Admission to the MBA program is based on a thorough review of the required documents as well as supplemental materials that may be appropriate. The Graduate Admissions Committee of the Foster College of Business Administration, chaired by the director of graduate programs, makes the admission recommendation.

The required documents are the following:

1. Application form. The application form must be complete with meaningful and well-developed answers to the questions on the goals of the applicant. All applicants must submit a non-refundable application fee, payable by check or money order, to Bradley University. The fee for domestic applicants is \$40 and \$50 for international applicants.
2. Transcript(s). Official transcripts (one copy) from each college and university attended must be sent directly from the registrar to: the Graduate School, Bradley University, Peoria, Illinois 61625.
3. Letters of recommendation. Two current letters of recommendation are required from persons who can comment meaningfully on the applicant's capability for graduate-level study. Character references are not appropriate. Faculty members under whom the applicant has studied and employers are considered appropriate references.
4. GMAT (Graduate Management Admission Test). The GMAT is a standardized test designed to measure aptitude for graduate study in management. Applicants must arrange to take the test in sufficient time to permit processing of the application with the test results prior to the application deadline. For reporting the test results, the Bradley University GMAT institutional code is 1070. Information about the GMAT may be obtained by contacting the Graduate School Office or by visiting www.mba.com.
5. A current resume. Since the evaluation includes analysis of work experience, a current resume is very helpful to the admissions committee.
6. TOEFL (Test of English as a Foreign Language). Applicable only to international students whose native language is not English. The test measures proficiency in oral and written English.

Graduate courses in business administration are restricted to graduate students who have been admitted to the MBA program or another degree-granting program in the Graduate School. Students-at-large may not take 600-level graduate courses in the Foster College of Business Administration.

Leave of Absence

Please refer to the Graduate School Step-Out Policy on page 26.

Degree Requirements

The MBA program is 33 semester hours. Twenty-four of these hours satisfy a set of required core courses. The program begins with an interpersonal relations course that emphasizes the development and application of interpersonal skills critical for managerial success. The program continues with an introduction to key issues in business decision-making, drawing on experienced practitioners and graduate faculty teams. A capstone strategy course integrates the business cross-functional approach to organizational issues.

There are 9 hours of elective coursework, which may be chosen within one of three areas of concentration (finance, management, marketing) or across concentrations as a customized elective selection. The required and elective courses are as follows:

MBA Courses

Required Core (24 hrs.)

ATG 604 Controllership*
ECO 606 Microeconomics for Managers
ECO 608 U.S. Business Cycles in International Economy
BMA 615 Interpersonal Relations
BMA 620 Management Theory
FIN 622 Financial Management
MTG 624 Marketing Decision Making
BMA 672 Information Systems Management
BMA 628 Business Policy and Strategy Formulation

*MBA students with an undergraduate accounting degree must choose a three-hour elective to replace the ATG 604 requirement.

Concentration Electives

Finance

FIN 623 Multinational Financial Management
FIN 624 Capital Budgeting
FIN 625 Financial Analysis
FIN 627 Financial Risk Management
FIN 658 Topics in Finance
FIN 660 Readings in Finance

Management

BMA 602 Organizational Behavior
BMA 657 Executive Development
BMA 658 Topics in Business Administration
BMA 659 Topics in Management
BMA 660 Readings in Business Administration
BMA 671 Productivity Software for Managers
BMA 673 Data Communications for Managers
BMA 675 Managing Systems Development
BMA 676 Electronic Commerce
IB 656 International Business Administration
IB 658 Topics in International Business
IB 660 Readings in International Business

Marketing

MTG 640 Obtaining, Analyzing, and Applying Marketing Information (required)
MTG 654 Managing Services Marketing
MTG 658 Topics in Marketing
MTG 660 Readings in Marketing
IB 656 International Business Administration
IB 658 Topics in International Business
IB 660 Readings in International Business

Other Electives

ATG 658 Topics in Accounting
ATG 660 Readings in Accounting
CIS 571 Computer Law
CIS 572 Computing Services Management
ECO 660 Readings in Economics
IB 660 Readings in International Business
MFE 565 Computer Integrated Manufacturing
QM 501 Quantitative Analysis I
QM 652 Advanced Data Analysis
QM 658 Topics in Quantitative Methods
QM 660 Readings in Quantitative Methods

All students must have a proficiency in mathematics equivalent to the techniques of calculus in college, and working familiarity with business computer systems that includes microcomputers and management information systems. Students without these proficiencies must take appropriate mathematics and computer courses specified by the director of graduate programs.

All students in the MBA program must possess the common body of knowledge in business administration as set forth below.

1. a background of the concepts, processes, and institutions in the production and marketing of goods and/or services, and the financing of the business enterprise or other forms of organization;
2. a background of the economic and legal environment as it pertains to profit and/or nonprofit organizations along with ethical considerations and social and political influences as they affect such organizations;
3. a basic understanding of the concepts and applications of accounting, quantitative methods, and management information systems including computer applications;
4. a study of organization theory, behavior, and interpersonal communications;
5. a study of administrative processes under conditions of uncertainty including integrating analysis and policy determination at the overall management level.

All core courses are compressed and offered on seven-week schedules. The foundation portion of the requirement may be satisfied if an applicant's transcript contains undergraduate courses equivalent to the foundation courses.

es listed below and these courses were completed within the past 10 years with a B or better. An admitted student who has not had a particular foundation course may take it at Bradley University or, with prior permission, at another institution.

Foundation Courses

ATG 505 Accounting Principles-Financial

BMA 542 Legal Environment of Business

BMA 553 Operations Management

ECO 506 Elements of Microeconomics

FIN 522 Introduction to Finance

MTH 115 Calculus

QM 502 Quantitative Analysis II

Students must complete all their foundation courses prior to enrolling in 600-level MBA courses. Students must earn a B or better in all required foundation courses to be eligible for 600-level MBA courses.

Other Requirements

Applicants should review the Graduate School admission policies, special regulations, registration and fees, and degree regulations located in the front of this catalog.

Comprehensive Examination

Candidates will be expected to demonstrate their capacity to draw upon and integrate their knowledge from all courses in a written comprehensive examination. A candidate will complete the examination while enrolled in BMA 628. In case of failure, the candidate will be allowed to retake the comprehensive only once.

Practicum

BUS 610 Graduate Business Practicum 0-3 hrs.

Solving technically challenging problems under faculty supervision, with a near-term economic benefit. May involve research in collaboration with FCBA faculty, for up to three hours credit. Repeatable to a combined total of three credit hours. Prerequisite: Graduate business student in good standing; approval of Center for Business and Economic Research and Director of Graduate Business Programs.

IE MBA Program

Undergraduate students in the industrial engineering department may combine their studies and earn an MBA degree in five and one-half years or fewer. Students may include all of the prerequisites for the MBA program as part of their required 124 undergraduate semester hours. Careful scheduling is required and should be coordinated with the student's undergraduate adviser and director of graduate programs. Students electing this option must be fully admitted before registering for graduate-level courses and have the written approval of the director of graduate programs. Students should contact the director of graduate programs during their sophomore year for particular information.

MBA Association

The MBAA is the social and professional extension of the program. Its principal objectives are to enhance closer personal ties among its members, foster communication between students and the business world, and provide closer ties with the faculty. A variety of activities is scheduled to include MBA students and spouses, as well as faculty and alumni. All MBA and EMBA students are encouraged to join the association.

Course Descriptions

Foundation MBA Courses

ATG 505 Accounting Principles—Financial 2 hrs.

Introduction to accounting concepts of recognition, measurement, classification, and disclosure, which are the foundations to a financial reporting system. The accounting cycle; preparation of financial statements; introduction to financial statement analysis. (Does not count as elective.) Prerequisite: consent of director of graduate programs.

BMA 542 Legal Environment of Business 2 hrs.

Analysis of the legal environment in which business operates. Ethical and equitable influence on legal development emphasized. Study of specific areas of procedure, constitutional law, contracts, torts, international business law, business organizations, and the regulatory environment related to antitrust, labor, securities, environmental, and consumer law. Cannot be used to satisfy MBA elective or concentration requirements. Prerequisite: consent of director of graduate programs.

BMA 553 Operations Management 2 hrs.

Survey of issues and decision-making techniques related to the operations of an organization. Quality management, project management, inventory management, waiting line analysis, production scheduling, job design, and facility layout. Cannot be used to satisfy MBA elective or concentration requirements. Prerequisite: consent of graduate program director.

ECO 506 Elements of Microeconomics 2 hrs.

Review of demand, supply, product markets, factor markets, perfect competition, monopoly, and other market structures, using algebra. Cannot be used to satisfy MBA elective or concentration requirements. Prerequisite: consent of director of graduate programs.

FIN 522 Introduction to Finance 2 hrs.

Principles of financial management; financial systems and flow of funds; time value of money and its application; raising and allocation of funds; financial analysis, planning, and forecasting. Cannot be used to satisfy MBA elective or concentration requirements. Prerequisites: ATG 505, ECO 506, QM 501.

QM 502 Quantitative Analysis II 2 hrs.
Linear and multiple regression and correlation techniques. Analysis of variance, times-series analysis, and nonparametric procedures. Cannot be used to satisfy MBA elective or concentration requirements. Prerequisite: QM 501; or QM 262 and MTH 115 or MTH 121.

Required Core Courses

ATG 604 Controllership 3 hrs.
Case studies of management accounting control systems and strategic cost analysis. Use of relevant costs for decision-making, planning, and evaluation of performance. Development of analytic tools drawn from cost accounting, managerial accounting, mathematics, and behavioral science. Prerequisites: ATG 157 or 505 or equivalents; not open to students with an undergraduate degree in accounting.

BMA 615 Interpersonal Relations 3 hrs.
Foundations of interpersonal behavior, emphasizing the development and application of the interpersonal skills critical for managerial success. Foster self-understanding and self-awareness through a variety of assessment instruments.

BMA 620 Management Theory 3 hrs.
Planning, organizing, directing, coordinating, and controlling operations through managerial decision making. Emerging issues and trends; integration of principles and concepts with contemporary concerns. Prerequisite: QM 263 or QM 502.

ECO 606 Microeconomics for Managers 2 hrs.
Analysis of domestic and international markets, resource allocation, market structure, impacts on business decision making and on society, role of government regulation in business, pricing strategies. Prerequisites: ECO 221 or 506; MTH 115; QM 262, 263 (or QM 501, 502); or consent of instructor.

ECO 608 U.S. Business Cycles in the International Economy 2 hrs.
The application of economic analysis to explain fluctuations in Gross Domestic Product (GDP), employment, and inflation in our contemporary open economy; evaluation of alternative economic stabilization policies; uses and applications for managerial decision making. Prerequisites: ECO 221; or ECO 506; MTH 115; QM 262, 263 (or QM 501, 502); or consent of instructor.

FIN 622 Financial Management 3 hrs.
The financial framework of business; principles governing the operation of financial markets. Management of the flow of funds through a company; evaluation of alternative methods of financing under changing conditions; capital and cash budgeting; valuation problems. Prerequisite: MBA prerequisite courses completed.

MTG 624 Marketing Decision Making 3 hrs.
Marketing management problems, policies, and solutions. Case studies of marketing problems, research, and applications of marketing techniques to business problems.

BMA 672 Information Systems Management 2 hrs.
Knowledge and application of information-related resources from a management perspective: identifying information needs, strategic uses of information systems, emerging information technologies, managing information resources effectively. Prerequisite: FCBA proficiency exam or BMA 172 or equivalent.

Capstone Course

BMA 628 Business Policy and Strategy Formulation 3 hrs.
Strategies in response to conditions such as competition and future development. Prerequisite: completion of all core courses.

MBA Concentrations

(One course in each area is required as part of the Core. For a concentration, choose 9 hours in one area from this list.)

Finance

Choose 9 hours:

FIN 623 Multinational Financial Management 3 hrs.
How global financial markets accommodate various cultural, legal, economic, and exchange rate systems. How different conventions apply to country-specific accounting, operating, marketing, and financing. Multinational interaction and exposure management are emphasized. Prerequisite: completion of all MBA prerequisite courses.

FIN 624 Capital Budgeting 3 hrs.
Long-term capital investment decisions, policy, concepts, tools and techniques. Builds on NPV decision rule, cash flow, CAPM and APT, real options, and jump process approaches; risk considerations emphasized. Prerequisites: completion of foundation courses, FIN 622.

FIN 625 Financial Analysis 3 hrs.
Contemporary theoretical and applied approaches to analyzing financial health. Managerial implications. Application and interpretation of ratios; univariate and multivariate tools. Financial modeling. Prerequisite: completion of all MBA prerequisite courses.

FIN 627 Financial Risk Management 3 hrs.
Risks induced by input factor, interest rate, and currency exchange rate changes are analyzed for interpretation, reduction, offset, or alternative adjustment. How the firm can enhance financial performance relative to risk taken. Prerequisite: completion of all MBA prerequisite courses.

FIN 658 Topics in Finance 3 hrs.
Topics of special interest which may vary each time the course is offered. Topic stated in current Schedule of Classes.

FIN 660 Readings in Finance 3 hrs.
Individual readings for qualified students, under the guidance of a member of the faculty. Prerequisites: consent of instructor and director of graduate programs.

Management

Choose 9 hours:

BMA 602 Organizational Behavior 3 hrs.
Analysis of individual and group behavior in the organizational environment. Motivation, leadership, communication, conflict, change, authority and power of lower-level participants, decision-making, and organizational theory, demonstrated through case analysis and classroom experiences. Prerequisite: enrollment in a graduate program of study in business.

BMA 657 Executive Development 3 hrs.
Theory and research of development stages of executive careers. The impact of the organization on the executive personality; forces influencing the development of executive skills and abilities; studies of antecedents of executive role performance; and the role of training programs in executive development.

BMA 658 Topics in Business Administration 3-6 hrs.
Topics of special interest, which may vary each time the course is offered. Topic stated in current Schedule of Classes.

BMA 659 Topics in Management 1-2 hrs.
Management-related topics presented in modules or seminars. Topics may vary each time the course is offered. Topic stated in current Schedule of Classes. May be repeated under different topics for a maximum of six hours credit.

BMA 660 Readings in Business Administration 1-3 hrs.
Individual readings for qualified students, under the guidance of a member of the faculty. Prerequisites: advancement to candidacy; consent of instructor and director of graduate programs.

BMA 671 Productivity Software for Managers 3 hrs.
The use of packaged software to improve personal productivity in the business environment: spreadsheets, databases, presentation graphics, database retrieval, statistics, word processing, and electronic mail. Problem-solving laboratory exercises using the different software packages. Prerequisite: familiarity with computer systems.

BMA 673 Data Communications for Managers 3 hrs.
Data communications for supporting management decision making and group coordination: communication technologies, idea generation and group collaboration,

data and video conferencing, emerging technologies for communication and coordination. Prerequisite: BMA 672 or consent of director of graduate programs.

BMA 675 Managing Systems Development 3 hrs.
Tools and techniques needed to manage the development of information systems. Systems analysis techniques, rapid application development, data modeling, data management and administration, project management tools and techniques. Prerequisite: BMA 672 or consent of director of graduate programs.

BMA 676 Electronic Commerce 3 hrs.
Introduction to electronic commerce (EC). Managerial and organizational issues surrounding EC. History of Internet, emerging technologies for EC, electronic data interchange, digital libraries, data warehouses, interactive advertising and marketing, kiosk systems. Relation of EC to organizational strategy. Prerequisite: BMA 672 or consent of director of graduate programs.

IB 656 International Business Administration 3 hrs.
Impact of economic, cultural, legal/political, institutional, and competitive issues on the management of international and global business operations. Adjustment of strategic and tactical entry mode, marketing, production, human resources, and financial decisions to macroenvironmental constraints in selected world regions and markets. Case studies and reports. Prerequisites: BMA 620 or MTG 624 or consent of instructor; consent of director of graduate programs.

IB 658 Topics in International Business 1-3 hrs.
Topics of special interest which may vary each time the course is offered. Topic stated in current Schedule of Classes.

IB 660 Readings in International Business 1-3 hrs.
Individual readings for qualified students, under the guidance of a member of the faculty. Prerequisites: consent of instructor and director of graduate programs.

Marketing

Required:

MTG 640 Obtaining, Analyzing, and Applying Marketing Information 3 hrs.
Gathering, understanding, and using marketing information, data base marketing, qualitative research, electronic research, forecasting, and computer software data analysis packages.

Choose two courses from the following:

IB 656 International Business Administration
Impact of economic, cultural, legal/political, institutional, and competitive issues on the management of international and global business operations. Adjustment of strategic and tactical entry mode, marketing, production,

human resources, and financial decisions to macroenvironmental constraints in selected world regions and markets. Case studies and reports. Prerequisites: BMA 620 or MTG 624 or consent of instructor; consent of director of graduate programs.

IB 658 Topics in International Business 1-3 hrs.
Topics of special interest which may vary each time the course is offered. Topic stated in current Schedule of Classes.

IB 660 Readings in International Business 1-3 hrs.
Individual readings for qualified students, under the guidance of a member of the faculty. Prerequisites: consent of instructor and director of graduate programs.

MTG 654 Managing Services Marketing 3 hrs.
In-depth analysis of the problems facing marketing managers in service and nonprofit organizations. Interdependence of marketing, operations, and human resources.

MTG 660 Readings in Marketing 3 hrs.
Individual readings for qualified students, under the guidance of a member of the faculty. Prerequisites: consent of instructor and director of graduate programs.

MTG 688 Supply Chain Management 3 hrs.
Supply chain management consists of all stages involved in directly or indirectly fulfilling customer requests. This course will examine all aspects of the supply chain i.e., interactions between manufacturers, suppliers, transportation agents, retailers, and customers. Special emphasis is placed on managing flows of information, products, and funds between organizations and throughout the open system.

MTG 658 Topics in Marketing 3 hrs.
Topics of special interest which may vary each time the course is offered. Topic stated in current Schedule of Classes.

Other Electives

ATG 658 Topics in Accounting 3 hrs.
Topics of special interest, which may vary each time the course is offered. Topic stated in current Schedule of Classes.

ATG 660 Readings in Accounting 3 hrs.
Individual readings for qualified students, under the guidance of a member of the faculty. Prerequisites: consent of instructor and director of graduate programs.

BUS 681 Professional Development 1-3 hrs.
Apply professional knowledge and skills in a team environment on not-for-profit, international, or research project. May be repeated for a maximum of three hours credit. Prerequisites: consent of graduate program director.

ECO 660 Readings in Economics 3 hrs.
Individual readings for qualified students, under the guidance of a member of the faculty. Prerequisites: consent of instructor and director of graduate programs.

IME 555 Computer Integrated Manufacturing 3 hrs.
Computer Integrated Manufacturing (CIM); elements of hardware and software within the manufacturing automation environment. Islands of factory automation and their interactions, information flow and Local Area Networks within the CIM architecture, standardization of electronic data and interfaces.

MTG 630 Building and Maintaining Marketing Relationships 3 hrs.
Core concepts for developing and maintaining internal and external customer relations. Relationship marketing; customer satisfaction, quality, services marketing, consumer and industrial buyer behavior, personal selling, and ethical marketing conduct. Prerequisite: MTG 624.

QM 501 Quantitative Analysis I 2 hrs.
The presentation and organization of data. Probability theory, probability distributions, and sampling distributions. Confidence interval estimation and hypothesis tests of one and two samples. Cannot be used to satisfy MBA elective or concentration requirements. Prerequisite: MTH 115 or equivalent.

QM 660 Readings in Quantitative Methods 3 hrs.
Individual readings for qualified students, under the guidance of a member of the faculty. Prerequisites: consent of instructor and director of graduate programs.

Master of Science in Quantitative Finance

Philip Horvath,
Graduate Program Coordinator

A variety of firms in many industries but especially financial institutions, investment banks, portfolio and fund management firms, and commodities firms rely upon very complex and sophisticated mathematical financial models to identify, measure, and manage risks as well as price certain assets. This phenomenon has led to the need for professionals with extensive skills in both finance and mathematics. Programs that prepare these professionals are variously termed “financial engineering,” “computational finance,” “mathematical finance,” or “quantitative finance.”

The Department of Finance and Quantitative Methods offers a graduate program leading to the Master of Science in Quantitative Finance degree. The program provides graduate education that prepares students to meet professional finance challenges in public, private, and not-for-profit organizations. The program is interdisciplinary and is designed for students with very strong quantitative backgrounds who have objectives of understanding, modeling, and determining solutions to complex financial problems such as uncertainty (risk) management and derivatives. The program is rigorous and requires completion of 30 credit hours of coursework. It combines strong quantitative skills such as calculus, probability theory and numerical methods, computer science such as algorithms, neural networks and computation with uncertainty measurement and management, as well as dynamic valuation and pricing from finance. The program emphasizes applied skills while providing sufficient theoretical background. The program is open to full- and part-time students.

Entrance Requirements—Students possessing an undergraduate or graduate degree

- a. Students may be admitted from a variety of undergraduate backgrounds, including finance, mathematics, economics, computer science, actuarial science, statistics, information systems, and engineering. Students may not have the required background to immediately begin taking advanced courses from the required program of study. In such cases, the individual's background will be assessed and a program will be devised to prepare them for the advanced material contained in the program.

- b. Prerequisites: completion of MSQF track in FCBA (See Bradley's *Undergraduate Catalog*), or
 - Calculus: topics in analytic geometry, limits, continuity, differentiation, calculus of logarithmic, exponential and trigonometric functions, integration, indeterminate forms, improper integrals, infinite series, calculus of functions of several variables, multiple integrals, vector calculus;
 - Linear Algebra: matrix algebra, determinants, simultaneous equations, vector spaces, bases Gram-Schmidt orthogonalization, eigenvalues, eigenvectors, transformations, and applications;
 - Ordinary Differential Equations: existence and uniqueness theorems, solution methods for initial and boundary value problems, linear and nonlinear systems, stability theory, difference equations;
 - Probability: continuous and discrete distributions, multivariate distributions and their moments; independence, ordinary and conditional expectations, Central Limit Theorem;
 - Statistics: statistical concepts, theory, and applications: random variables, sampling, theories of estimation and testing of hypotheses, linear models, and nonparametric methods, regression analysis including detection of and solutions to various violations of classic regression assumptions (heteroskedasticity, autocorrelation, multicollinearity and simultaneity);
 - Computer Programming: programming ability in a high-level language such as C, C++, Fortran (70 or 90/95) Basic, Visual Basic;
 - Economics: basic micro- and macroeconomic topics including supply and demand functions, market structure and the role of money;
 - Finance: Financial markets and institutions, fundamental and technical analysis, asset pricing (CAPM, APT), derivatives, financial research, and modeling.

Admission—MSQF

Admission to the Master of Science in Quantitative Finance program is based on a thorough review of the required documents as well as any supplemental material that may be appropriate. The graduate admissions committee of the Department of Finance and Quantitative Methods makes the admission recommendation. The required documents are the following:

1. Application form. The application form must be complete with meaningful and well-developed answers to the questions on the goals of the applicant. A check of \$40 (international students pay \$50), payable to Bradley University, must accompany the application.

2. Transcript(s). Official transcripts (one copy) from each college and university attended must be sent directly from the registrar to: Dean, Graduate School, Bradley University, Peoria, IL 61625.
3. Letters of recommendation. Two current letters of recommendation are required from persons who can comment meaningfully on the applicant's capability for graduate-level study. Character references are not appropriate. Faculty members under whom the applicant has studied and employers are considered appropriate references.
4. GMAT (Graduate Management Admissions Test). The GMAT is a standardized test designed to measure aptitude for graduate study in management. Applicants must arrange to take the test in sufficient time to permit processing of the results. The Bradley University GMAT institutional code is 1070. Information about the GMAT may be obtained by contacting the Graduate School or visiting the GMAT Web site at www.gmac.com.
5. A current resume.
6. Two essays as required by the Graduate School.
7. TOEFL (Test of English as a Foreign Language). Applicable only to international students whose native language is not English. The test measures proficiency in oral and written English.

Graduate courses in business administration at the 600-level are restricted to graduate students who have been admitted to a degree-granting program in the Graduate School. Students-at-large may not take 600-level graduate courses in the Foster College of Business Administration. Exceptions, although rare, may be granted in unusual circumstances by the director of the program.

Admission—BS/BA-MSQF Program

Students may begin undergraduate courses along the BS/BA-MSQF track when they are initially admitted to Bradley as freshmen, or by transferring from other majors, colleges in the university, or from other colleges and universities by application. These students must be subsequently admitted to the BS/BA-MSQF program during their senior year (90 or more credit hours); provided they maintain at least an overall 3.0 GPA. BS/BA-MSQF students are admitted as graduate students to the Graduate School subsequent to the completion of 124 undergraduate hours and the BS/BA-MSQF undergraduate track.

Admission as a freshman: students must be admitted in good standing into the Foster College of Business Administration. Students must apply to the BS/BA-MSQF program in writing. Admission to the BS/BA-MSQF program will be based on ACT or SAT score, a class standing usually in the top 15 percent of their high school class, and two academic letters of recommendation. Under this process, students must maintain at least a 3.0 GPA at Brad-

ley and complete at least 90 credit hours prior to taking 500-level courses.

Transfer Student Admission: students entering the BS/BA-MSQF via transfer from other undergraduate majors or programs must apply in writing. Admission is based upon ACT or SAT score, grade point average (minimum acceptable is 3.0), and two academic letters of recommendation.

Admission to the Graduate School: students possessing undergraduate degrees apply directly to the MSQF program. Admission for these students will be based on GMAT scores, two short essays, and two letters of reference, and undergraduate GPA.

Degree Requirements

The Master of Science in Quantitative Finance program is 30 semester hours at the 500- or 600-level as outlined below.

Foster College of Business Administration Courses:

FIN 633 Quantitative Methods in Finance.....	3
FIN 636 Fixed Income	3
FIN 637 Advanced Financial Derivatives	3
FIN 639 Uncertainty Analysis and Measurement	3
FIN 649 Quantitative Finance Capstone	3

Courses outside the Foster College of Business Administration:

MTH 510/CS 510 Numerical Methods I	3
MTH 511/CIS 511 Numerical Methods II	3
MTH 514 Partial Differential Equations	3
CS 514 Algorithms	3
CIS 588 Expert Systems	3

Completion of MS in Quantitative Finance undergraduate track or equivalent as outlined above.

Other Requirements

Applicants should review the Graduate School admission policies, special regulations, registration and fees, and degree regulations located in the front of this catalog.

Capstone Course

Students must complete FIN 649 Quantitative Finance Capstone, the capstone course, with a B or better to demonstrate their capacity to draw upon and integrate their knowledge from all courses in the program. In case a student earns a grade less than B, the candidate will be allowed to retake the course only once.

Comprehensive Exam

Each MSQF student must take a written comprehensive examination. This examination covers the graduate work that the student is presenting for the degree. The time, place, and nature of the examination are a part of FIN 649.

Course Descriptions

FIN 633 Quantitative Methods in Finance 3 hrs.

Emphasizes the mathematical structure of and methods for model solutions in asset and derivative pricing, capital budgeting and real options, financing and liquidity. Includes solutions of systems of equations, complementarity, and optimization. Applications of numerical analysis, integration and differentiation, functional and differential equation solutions. Prerequisites: consent of department chair.

FIN 636 Fixed Income 3 hrs .

Develops term structure models and options based on fixed-income securities. Standard lognormal models, short-term interest rate models, and more complex derivative models. Prerequisites: consent of department chair.

FIN 637 Derivatives II 3 hrs.

Advanced topics in derivative securities. Builds on introduction to derivatives and fixed income course. Develops numerical techniques used to implement pricing methodologies, term structure models, and options based on fixed income securities. Prerequisite: consent of department chair.

FIN 639 Uncertainty Analysis and Measurement 3 hrs

The nature and importance of modeling and measuring uncertainty; theoretical and computational approaches to modeling and measuring uncertainty; qualitative and quantitative uncertainty modeling and measurement; computational issues in uncertainty modeling and measurement; simulation, moment generating and characteristic probability functions. Prerequisite: Consent of department chair.

FIN 649 Quantitative Finance Capstone 3 hrs.

A capstone course that will develop topics of special interest which may vary each time the course is offered. Topic stated in current Schedule of Classes. A maximum of three credit hours of topics courses are allowed. Prerequisite: consent of department chair.

FIN 659 Topics in Quantitative Finance 3 hrs.

Topics of special interest which may vary each time the course is offered. Topic stated in current Schedule of Classes. Prerequisite: consent of department chair.

FIN 660 Readings in Quantitative Finance 1-3 hrs.

Individual readings for qualified students, under the guidance of a member of the faculty. Prerequisites: consent of instructor and director of the MBA program.

SLANE COLLEGE OF COMMUNICATIONS AND FINE ARTS

Jeffrey Huberman,
Dean

The mission of the Slane College of Communications and Fine Arts shall be the pursuit of excellence in providing distinctive programs and learning environments most conducive to the intellectual, aesthetic, and professional development of its students and faculty. The College also recognizes its centrality to the broader University as a participant in general education and to the larger community, nation, and world as a cultural and communications center.

In keeping with this mission, the College offers graduate degrees in the Department of Art, as well as courses in communication and multimedia.

A dedicated faculty of professional artist-teachers is committed to providing quality educational opportunities to students desiring post-baccalaureate study.

Art

Paul Krainak,
Chair, Department of Art

Fisher Stolz,
Graduate Advisor and Coordinator

The graduate degree program in art was established in 1948. The program is accredited by the National Association of Schools of Art and Design (NASAD).

Mission

The mission of the graduate art program is the professional development of individual studio and scholarly abilities, exemplified by a significant body of work. Students admitted to the program demonstrate the potential to solve contemporary problems in the visual arts and address new questions and issues.

Two levels of graduate degrees are offered: a Master of Art in Studio (M.A.) and a terminal graduate degree, Master of Fine Art (M.F.A.), which designates the highest level of academic achievement in studio art. The purpose of these degrees is to prepare students for professional practice in the field of studio art. Through participation in the program, students gain knowledge and insight into historical and contemporary ideas and studio theory and practice.

Admission Requirements

Applicants for graduate degrees in art shall demonstrate a special ability for growth and conceptual development in their area of concentration.

Following are requirements for admission to the program:

1. Official transcript confirming an undergraduate degree with a major in art or the equivalent, and a grade point average in accordance with the requirements of the Graduate School.
2. Portfolio of work (20 slides or the equivalent in electronic format for ceramics, drawing/illustration, interdisciplinary art studies, painting, printmaking, sculpture; visual communications and design).
3. Three letters of recommendation.

4. A statement of one's interests, abilities, and direction in the Fine Arts (250 words).
5. Personal interview with graduate or studio area coordinator (recommended).
6. Application deadlines are November 1 (for spring entrance) and March 1 (for fall entrance) to be assured full consideration.

In some cases, conditional acceptance is possible. Undergraduate study may be necessary where deficiencies exist. Students who already hold a Master of Arts degree in studio art may be admitted to the M.F.A. program. For details, consult the department chair.

Degree Requirements

General requirements:

1. Students are eligible to advance to candidacy with an oral and visual presentation to the graduate faculty after completion of 9 semester hours and before 18 hours. Graduate faculty will make a collaborative decision regarding the student's continuation in the program. Undergraduate study may be necessary where deficiencies exist.
2. Each student must participate in the biennial graduate exhibition.
3. A student may transfer from 6 to 12 semester hours of credit in the major concentration from another accredited institution if approved in advance by the graduate coordinator.
4. The following studio major concentrations are offered: ceramics, drawing/illustration, interdisciplinary art studies, painting, photography, printmaking, sculpture, and visual communications and design.
5. Each student is assigned a graduate committee consisting of a major professor in the field and two additional graduate faculty members. The student must work closely with the major graduate coordinator to plan his or her program of study.
6. Each full-time graduate student must take one seminar each semester until the requirement is completed. Twelve credits or four seminars are required.
7. A residency of 48 semester hours is required for the M.F.A. degree and 24 semester hours for the M.A. degree.
8. Students must pass a written comprehensive examination and oral presentation.
9. Documentation of the student's thesis exhibition and presentation shall be the responsibility of the student and will become the property of the University.

Course Requirements

Master of Fine Arts Degree with a Major in Studio Art

Studio (major concentration).....	30 hrs.
Graduate studio electives.....	9 hrs.
Graduate electives (may be University graduate courses, additional graduate studios, seminars, and/or written thesis)	6 hrs.
Seminars in art history.....	6 hrs.
Seminar in contemporary trends.....	6-12 hrs.
Thesis (exhibition)	3-6 hrs.
Total Hours Required	60 hrs.

Master of Arts Degree with a Major in Studio Art

Studio (major concentration).....	12 hrs.
Graduate studio electives.....	6 hrs.
Graduate electives (may be University graduate courses, additional graduate studios, seminars, and/or written thesis)	3 hrs.
Seminar in art history.....	3 hrs.
Seminar in contemporary trends.....	3 hrs.
Thesis (exhibition)	3-6 hrs.
Total Hours Required	30 hrs.

Course Descriptions

ART 500 Advanced Studio 3-6 hrs.

Advanced work in printmaking, drawing, photography, ceramics, sculpture, intermedia, or painting. Prerequisites: graduate standing or completion of corresponding senior level course.

ART 600 Photography Studio 3-30 hrs.

Development of advanced technical, aesthetic, and conceptual concerns through experimentation within the photographic media relating to appropriate historical and contemporary references. 3-6 hours per semester. Prerequisite: graduate standing.

ART 610 Drawing 3-6 hrs.

Analytical and conceptual evaluation of individual style and content emphasizing technical, creative, and digital competencies on a professional level. 3-6 hours per semester. Repeatable to a maximum of 30 hours.

ART 620 Printmaking Studio 3-30 hrs.

Technical and conceptual development with intaglio, relief, and planographic printing. Etching, engraving, wood, paper, and plastic relief printing, serigraphy and lithography. 3-6 hours per semester.

ART 630 Ceramics Studio 3-30 hrs.

Techniques and materials used in stoneware, earthenware, and porcelain. Emphasis on creative development and technical competence. 3-6 hours per semester.

ART 640 Sculpture Studio **3-30 hrs.**

Technical and conceptual information about wood and stone carving and construction, welding and metals fabrication, non-ferrous foundry practice, and plastics lamination, emphasizing individual development. 3-6 hours per semester.

ART 660 Interdisciplinary Art Studio **3-6 hrs.**

Advanced work in more than one area of concentration. May include two- or three-dimensional media; may incorporate installation work, performance, construction, and creative expression with interrelated forms of fine arts and design. 3-6 hours per semester. Repeatable to a maximum of 30 hours.

ART 670 Painting Studio **3-30 hrs.**

Advanced painting in the medium and direction of the student's choice. Emphasis on creative development and technical competence. 3-6 hours per semester.

ART 680 Special Problems **3-18 hrs.**

Problems in area of student's special interest, as advised by instructor. 3 hours per semester.

ART 690 Seminar **3-18 hrs.**

Research and presentation of art topics ranging from history to contemporary concerns of the artist, to interdisciplinary courses or courses consisting of an organized sequence of guest speakers. May be repeated under various topics for a maximum of 18 hours or 3 hours per semester.

ART 694 Visual Communications and Design Studio **3-6 hrs.**

Working within hypothetical environments and data, focuses on design development, problem-solving skills, visualization, and invention. Concept exploration emphasized while developing a personal creative vision and understanding of current graphic design practices and technology. Repeatable up to a maximum of 30 hours.

ART 695 Theory and Criticism **3-6 hrs.**

Research, discussion, and presentations on topics in fine arts and design, including contemporary trends, philosophies, literature, and history.

ART 696 Advanced Digital Design **3 hrs.**

Advanced work in applied software for web design, animation, rapid prototyping, interactive design, and experience design. Repeatable up to a total of 6 semester hours.

ART 697 Design Management **3 hrs.**

Development phases of real-world project execution, including research, problem definition, planning, cost and budget analysis, organization, and presentation of information for business, public institutions, government, and the entertainment industry.

ART 698 Design Research and Collaboration **3 hrs.**

A design problem that responds to social, economic, and environmental concerns created in consultation and collaboration with a corporation, institution, or government agency under the supervision of the faculty. Repeatable up to a maximum of 6 semester hours.

ART 699 Thesis Exhibition **3-6 hrs.**

At the beginning of the third semester, graduate students submit a proposal that defines their evolving thesis work. During the last semester of their final year, all graduate students present thesis exhibitions for review by the graduate faculty and other invited participants. A written thesis may supplement the exhibition at the discretion and interest of the student. Repeatable to a maximum of 6 hours.

Supportive Courses

CFA 500 Research Methods in Speech and Theatre Arts **3 hrs.**

Problems and principles in conducting original and creative research, investigation, and reporting in rhetoric and public address, theatre arts, and oral interpretation. Prerequisite: consent of appropriate chairperson.

CFA 604 Independent Study **1-3 hrs.**

Independent research or creative production problems not leading to a thesis. Repeatable to a maximum of 6 credit hours with permission of the graduate coordinator. Prerequisite: consent of appropriate chairperson.

Multimedia

MM 513 Educational Software Design **3 hrs.**

The design and construction of educational software that is based upon sound educational theory and best practice. Students will become proficient with appropriate multimedia instructional design software in developing their projects. Investigating and applying current theories of learning, instruction, and assessment. Cross-listed as ETE 513. Prerequisites: MM 113 or ETE 551; MM 213 or instructor approval.

COLLEGE OF EDUCATION AND HEALTH SCIENCES

Joan L. Sattler,
Dean

Lori Russell-Chapin,
Associate Dean and
Graduate Studies Coordinator

The College of Education and Health Sciences at Bradley University was founded in June 1985. The mission of the College is to prepare leaders within the human service professions. The college provides innovative programs through excellence in teaching, scholarship, and collaboration with interdisciplinary and community-based partnerships. This dynamic learning environment prepares our graduates to provide services in a diverse and global society to enhance human resources and to foster life-long learning. It includes graduate degree programs within the following departments:

1. Educational Leadership and Human Development, offering programs in leadership in educational administration, leadership in human service administration, and human development counseling. Chair: Christopher Rybak.
2. Teacher Education, offering programs in curriculum and instruction with concentrations in assessment, early childhood education, educational technology, gifted education, literacy and reading, middle school education, multidisciplinary education, science education, and special education. The department also offers a master's degree in curriculum and instruction with a LBS1 concentration, for teachers seeking to acquire initial special education certification. Reading Specialist endorsements are also available. Chair: D. Antonio Cantu.
3. Nursing, offering a Master of Science in Nursing (M.S.N.) in nursing administration, nurse administered anesthesia, and M.S.N-General and supportive courses in nursing. Chair: Francesca Armmer.
4. Physical Therapy and Health Science, offering a Doctorate of Physical Therapy (D.P.T.). Chair: Steve Tippett.

Although the Department of Family and Consumer Sciences does not offer a graduate degree program, graduate courses are available to fulfill cognate and elective purposes.

Master of Arts

The Master of Arts degree is conferred upon students who have completed a minimum of 33 graduate semester hours in curriculum and instruction or the learning behavior specialist I; 36 graduate semester hours in leadership in educational administration or leadership in human service administration; 51 graduate semester hours in human development counseling.

Before any application can be approved, the Miller Analogies Test (MAT) or the Graduate Record Exam (GRE) must be a part of the candidate's record. The GRE testing program changed significantly in 2002, and this change affected the graduate admissions requirements for the departments in the College of Education and Health Sciences. Questions about these requirements for admission should be directed to the respective department.

The candidate is urged to make necessary testing arrangements with the EHS secretary, 677-3181, for the MAT. The GRE is administered by the Educational Testing Service. Candidates can get more information on the GRE by visiting www.ets.org on the Internet. This will expedite the application process.

All applicants must complete the prescribed application forms of the College of Education and Health Sciences and Graduate School.

Three letters of reference must be obtained by the applicant from educational field employers or college/university professors who can recommend the applicant as having strong potential for success in graduate studies and in potential continued service to the education profession.

ELH 604 is strongly recommended as the first course taken by all degree candidates. The other core course that is mandated in all professional education and counseling programs within the College of Education and Health Sciences is ELH 605. It is recommended that the two required core courses be completed during the first 12 semester hours of the student's program.

Students should consult with their advisor for departmental program requirements.

The Education Reform Act requires that after July 1, 1988, all persons seeking early childhood, elementary, special, high school, school service personnel, or administrative

certificates in Illinois must pass both a test of basic skills and a test of subject-matter knowledge. Those persons covered include new graduates from teacher preparation programs, educators moving to Illinois from other states, and Illinois educators applying for additional certification.

Educational Administration, Human Development Counseling, Human Service Administration

Accredited by the Council for Accreditation of Counseling Related Educational Programs (CACREP).

Admission to the 51-semester-hour M.A. Human Development Counseling, Track I: School Counseling and Track II: Counseling in the Community and Other Agency Settings as well as the Educational Administration and Human Service Administration is based on a thorough review of each applicant's documents. Requirements include:

1. three professional and/or academic letters of references—at least one must be from a current supervisor
2. an undergraduate last-60-hour grade point average of 3.0 based on a 4.0 scale
3. completion of the Graduate Record Examination Aptitude Test (GRE) or the Miller Analogies Test (MAT) within five years prior to admission
4. evidence of a satisfactory screening interview

Applicants with deficiencies in requirements will be evaluated on an individual basis, contingent upon satisfactory completion of a screening interview.

Master of Science in Nursing

Accredited by National League for Nursing Accrediting Commission, 61 Broadway, New York, New York 10006, 800-669-1656 ext. 153 or (212) 363-5555 ext. 153, www.nlnac.org; and Council on Accreditation of Nurse Anesthesia Educational Programs, 222 S. Prospect Ave., Suite 304, Park Ridge, Illinois, 60068.

The purpose of the graduate program is to educate the professional nurse for advanced nursing practice in hospitals, community health settings, nursing homes, and other health-related agencies. The curriculum provides a foundation for doctoral study.

Nursing Administration

The 36-semester-hour curriculum has three components: core, research, and nursing administration.

Nurse Administered Anesthesia

The 48-semester-hour curriculum has three components: core, research, and nurse administered anesthesia.

Admission to the M.S.N. program with a major in Nursing Administration or Nurse Administered Anesthesia is based on a thorough review of each applicant's

documents. Requirements include:

1. B.S.N. from an NLNAC or CCNE accredited program.
2. licensed or license-eligible as a registered nurse in Illinois.
3. three letters of recommendation from individuals qualified to comment on the applicant's ability to successfully complete graduate study (employers, supervisors, and former instructional faculty members are suitable references).
4. an undergraduate last-60-hour grade point average of 3.0 based on a 4.0 scale and a 3.0 or higher cumulative grade point average in nursing courses based on a 4.0 scale.
5. completion of at least one year of work as a professional nurse; nurse administered anesthesia applicants must have worked at least one year in an adult critical care setting.
6. completion of a statistics course with a grade of "C" or better.
7. completion of a course in health assessment or its equivalent.
8. completion of an undergraduate nursing research course.
9. completion of undergraduate organic and inorganic chemistry courses (nurse administered anesthesia major applicants only).
10. completion of the Graduate Record Examination Aptitude Test (GRE) or Miller Analogies Test (MAT) within five years prior to admission.
 - a. for unconditional admission: a GRE combined score (verbal & quantitative) of 1000 or a minimum MAT score of 391.
 - b. for conditional admission: a GRE combined score (verbal & quantitative) of 850 or a minimum MAT score of 374.
11. completion of the Test of English as a Foreign Language (TOEFL) with a minimum score of 550 (foreign applicants only).
12. evidence of a satisfactory interview with a graduate faculty member in the relevant major; applicants for the nurse administered anesthesia major will also have an additional interview with anesthesia faculty members.

Applicants with deficiencies in the requirements will be evaluated on an individual basis.

A flexible entry option is available for graduates of non-BSN programs.

MSN—General

The MSN—General addresses the need of advance practice nurses who hold certificates/diplomas of advanced practice, but do not have a master's degree in nursing. Examples of these advance practice nurses include (but are not limited to) pediatric nurse practitioners, family nurse practitioners, or clinical nurse specialists. The MSN—General students will achieve a blend of theoretical, philosophical, and ethical components foundational to graduate-level education. Admission to the MSN—General program is based on a thorough review of each applicant's documents. Requirements include:

1. evidence of current APN certification
2. licensed or license-eligible as a registered nurse in Illinois
3. three letters of recommendation from individuals qualified to comment on the applicant's ability to successfully complete graduate study (employers, supervisors, and former instructional faculty members are suitable references)
4. completion of a statistics course with a grade of "C" or better*
5. completion of undergraduate nursing research course
6. completion of the Graduate Record Examination Aptitude Test (GRE) or Miller Analogies Test (MAT) within five years prior to admission
 - a. For unconditional admission: a GRE combined score (verbal and quantitative) of 1000 or an MAT minimum score of 391.
 - b. For conditional admission: a GRE combined score (verbal and quantitative) of 850 or an MAT minimum score of 374.
7. completion of the Test of English as a Foreign Language (TOEFL) with a minimum score of 550 (foreign applicants only)
8. an interview with a graduate faculty member

*May take as an elective

Educational Leadership and Human Development

Christopher Rybak,
Chair

Administration Programs

The Department of Educational Leadership and Human Development offers two administration programs leading to the Master of Arts degree: leadership in educational administration and leadership in human service administration. The programs develop qualities associated with leadership and informed decision making through coursework that engages students in "making the connections" that are fundamental to success as an administrator. Coursework focuses on establishing connections between theory and practice, and culminates in a supervised field experience.

Leadership in Educational Administration Master's Degree Program

Accredited by the National Council for the Accreditation of Teacher Education (NCATE) and the Educational Leadership Constituent Council (ELCC).

The Leadership in Educational Administration Program is a 36-hour program accredited by NCATE, approved by the Illinois State Board of Education, and satisfying requirements for a Type 75 certificate with the general administrative endorsement necessary for entry level school administrators. The ISBE certification requirements include a teaching certificate and two years of teaching experience.

Students in the Leadership in Educational Administration Program are required to complete a total of 250 field experience hours in a school setting. The first 50 hours are completed prior to enrolling in ELH 686 Field Experiences in Educational Administration, which is a capstone course. The first 50 hours include observation of a recognized social justice school leader, observation of special education meetings, and participation on the school improvement committee in a school. The remaining 200 hours are completed during ELH 686 and involve assuming a leadership role in two projects, assigned projects from each of the six Illinois Standards for School Leaders, and participation in four on-campus seminars.

In addition, the department offers a Type 75 certification program sequence for a person with a master's degree who wishes to obtain a Type 75 certificate with

the general administrative endorsement. The number of hours required will normally vary from 18 to 30, depending upon how the educational background of the student fulfills requirements of the college core and the other required courses. Upon receipt of an application, each student's transcript is evaluated and required courses established. Students applying for the Type 75 Certificate program are required to follow the same application procedures as degree-seeking students. With the exception of reduced coursework, Type 75 students have the same program requirements as students in the master's program, including dispositions review and the comprehensive portfolio and presentation.

For unconditional admission to the program, a student must have an undergraduate overall and cumulative major grade point average of 3.0 or higher on a 4.0 scale. Conditional admission requires an undergraduate overall cumulative grade point average of 2.75 or higher.

In addition to the GPA requirement, the screening process requires three letters of recommendation that address leadership, ethical behaviors, and professional competencies. One letter of recommendation must be written by a current supervisor. Students are required to write a two-page minimum essay addressing the essay questions required by the Graduate School, and also addressing the candidate's leadership experiences, qualifications, and ethical considerations of leadership.

Graduate Core	9 hrs.
ELH 604 Research Methodology & Applications.....	3 hrs.
ELH 605 Legal and Social Change	3 hrs.
ELH 606 Interpersonal Behavior and Organizational Leadership.....	3 hrs.
Departmental Required Courses	24 hrs.
ELH 611 Instructional Leadership.....	3 hrs.
ELH 662 Community Relations.....	2 hrs.
ELH 669 Special Education Law.....	1 hr.
ELH 670 Human Resource Management.....	3 hrs.
ELH 673 Leadership Perspectives	3 hrs.
ELH 676 The School Principalship	3 hrs.
ELH 677 Educational Finance	2 hrs.
ELH 678 United States Public School Law	3 hrs.
ELH 686 Field Experiences in Administration.....	4 hrs.
Suggested Electives	3 hrs.
ELH 510 Statistical Procedures	3 hrs.
ELH 550 Independent Study	3 hrs.
ELH 586 Counseling Diverse Populations.....	3 hrs.
ELH 612 Institutional Planning and Evaluation	3 hrs.
ELH 620 Human Development Counseling	3 hrs.
ELH 651 Community Counseling.....	3 hrs.
ELH 661 Couples and Family Counseling	3 hrs.
ELH 681 Seminar in Educational Administration	3 hrs.
ELH 699 Thesis	0-6 hrs.
Total Program Semester Hours	36 hrs.

Post-Master's Certification in Educational Administration

Post-Master's Certification in Educational Administration is designed for students who have a master's degree in education or an education-related field who wish to become certified school administrators in Illinois. Applicants who hold a master's degree in any field other than Educational Administration and who are seeking to earn the Type 75 certificate to be a school administrator in the State of Illinois are required to complete the equivalent of thirty (30) semester hours of graduate credit in a specified course of study in Educational Administration as prescribed by the State of Illinois. Bradley University has provided this opportunity for many years to students holding a master's degree in another area.

The Type 75 Certificate Program provides a service to the profession of educational administration and to Bradley University because it satisfies the current demand to train principals brought on by the high numbers of administrators retiring. In addition, students benefit by having the opportunity to fulfill the requirements for a Type 75 without taking on a new master's program. The Type 75 Certificate is an endorsement in Educational Administration and is required to be a principal or administrator (other than superintendent) in Illinois schools. The number of graduate hours needed varies depending upon the masters program completed by the student and typically ranges from 18-30 graduate hours. The Illinois State Board of Education requirements for an Illinois Type 75 Certificate include graduate coursework that is divided into four categories: instructional leadership, management of public schools, school and public policy, and clinical experience. In addition to a master's degree and specific graduate course work, candidates for the Illinois Type 75 Certificate are also required to have two years of full-time teaching experience or school service personnel experience and successful completion of the required State of Illinois certification examinations.

Curriculum

Students follow a course sequence similar to master's degree-seeking Educational Leadership students with the exception of coursework requirements already satisfied. Upon transcript evaluation of the previous masters degree in another area, students follow the same courses as master's level students.

ELH 605 Legal and Social Change	3 hrs.
ELH 606 Interpersonal Behavior and Organizational Leadership.....	3 hrs.
ELH 673 Leadership Perspectives.....	3 hrs.
ELH 676 The School Principalship	2 hrs.
ELH 686 Field Experiences in Administration.....	4 hrs.
ELH 611 Instructional Leadership.....	3 hrs.
ELH 662 Community Relations.....	2 hrs.

ELH 669 Special Education Law.....	1 hrs.
ELH 670 Human Resource Management.....	3 hrs.
ELH 677 Educational Finance.....	2 hrs.
ELH 678 United States Public School Law	3 hrs.

Application and Screening Interview Procedures for Post-Masters Certification (Type 75) in Educational Administration from the Department of Educational Leadership and Human Development (ELH)

1. Prospective candidates for certification must formally apply to the Post-Masters Certification in Educational Administration Certificate Program. Application materials for each candidate shall consist of:
 - Bradley Application for Graduate Admission
 - two essays
 - three letters of recommendation
 - copies of official transcripts from previous undergraduate and graduate work
 - application fee

Note: The requirement to take either the MAT or GRE is waived.

2. Upon receipt and review of admission materials by Bradley Educational Administration (EDA) Faculty, all applicants are considered by EDA faculty for consensus admittance into the Type 75 Certificate program. Upon faculty consensus for admission, applicants will be notified of their acceptance by letter. If there is no consensus for acceptance, applicants will be sent a letter outlining faculty concerns and requiring the applicant to interview with EDA faculty to address identified concerns. Following the screening interview, applicants will be notified by letter of the final disposition of their application.
3. Upon successful application and screening, applicants must complete a plan of study based upon a transcript review and then complete identified deficit coursework and experience.
4. In all cases, submission of materials does not guarantee acceptance into any program offered by the Department of ELH, nor does such submission guarantee interim certification approval and signature by appropriate College officers.

Policy for Dated Coursework

All graduate coursework must have been completed within five (5) years of the date on the application for the certificate program. Applicants with degrees and/or coursework older than five (5) years must submit evidence of appropriate continuing education and/or training in education or a related field. Eligibility for post-masters certification using these criteria will be decided on a case-by-case basis by Bradley Educational Leadership faculty. Submission of these materials does not guarantee admit-

tance into the post-masters Educational Administration Type 75 Certification program.

Transfer Credits

Post graduate students seeking the Type 75 Certification only may transfer up to twelve (12) semester hours towards school administrator certification. Post graduate students seeking the Type 75 Certification must complete a minimum of 18 specific graduate credit hours in the post-master's Type 75 Certification program offered at Bradley University by the ELH Department. Determination of the total number of hours needed to secure the Type 75 Certification will be determined by EDA Faculty based upon the official transcripts submitted by the post graduate student.

In determining the final disposition of the transferable graduate credits, EDA Faculty reserve the right to require the post graduate student to submit course syllabi and course descriptions from the college catalog in place when the first graduate degree was awarded. Department of ELH faculty will evaluate these materials to determine equivalency with the Bradley University Department of ELH Educational Administration Program, in addition to applicable ISBE requirements.

Retention Procedures for Certification-Only Students

Certification-only students are held to the same retention criteria and procedures as degree-seeking students. Students must complete a plan of study with an advisor, which must be approved by the advisor and ELH Department chair.

In all cases, submission of materials does not guarantee acceptance into any program offered by the Department of ELH.

Financial Eligibility

Students accepted unconditionally into the Type 75 Certificate program in the Department of Educational Leadership and Human Development shall be eligible for the Educators Scholarship offered through and administered by the Graduate School.

National Board Certified Teachers Fast Track Type 75 Certification

The Illinois General Assembly passed legislation in 2007 that provides an alternative route to administrative certification for National Board Certified Teachers. Teachers who hold National Board certification are eligible for an administrative Type 75 certificate after completing the following four phases:

- National Board certification and an endorsement in teacher leadership
- A master's degree in a teacher leader program

- Fifteen hours of coursework in which the candidate must show evidence of meeting competencies for organizational management and development, finance, supervision and evaluation, policy and legal issues, and leadership as stated in the Illinois Professional School Leader Standards for principals
- A passing score on the Illinois Administrative Assessment.

Curriculum

Qualified individuals take the following courses:

ELH 669 Special Education Law.....	1
ELH 670 Human Resource Management.....	3
ELH 673 Leadership Perspectives.....	3
ELH 676 The School Principalship.....	3
ELH 677 Educational Finance.....	2
ELH 678 U. S. Public School Law.....	3

15

The legislation does not require an internship. No additional coursework would be required.

Leadership in Human Service Administration Master's Degree Program

The leadership in human service administration program requires 36 hours and is intended for persons seeking administrative positions in human service agencies. The fundamental goal of the Department of Educational Leadership and Human Development is to provide its students with quality professional programs and an environment that will aid them in preparing for leadership roles in human service professions. The courses in this program provide a human development foundation and integrate a human relations orientation with conceptual and technical skills required for effective administration in a variety of human service organizations.

For unconditional admission to the program, a student must have an undergraduate last-60-hour grade point average of 3.0 on a 4.0 scale. Conditional admission requires an undergraduate overall cumulative grade point average of 2.75 or higher.

In addition to the GPA requirement, the screening process requires three letters of recommendation that address leadership, ethical behaviors, and professional competencies. One letter of recommendation must be written by a current supervisor.

College Core Required Courses9 hrs.

ELH 604 Research Methodology & Applications.....	3 hrs.
ELH 605 Legal and Social Change.....	3 hrs.
ELH 606 Interpersonal Behavior and Organizational Leadership.....	3 hrs.

Departmental Required Courses..... 18 hrs.

ELH 580 Financial Leadership in Human Service Administration.....	3 hrs.
ELH 583 Supervision and Employee Engagement in Human Service Administration.....	3 hrs.
ELH 610 Survey in Human Service Administration.....	3 hrs.
ELH 612 Institutional Planning & Evaluation.....	3 hrs.
ELH 673 Leadership Perspectives.....	3 hrs.
ELH 686 Field Experience in Administration.....	3-6 hrs.

Elective Courses..... 9 hours

ELH 540 Human Growth and Development.....	3 hrs.
ELH 550 Independent Study.....	1-6 hrs.
ELH 551 Substance Abuse Counseling.....	3 hrs.
ELH 581 Topics in Human Service Administration ..	1-3 hrs.
ELH 582 Grant Writing in Human Service Administration.....	2 hrs.
ELH 586 Counseling Diverse Populations.....	3 hrs.
ELH 620 Human Development Counseling.....	3 hrs.
ELH 641 Appraisal of the Individual.....	3 hrs.
ELH 651 Community Counseling.....	3 hrs.
ELH 662 Community Relations.....	2 hrs.
ELH 681 Seminar in Educational Administration.....	1-6 hrs.
ELH 682 Seminar in Human Service Administration ..	2 hrs.
ELH 699 Thesis.....	0-6 hrs.
MLS 633 Issues in Higher Education.....	3 hrs.

Human Development Counseling

Accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP) and the National Council for the Accreditation of Teacher Education (NCATE).

The human development counseling program is designed to prepare students for positions as counselors in a variety of settings. The counselor education faculty believes that the work of the professional counselor is to promote the positive growth and development of the clients with whom the counselor interacts.

The human development counseling model for preparing counselors recognizes the profound interactive effect of people and human systems. We believe there is a need for social science translators—people who are in touch with the best in theory and research—who can translate this knowledge into effective programs, and who can evaluate these programs. Because we believe that counselors should experience personal growth and development as persons and as professionals, all courses are designed to provide both cognitive and experiential learning.

The program utilizes a Screening and Retention Policy to assist in determining the suitability of an individual for a career in counseling, as well as to monitor progress through the program. A detailed description of the Screening and Retention Policy and procedures is available in the Human Development Counseling Handbook. Continuance

in the program is reviewed if at any time a student fails to demonstrate appropriate professional behaviors; or other circumstances occur which would make an HDC degree candidate uncertifiable as a professional counselor.

Areas of specialization are offered in community and agency counseling and school counseling (NCATE accredited and ISBE approved). The program prepares the student to sit for the exam for certification as a National Certified Counselor or for Illinois Type 73 certification in school guidance and personnel services. Both areas are CACREP accredited. In addition, courses of continuing professional education are offered to practicing counselors who wish to increase competencies to meet emerging needs of the profession.

Program of Study

The program in human development counseling requires 51 semester hours of graduate work at the master's level for completion. The program consists of a graduate core of nine semester hours and a program core of 30 semester hours of study required of all candidates. In addition, students take an additional 12 semester hours of specialty area course work that may, in concert with the internship and practicum work required in the core program, permit them to develop a specialty area consistent with plans for future employment. Areas of study include, but are not limited to, school counseling and community and agency counseling. All students should consult with their advisor to determine specific courses that will meet their professional goals.

Graduate Core9 hrs.

ELH 604 Research Methodology & Applications.....3 hrs.
 ELH 605 Legal and Social Change3 hrs.
 ELH 606 Interpersonal Behavior and Org. Leadership .3 hrs.

Program Core 30 hrs.

ELH 540 Human Growth and Development.....3 hrs.
 ELH 586 Counseling Diverse Populations.....3 hrs.
 ELH 620 Human Development Counseling3 hrs.
 ELH 621 Career & Life Planning Across Life Span.....3 hrs.
 ELH 623 Pre-Practicum in Counseling3 hrs.
 ELH 624 Theories and Techniques of Counseling3 hrs.
 ELH 625 Principles of Group Counseling3 hrs.
 ELH 641 Appraisal of the Individual.....3 hrs.
 ELH 690 Practicum (appropriate to specialty)1 hr.
 ELH 691 Internship I (appropriate to specialty).....1-2 hrs.
 ELH 692 Internship II (appropriate to specialty).....1-6 hrs.

Specialty Area 12 hrs.

Students should use the remainder of the program to structure course work around a special area of interest from among those possibilities listed below. These specialties should be consistent with and support activities in the student's proposed internship placement. Other areas unique to a student's interests may be designed in consultation with members of the department.

I. School Counseling 12 hrs.

Intended to prepare students for positions as guidance specialists or student personnel workers in elementary and/or secondary schools. Degree requirements satisfy ISBE guidelines for certification as a school counselor.

Required9 hrs.

ELH 551 Substance Abuse Counseling3 hrs.
 ELH 652 Professional School Counseling.....3 hrs.
 ELH 654 Consultation in the Helping Professions3 hrs.

Electives3 hrs.

II. Community & Agency Counseling 12 hrs.

Intended for students working or planning to work as clinical mental health counselors in community mental health centers, human service agencies, and not-for-profit community support programs, and for those interested in providing counseling services to employees and their families within the context of business or industrial settings.

Required9 hrs.

ELH 651 Community Counseling.....3 hrs.
 ELH 661 Couples & Family Counseling3 hrs.
 ELH 663 Counseling and Dynamics of Aging.....3 hrs.

Electives3 hrs.

School Counseling Program

The Masters Degree in School Counseling Program at Bradley University meets the Illinois Standards for the School Service Personnel Certificate (23.11, 2nd edition 2002). In response to school counseling certification rule changes (Section 25.225 of the 23 Illinois Administrative code) approved by the Illinois State Board of Education on June 1, 2004, the Bradley University School Counseling Program in the Department of Educational Leadership and Human Development has established the following courses of study for degree-seeking and post-master's certification-only students in the School Counseling Program. In all cases, submission of materials does not guarantee acceptance into any program offered by the Department of ELH.

Degree-seeking students who have Illinois teacher certification

Degree-seeking students enrolled in the master's degree in School Counseling Program who hold or are qualified to hold a teacher certificate in Illinois must meet ELH Department master's degree requirements while completing 51 hours of graduate study as follows:

Graduate Core Credits

ELH 604 Research Methodology & Applications.....3 hrs.
 ELH 605 Legal and Social Change3 hrs.
 ELH 606 Interpersonal Behavior and Organizational Leadership3 hrs.

Program Core

ELH 540 Human Growth & Development.....	3 hrs.
ELH 586 Counseling Diverse Populations.....	3 hrs.
ELH 620 Human Development Counseling.....	3 hrs.
ELH 621 Career Development Across Lifespan.....	3 hrs.
ELH 623 Pre-Practicum in Counseling	3 hrs.
ELH 624 Theories & Techniques of Counseling.....	3 hrs.
ELH 625 Principles of Group Counseling	3 hrs.
ELH 641 Appraisal of the Individual.....	3 hrs.
ELH 690 Practicum in School Counseling.....	1 hr.
ELH 691 Internship in School Counseling I	1-2 hrs.
ELH 692 Internship in School Counseling II.....	1-6 hrs.

School Counseling

ELH 551 Substance Abuse Counseling.....	3 hrs.
ELH 652 Professional School Counseling.....	3 hrs.
ELH 654 Consultation.....	3 hrs.
Electives	3 hrs.

Total 51 hrs.

Degree-seeking students who do not have Illinois teacher certification

Degree-seeking students enrolled in the masters degree in School Counseling Program who are not certified teachers in Illinois also must meet ELH Department master's degree requirements while completing 51 hours of graduate study. The program of study is the same as listed for students holding teacher certification, with the exception that, in lieu of electives, students must take or have taken course work addressing additional ISBE (section 25.225.d.2.A-D) requirements in four areas. These areas and the ELH courses addressing them are:

- the structure, organization and operation of the educational system with an emphasis on P-12 schools; ELH 584-02 Understanding Schools: A Primer for Non-Teachers (2 credit hours) and ELH 652 Professional School Counseling (3 credit hours)
- the growth and development of children and youth and their implications for counseling in schools; ELH 540 Human Growth & Development and ELH 652 Professional School Counseling
- the diversity of Illinois students and the laws and programs that have been designed to meet their unique needs; ELH 669 Special Education Law (1 credit hour)
- effective management of the classroom and the learning process; ELH 584-02 Understanding Schools: A Primer for Non-Teachers (2 credit hours), ELH 652 Professional School Counseling, and ELH 690, 691, 692 Practicum and Internship

In cases where the above four areas are addressed through graduate coursework taken elsewhere, the student may transfer up to 6 credit hours to meet ISBE requirements.

Post-Masters Certification-Only

Post-master's certification in school counseling refers to students who have a master's degree in counseling or a related field who wish to become certified school counselors in Illinois. Applicants who hold a master's degree in any related field other than school counseling (e.g., other counseling specialty, social work, or psychology) are required to complete the equivalent of all requirements of an approved school counseling preparation program. Pursuant to Section 25.225.h, the Department of ELH will review the applicant's educational background to determine any deficits as identified by standards set forth at 23 IL Adm. Code 23.110 or other applicable requirements of section 25.225.

Application and Screening Interview Procedures for Post-Masters Certification in School Counseling for master's graduates of the Department of Educational Leadership and Human Development (ELH) Human Development Counseling (HDC) Program

1. Prospective candidates for certification must formally apply to the Post-Masters Certification (PMC) in School Counseling Program. Application materials for each candidate shall consist of:
 - Bradley Application for Graduate Admission
 - Two Letters of recommendation
 - Copies of all official transcripts including master's degree
 - Deficit course work and experience list as identified in a transcript review using Dept. of ELH School Counseling course requirements and 23 IL Adm. Code 23.110 and 25.225
2. Upon receipt of admission materials all applicants are presented to HDC faculty for consensus admittance into the PMC program. Upon faculty consensus for admission, applicants will be notified of their acceptance by letter. If there is no consensus for acceptance, applicants will be sent a letter outlining faculty concerns and requiring the applicant to interview with HDC faculty to address identified concerns. Follow the screening interview applicants will be notified by letter of final disposition of their application.
3. Upon successful application and screening, applicants must complete a plan of study based upon a transcript review and identified deficit coursework and experience.
4. In all cases, submission of materials does not guarantee acceptance into any program offered by the Department of ELH, nor does such submission guarantee interim certification approval and signature by appropriate College officers.

Application and Screening Interview Procedures for Post-Masters Certification in School Counseling for masters graduates (non-school) from other CACREP accredited programs

1. Prospective candidates for certification must formally apply to the Post-Masters Certification (PMC) in School Counseling Program. Application materials for each candidate shall consist of:
 - a. formal application to the Certification Program, including Bradley Application for Graduate Admission and all standard graduate application forms from the Graduate School.
 - b. two letters of recommendation
 - c. official copies of transcripts
 - d. copies of course syllabi and/or course catalogue descriptions as determined by HDC faculty
 - e. successful completion of ELH 652 Professional School Counseling and deficit course work as identified in a transcript review using Dept. of ELH School Counseling course requirements and 23 IL Adm. Code 23.110 and 25.225
2. Students in this category may be asked to submit a videotape of counseling skills as part of their admission packet.
3. Upon receipt of admission materials all applicants are required to complete a screening interview. The screening interview shall be the same as the interview currently required for applicants to the Department of ELH Masters in HDC programs. Follow the screening interview applicants will be notified by letter of final disposition of their application.
4. Upon successful application and screening, applicants must complete a plan of study based upon a transcript review and identified deficit coursework and experience.
5. In all cases, submission of materials does not guarantee acceptance into any program offered by the Department of ELH, nor does such submission guarantee interim certification approval and signature by appropriate college officers.

Application and Screening Interview Procedures for Post-Masters Certification in School Counseling for master's graduates (non-school) from non-CACREP accredited programs or post-master's graduates in related fields, e.g., social work or psychology

1. Prospective candidates for certification must formally apply to the Post-Masters Certification (PMC) in School Counseling Program. Application materials for each candidate shall consist of:
 - a. formal application to the Certification Program, including Bradley Application for Graduate Ad-

mission and all standard graduate application forms from the Graduate School.

- b. two Letters of recommendation
 - c. Bradley-equivalent GRE/MAT, GPA
 - d. successful completion of ELH 652 Professional School Counseling and deficit course work as identified in a transcript review using Dept. of ELH School Counseling course requirements and 23 IL Adm. Code 23.110 and 25.225
2. Students in this category may be asked to submit a videotape of counseling skills as part of their admission packet.
 3. Upon receipt of admission materials all applicants are required to complete a screening interview. The screening interview shall be the same as the interview currently required for applicants to the Department of ELH Masters in HDC programs. Follow the screening interview applicants will be notified by letter of final disposition of their application.
 4. Upon successful application and screening, applicants must complete a plan of study based upon a transcript review and identified deficit coursework and experience.
 5. In all cases, submission of materials does not guarantee acceptance into any program offered by the Department of ELH, nor does such submission guarantee interim certification approval and signature by appropriate College officers.

Transcript Evaluation to Pursue Counseling Certification

Certification Only in Counseling. Individuals wishing to pursue state counseling certification in Illinois will pay a transcript analysis and assessment fee of \$50. If the student enrolls as a graduate student in either Bradley University's Counseling graduate degree program or as a certification only student, this fee will be applied towards tuition. For further information please contact the Chair of the Department of Educational Leadership and Human Development.

Policy for Dated Coursework

All graduate coursework must have been completed within 10 years of application to the certification program. Applicants with degrees and/or coursework older than 10 years must submit evidence of successful continuous employment experience in the counseling field, continuing education and/or training, and relevant counseling or counseling-related licensure and certifications. Eligibility for post-master's certification using these criteria will be decided on an individual-case basis. Submission of these materials does not guarantee admittance into the post-master's school counseling certification program.

Interim Certification as School Counselor Intern and Employment

Upon successful application and screening, certification-only applicants may submit an ISBE Application for Interim Certification as School Counselor Intern for approval by the School Counseling Program Coordinator and signature by the college entitlement officer. The Department of ELH and the PMC program are not responsible for any employment as an Interim School Counselor Intern that applicants may seek. The ELH Department neither implies nor guarantees that enrollment in the PMC program will occur in such a way as to coincide with applicant's plans to seek or obtain employment via Interim Certification as a School Counselor Intern.

Transfer Credits

Certification-only students may transfer up to 6 semester hours towards school counselor certification. Certification only students must take a minimum of 12 credit hours in the post-master's certification program. In addition, post-master's applicants from non-CACREP programs or related fields must submit official transcripts and may be required to submit course syllabi and course descriptions from the college catalogue in place when the degree was awarded. Department of ELH faculty will evaluate these materials to determine equivalency with the Bradley University Dept. of ELH School Counseling Program, in addition to applicable ISBE requirements.

Retention Procedures for Certification-Only Students

Certification-only students are held to the same retention criteria and procedures as degree-seeking students. Students must complete a plan of study with an advisor, which must be approved by the advisor and ELH Department chair.

In all cases, submission of materials does not guarantee acceptance into any program offered by the Department of ELH.

Course Descriptions

ELH 510 Statistical Procedures 3 hrs.
Principles and procedures for statistical interpretation of data. Study of measures of central tendency, variability, correlation, and introductory predictive and inferential statistics.

ELH 540 Human Growth and Development 3 hrs.
Cognitive and experiential learning in human growth and development. Cognitive learning through reading and research into developmental patterns of humans through the various developmental stages: birth; infancy; early childhood; primary, middle, and high school years; adulthood; geriatrics. Experiential activities emphasize personal contact and on-site work with people of different ages and stages of physical and psychological development. (Area c)

ELH 550 Independent Study
Master's Level 1-6 hrs;
Post Master's 1-9 hrs.

Independent study in a selected area related to educational goals. Prerequisites: approval of appropriate department chair and the dean of the College of Education and Health Sciences.

ELH 551 Substance Abuse Counseling 3 hrs.
Basic counseling interventions for prevention, remediation, and treatment of substance abuse.

ELH 580 Financial Leadership in Human Service Administration 3 hrs.
Provides students with a comprehensive overview of financial management related to human service organizations. Topics include various budgeting systems and other financial management tools; service costing and the linking of costs to performance measures; fee setting; and government contracting.

ELH 581 Topics in Human Service Administration 1-3 hrs.
Topics of special interest which may vary each time course is offered. Topic stated in current *Schedule of Classes*. May be repeated under different topics for a maximum of six hours credit.

ELH 582 Grant Writing in Human Service Administration 2 hrs.
This course is designed to provide an introduction to grant writing and methods for writing grant proposals. Students will learn to critique, research, and write grant proposals. Emphasis will be placed upon organization of a grant writing campaign and preparation of a complete proposal package.

ELH 583 Supervision and Employee Engagement in Human Service Administration 3 hrs.
Focuses on the recruitment, selection, and engagement of employees within the context of mission in human service organizations.

ELH 584 Topics in Human Development Counseling 1-6 hrs.
Topics of special interest which may vary each time course is offered. Topic stated in current *Schedule of Classes*. May be repeated under different topics for a maximum of six hours credit.

ELH 586 Counseling Diverse Populations 3 hrs.
Value systems in diverse groups; the use of philosophies and models of diversity in establishing an effective, helping relationship.

ELH 604 Research Methodology and Applications

3 hrs.

Focus on quantitative and qualitative methods of research utilized in the areas of education and social science. Examination of sources of information for research, various designs, basic statistics, interviewing strategies, and observational techniques. Students will learn to critique and write research proposals in their areas of study. Prerequisite: graduate standing.

ELH 605 Legal and Social Change

3 hrs.

Analysis of the effects of legal and social change on lives of young people and on the work of educators and other helping professionals; focus on selected issues of legal and social change with diverse populations. Prerequisite: graduate standing.

ELH 606 Interpersonal Behavior and Organizational Leadership

3 hrs.

Skills related to interpersonal communication, organizational behavior, and leadership values clarification with diverse populations. Extensive opportunities for practicing and evaluating personal communication skills. Prerequisite: graduate standing.

ELH 610 Survey In Human Service Administration

3 hrs.

An introduction to the roles and responsibilities of administrators in human service organizations. Trends in human service delivery, including organizational leadership and culture, human resource management, financial management, strategic planning, working with boards, marketing and public relations, social service partnership and collaboration.

ELH 611 Instructional Leadership

3 hrs.

Problem solving approach to general curriculum development from an administrative perspective, focusing on basic curriculum decisions, processes of change associated with curriculum planning, and contemporary issues and trends at state and national levels.

ELH 612 Institutional Planning and Evaluation

3 hrs.

Identification, analysis, and application of techniques and tools of institutional planning and evaluation. Program, personnel, financial, facility, and institutional planning. Prerequisite: ELH 610.

ELH 620 Human Development Counseling

3 hrs.

Counseling as the promotion of human development. Historical development of the counseling field; survey of relevant skills, client populations, and settings; review of standards for ethical and professional practice in counseling.

ELH 621 Career & Life Planning Across the Life Span

3 hrs.

Basic counseling skills for career planning, exploration, and decision-making. Vocational guidance and career development of elementary and high school students; roles of women entering the work force; physically handi-

capped workers; inner city youth; adult workers making vocational changes in middle life; older workers preparing for retirement. Practical experience in interviewing, vocational assessment, career information gathering and distribution; labor market research. (Area e)

ELH 623 Pre-Practicum in Counseling

3 hrs.

Instruction, demonstration, practice, and evaluation in basic interviewing and response skills. Emphasis on practice and skill development. (Area d) Prerequisite: ELH 620 or concurrent enrollment.

ELH 624 Theories and Techniques of Counseling

3 hrs.

Study and evaluation of major theories of counseling toward developing a working theory of counseling and understanding of dynamics of human behavior. (Area d) Prerequisite: ELH 620 or concurrent enrollment; consent of instructor.

ELH 625 Principles of Group Counseling

3 hrs.

Group theory and dynamics as applied in group counseling. Group practices, methods, procedures, and group leader facilitation skills. Supervised practice and experience in group counseling as leader and participant. Prerequisites: ELH 624; consent of instructor.

ELH 641 Appraisal of the Individual

3 hrs.

Development of a framework for understanding the individual. Methods of data gathering and interpretation, individual and group testing, case study approaches, and study of individual differences—ethnic, cultural, and sex factors. (Area b)

ELH 651 Community Counseling

3 hrs.

How communities and community agencies can work to promote human development. Role of the counselor as a change agent and client advocate within the network of community agencies. Prerequisite: ELH 620 or consent of instructor.

ELH 652 Professional School Counseling

3 hrs.

Elementary and secondary school counseling programs; cognitive and experiential skills. History and development of school counseling; elementary and secondary school counseling programs (similarities and differences); group and individual counseling; the counselor's role in school testing; career planning and exploration. Practical experiences. (Area d) Prerequisite: ELH 620 or consent of instructor.

ELH 654 Consultation in the Helping Professions

3 hrs.

A conceptual understanding of effective consultation and its relevance to the helping professional. Demonstration of knowledge and skills necessary to deliver effective consultative services within the client setting. Prerequisites: ELH 620; consent of instructor.

ELH 661 Couples and Family Counseling 3 hrs.
Theories and techniques of couples and family counseling. Emphasis is on working with couples, families, and children to promote human development, including the role of the family counselor within the network of school and community agencies. Prerequisite: ELH 651 or 652.

ELH 662 Community Relations 2 hrs.
Developing effective community relations through a four-step process involving two-way communication and researching, planning, communicating, and evaluating.

ELH 663 Counseling and the Dynamics of Aging 3 hrs.
The mental health dynamics of aging and its impact on the human service professions. Practical skills of gerontological counseling and their relationship to the concerns of aging.

ELH 669 Special Education Law 1 hr.
Statutory provisions of IDEA, Section 504, and ADA. Special education process including classification, identification and evaluation, related services, least restrictive environment, and due process proceedings.

ELH 670 Human Resource Management 3 hrs.
Survey of the major approaches to supervision and evaluation in K-12 education; examination of the relationship between evaluation practices, professional development, and the improvement of instruction; and exercises to develop skills of classroom observation and conferencing.

ELH 673 Leadership Perspectives 3 hrs.
Concepts of leadership, organizational theory, and decision making presented from multiple perspectives; focus on the practice of educational and human service administration. Prerequisite: ELH 606 or consent of instructor.

ELH 676 The School Principalship 3 hrs.
Various components, background, and training for an entry-level elementary or secondary school principal. Prerequisite: ELH 673 or consent of instructor.

ELH 677 Educational Finance 2 hrs.
Theory and practice; historical and present sources of revenue and allocation of funds.

ELH 678 United States Public School Law 3 hrs.
Legal aspects of education. Constitutional, statute, and administrative laws related to public and private education.

ELH 681 Seminar in Educational Administration 1-6 hrs.
Special problems, areas, or current issues in student's chosen field within educational administration/supervision. Maximum of three hours may be taken under a single topic.

ELH 682 Seminar in Human Service Administration 1-6 hrs.
Special problems, area, or current issues in human service administration.

ELH 684 Seminar in Professional Counseling 2-6 hrs.
Seminar for students specializing in counseling who desire to concentrate on special problems or areas. A variable credit course that may be taken more than once to a maximum of 6 credits.

ELH 686 Field Experiences in Administration 3-6 hrs.
A culminating experience to give the student the opportunity to work with a practicing administrator in the application of theoretical knowledge from previous coursework to administrative tasks. Accompanying seminars focus on selected topics associated with leadership and administration. Requires 150 hours of supervised activity for three hours of credit. Prerequisite: consent of instructor.

ELH 690 Practicum 1 hr.
An important part of the clinical education for a student majoring in human development counseling is the opportunity to practice counseling skills and integrate these with the theories studied in the classroom. Practicum provides the student with this opportunity. Prerequisites: ELH 625; consent of instructor.

ELH 691 Internship I 1-2 hrs.
Supervised post-practicum work experience appropriate to student's career goals. A variable credit course that may be repeated to a maximum of two hours credit. Prerequisite: ELH 690; consent of instructor.

ELH 692 Internship II 1-6 hrs.
Supervised post-practicum work experience appropriate to student's career goals. A variable credit course that may be repeated to a maximum of six hours credit. Prerequisite: ELH 690; consent of instructor.

ELH 699 Thesis 0-6 hrs.
Advanced educational or social science research under the guidance of a departmental faculty member. Student will design, develop, and present the research proposal, then conduct the approved research study consistent with the Committee for Use of Human Subjects in Research (CUHSR) regulations and university ethical guidelines. Minimum of 3.0 and maximum of 6.0 hours may be taken and applied toward Master's degree.

Annual Institutional Title II Report Card: 2006-2007

Teacher Education Mission

The mission of Teacher Education at Bradley University is to prepare teachers who will be effective leaders, advocates, and life-long learners. We believe that teaching and learning are dynamic, interactive, life-long processes based on empowering interactions among learners.

Teacher Preparation Programs:

Bradley University offers 18 baccalaureate programs leading to state teacher certification and one graduate-level certification programs in Educational Administration, Special Education, and School Counseling.

Student Characteristics:

Most undergraduates (93.6 percent) are of traditional college age, 94 percent attend full-time, and 87 percent are Illinois residents. Eleven percent of all students are minority students. The average ACT score for fall 2006 freshmen was 25. Undergraduate enrollment is 5315. Graduate enrollment is 812. Total enrollment is 6127.

Admissions Requirements:

Candidates must have earned a minimum grade point average of 2.5 overall, 2.5 in education courses, and a 2.5 in their content major or concentration. Candidates must have earned grades of not less than a C in COM 103, ENG 101, and a mathematics course that meets university general education requirements. They must have completed a prescribed group of education courses for each major with the appropriate GPA and no Ds, passed the Illinois Certification Test of Basic Skills, demonstrated appropriate pre-professional behaviors and dispositions, been cleared on a check of criminal history, and received a satisfactory vote of the faculty.

Admission to Student Teaching: Candidates must have maintained a minimum grade point average of 2.5 overall, 2.5 in education courses, and a 2.5 in their content major or concentration. They must have been advanced to candidacy, passed the Illinois Certification Test in their content area, been cleared on a State Police fingerprint check, and have a negative result on a current TB test.

Best Practices:

- Practicum experiences in the schools begin the freshman year and continue each year of the program, increasing in responsibility.
- Each candidate will have clinical experiences in the full range of his or her certification and in a diverse setting.
- The University has Professional Development School partners at each level from early childhood through high school.

Notable Features and Accomplishments:

- Placement of graduates was 96 percent for this year.
- Bradley University's education programs were recognized in a June 2007 publication, "Preparing STEM Teachers: The key to global competitiveness" produced by the American Association of Colleges for Teacher Education.
- In four of the last nine years a student teacher has been named one of 10 "PDK Outstanding Student Teachers" in the nation.
- Two teacher education professors have received the NBPTS (National Board for Professional Teaching Standards) certificate.
- The College and the local schools have a PDS partnership that provides unique opportunities for students and faculty.
- Opportunities exist for students to student teach in Department of Defense Schools in England.
- The College is a fourteen-year recipient of a William T. Kemper Grant which supports a partnership between Bradley University's College of Education and Health Sciences and four selected public school sites to foster collaborative leadership and support teaching excellence.
- Science Education at Bradley has received awards from Bradley for Excellence, National Science Foundation, the Annie E. Casey Foundation, and other external grants for STEM programming.
- Bradley University is one of three institutions of higher education in Illinois to be selected to participate in a Library of Congress national project, focusing on developing interactive learning and teaching resources for P-16 classrooms.
- The Department of Education was funded for a third year from the Casey Foundation in the amount of \$75,000. The funded project, "Building Excellent Scientists for Tomorrow," is a collaboration between the sciences and teacher education.
- Ms. Timeka Cooley, a 2006 alumna in Elementary Education, received the Spirit of Youth Award as a first-year teacher at Kipp Ascend Charter School, North Lawndale District. Ms. Cooley was recognized for her work in improving mathematics learning by urban students.
- Ms. Angelina Muskin, a 1988 alumna in the History Teacher Program, was named "Georgia Teacher of Merit for the Year for National History Day" by the Georgia Humanities Council. Ms. Muskin is a history teacher and the department chairperson for social studies at Grove High School in Savannah.

Program Profile:

Total number of students admitted into teacher preparation, all specializations, in academic year 2006-2007	678
Number of candidates in supervised student teaching in academic year 2006-2007	175
Number of faculty members who supervised student teachers:	
• Full-time faculty in professional education	3
• Part-time faculty in professional education but full-time in the institution	1
• Part-time faculty in professional education, not otherwise employed by the institution	14
Total faculty student teaching supervisors	18
Student teacher/faculty ratio	9.72:1
The average number of student teaching hours per week	35
The total number of weeks of supervised student teaching required	14.43 avg.
Average total number of hours required	505

Illinois Certification Testing System Annual Institution Report 2006-2007				
Bradley University • Number of Program Completers: 177				
Test Field/Category	Institution			State-wide Pass Rate
	Number Tested	Number Passed	Pass Rate	
Basic Skills				
Basic Skills Test	172	172	100%	100%
Aggregate	172	172	100%	100%
Professional Knowledge/Pedagogy				
101 APT: Birth to Grade 3	18	18	100%	100%
102 APT: Grades K-9	73	73	100%	100%
103 APT: Grades 6-12	36	36	100%	100%
104 APT: Grades K-12	47	47	100%	99%
Aggregate	174	174	100%	99%
Academic Content Areas				
002 Early Childhood	1	--	--	100%
024 Social Science	1	--	--	100%
105 Science: Biology	2	--	--	100%
106 Science: Chemistry	1	--	--	99%
107 Early Childhood Education	17	17	100%	100%
110 Elementary/Middle Grades	112	111	99%	100%
111 English Language Art	12	12	100%	100%
114 Social Science: History	9	--	--	100%
115 Mathematics	6	--	--	100%
116 Science: Physics	1	--	--	100%
163 Special Education General Curriculum	39	38	97%	99%
127 Foreign Language: French	1	--	--	100%
143 Music	5	--	--	100%
145 Visual Arts	1	--	--	100%
Aggregate	208	206	99%	100%
Other Content Areas				
172 Family & Consumer Sciences	6	--	--	100%
Aggregate	6	--	--	100%
Teaching Special Populations				
155 Learning Behavior Specialist I	40	40	100%	100%
Aggregate	40	40	100%	100%
Summary Totals and Pass Rate	177	177	100%	99%

Note: Institutional information is not released for tests taken by fewer than ten students.

Illinois Certification Testing System 2003-2004 Third Year Cohort Update				
Bradley University • Number of Program Completers: 145				
Test Field/Category	Institution			State-wide Pass Rate
	Number Tested	Number Passed	Pass Rate	
Basic Skills				
Basic Skills Test	145	145	100%	100%
Aggregate	145	145	100%	100%
Professional Knowledge/Pedagogy				
101 APT: Birth to Grade 3	11	11	100%	100%
102 APT: Grades K-9	58	58	100%	100%
103 APT: Grades 6-12	39	39	100%	100%
104 APT: Grades K-12	23	23	100%	99%
Aggregate	131	131	100%	99%
Academic Content Areas				
002 Early Childhood	11	10	91%	100%
003 Elementary/ Middle Grades (K-9)	71	70	99%	99%
023 History	6	--	--	97%
024 Social Science	9	--	--	99%
025 English	7	--	--	99%
026 Spanish	2	--	--	99%
027 French	2	--	--	97%
034 Speech	1	--	--	100%
035 Biological Science	3	--	--	99%
036 Mathematics	5	--	--	99%
048 Art (K-12)	2	--	--	99%
049 Music (K-12)	3	--	--	98%
Aggregate	122	118	97%	99%
Other Content Areas				
044 Family & Consumer Sciences	5	--	--	100%
Aggregate	5	--	--	100%
Teaching Special Populations				
006 Learning Disabilities	1	--	--	89%
007 Social/Emotional Disorders	2	--	--	100%
155 Learning Behavior Specialist I	16	16	100%	100%
Aggregate	19	19	100%	97%
Summary Totals and Pass Rate	145	141	97%	99%

Note: Institutional information is not released for tests taken by fewer than ten students.

Curriculum and Instruction

D. Antonio Cantu,
Chair, Department of Teacher Education

The professional education unit is accredited by the National Council for the Accreditation of Teacher Education (NCATE).

The curriculum and instruction master's program builds upon the foundation laid at the undergraduate level and continues the emphasis on pre-kindergarten through twelfth-grade teachers as educational leaders, advocates, and life-long learners. Teachers who wish to assume leadership roles within their school systems need to remain current, increase their skill levels, add to their knowledge bases, and increase their repertoire. As effective leaders who take responsibility for their own continuing education, they also need to participate in the creation of their own professional development plans.

The curriculum and instruction master's program is designed to provide for these needs. While making allowances for individual tailoring, the program includes a common core of courses intended to increase graduate students' skill levels and knowledge base in: technology applications (ETE 551), research applications (ELH 604), legal and social issues (ELH 605), curriculum theory (ETE 651), cultural diversity and schooling (ETE 553), instructional theory (ETE 655), instructional design (ETE 653), and assessment strategies (ETE 552, ETE 654, ETE 643). In addition, the program offers practica, original research, and creative contributions options. Working with a faculty advisor, graduate students plan a program of study which addresses their needs, interests, and professional development goals. These plans may include assessment, early childhood education, educational technology, gifted education, literacy and reading, middle school education, multidisciplinary education, science education, and special education.

The goal of the curriculum and instruction master's program is to prepare pre-kindergarten through twelfth-grade teachers to accept greater responsibility in their roles as educational leaders, advocates, and life-long learners by increasing their skill levels, adding to their knowledge bases, and informing their attitudes.

The objectives of the curriculum and instruction master's program are to:

1. Integrate theory with reflective practice.
2. Draw connections between the knowledge base and the professional skills necessary for the success of effective leaders, advocates, and life-long learners.

3. Assist teachers in remaining current with regard to educational issues, individualized instruction, and the elements of best practice.
4. Engage teachers in collaborative learning with colleagues who offer similar, as well as diverse, backgrounds, experiences, and views.
5. Individualize programs of study to meet the particular needs of graduate students.
6. Facilitate the development of teachers as life-long learners, who are capable of informing their instructional practices through appropriate application of research results.

College/Department Admissions Requirements

For unconditional admission, the candidate should have an undergraduate last-60-hour grade point average of 3.0 based on a 4.0 scale.

For conditional admission into a graduate program, the candidate should have a minimum undergraduate last-60-hour grade point average of 2.5. The conditional student must maintain a 3.0 grade point average in the first 9 to 18 hours of graduate work in order to gain unconditional status.

All applicants must complete the prescribed application forms of the College of Education and Health Sciences and Graduate School. All applicants must submit official scores from the Miller Analogies Test (MAT) or the Graduate Record Exam (GRE).

Two letters of reference must be obtained by the applicant from educational field employers or college/university professors who can recommend the applicant as having strong potential for success in graduate studies and in potential continued service to the education profession.

Graduation Requirements

Graduation requirements for the thesis and non-thesis options have in common the following components: an eighteen-hour core which includes ELH 604 and ELH 605 (three hours each), a three-hour educational technology course (ETE 551) and nine hours of Curriculum and Instruction (ETE 553, ETE 651 and ETE 653). The student must also select an area of concentration consisting of nine semester hours from areas in assessment, early childhood education, educational technology, gifted education, literacy and reading, middle school education, multidisciplinary education, science education, or special education.

Graduate students must also select a capstone experience from among three options. Option A is thirty hours of coursework plus ETE 655 plus a Comprehensive Examination which is tailored to the student's program of study. Option B is twenty-seven hours of coursework plus six hours of ETE 699 (Thesis). Option C is twenty-seven hours of coursework plus ETE 655 plus ETE 698. Graduate students

may also select up to six hours of approved graduate-level elective courses which may be taken within or outside the department. The total minimum course requirement for the curriculum and instruction program is thirty-three semester hours. Graduate students electing the thesis option (capstone Option B) will design and conduct an original research study under the guidance of their advisors. For thesis option students, a comprehensive examination will be administered orally at the time of the thesis defense.

Curriculum and Instruction Master's Degree Program

Graduate Core: 18 hours

- A. Foundations and Research: 6 hours
ELH 604 Research Methodology & Applications (3)
ELH 605 Legal and Social Change (3)
- B. Educational Technology: 3 hours
ETE 551 Technology Applications and Integration (3)
- C. Curriculum and Instruction: 9 hours
ETE 553 Cultural Diversity and Schooling (3)
ETE 651 Curriculum Theory and Development (3)
ETE 653 Instructional Strategies and Designs (3)

Directed Elective: 3 hours

Students must choose at least one of the following options for a minimum of 3 hours:

- ETE 552 Assessment Alternatives (3)
- ETE 643 Assessment and Evaluation Practicum for Learners With Exceptionalities (3)
- ETE 654 Program Evaluation (3)

Capstone Experience Option

Option A: 30 hours of coursework; ETE 655 Instructional Theory; Comprehensive Examination

Option B: 27 hours of coursework; ETE 699 Thesis (6 hours)

Option C: 27 hours of coursework; ETE 655 Instructional Theory; ETE 698 Creative Research Contribution (3 hours)

Areas of Concentration: 9 hours minimum

Note: ETE 698 may not be used for both a Capstone Experience course and an Area of Concentration course.

Students must select one 9-hour area of concentration from among the following choices:

Assessment

(Cannot include any course selected from among the Assessment choices under Directed Electives)

- ETE 552 Assessment Alternatives (3)
- ETE 560 Testing in Reading (3)
- ETE 643 Assessment and Evaluation Practicum for Learners With Exceptionalities (3)
- ETE 654 Program Evaluation (3)

ETE 670 Supervision and Evaluation of Instruction (3)

ETE 698 Creative/Research Contribution (0-6)

Early Childhood Education

ETE 650 Topics in Curriculum, Instruction, and Technology (1-3)

ETE 661 Child Growth and Development (3)

ETE 662 Family Intervention (3)

ETE 698 Creative/Research Contribution (0-6)

Educational Technology

(Cannot include ETE 551 from Core Courses)

(Students may select either ETE 650 or ETE 698, but may not take both for this concentration)

ETE 513 Educational Software Design (3)

ETE 650 Topics in Curriculum, Instruction, and Technology (1-3)

ETE 698 Creative/Research Contribution (0-6)

ART 500 Advanced Studio (3)*

ENG 508 Composing Hypertext (3)

Gifted Education

ETE 543 Assessment and Evaluation Procedures for Learners With Exceptionalities (3)

ETE 554 Characteristics of and Curriculum Development for Learners Who Are Gifted (3-6)

ETE 650 Topics in Curriculum, Instruction, and Technology (3)

ETE 698 Creative/Research Contribution (0-6)

Literacy and Reading

ETE 506 Reading in the Content Fields (3)

ETE 544 Remedial Reading (3)

ETE 560 Testing in Reading (3)

ETE 570 Practicum in Reading (1-6)

ETE 616 Analysis & Evaluation of Children's Literature (3)

ETE 620 Writing Across the Curriculum (3)

ETE 650 Topics in Curriculum, Instruction, and Technology (1-3)

ETE 698 Creative Research Contribution (0-6)

Middle School Education

ETE 506 Reading in the Content Fields (3)

ETE 515 Mathematics Methods for the Middle School (3)

ETE 610 Young Adolescent Development (3) *

ETE 611 Middle School Instructional Strategies (3) *

ETE 618 Science: An inquiry Approach (3)

ETE 620 Writing Across the Curriculum (3)

ETE 650 Topics in Curriculum, Instruction, and Technology (3)

ETE 698 Creative Research Contribution (3)

* *Needed for the State of Illinois Middle School Endorsement*

Special Education

For the three-hour Directed Electives requirement listed above, students must choose the following course:

ETE 643, Assessment and Evaluation Practicum for Learners with Exceptionalities (3)

Prerequisites:

ETE 525 Including Learners with Exceptionalities (3)

ETE 543 Assessment and Evaluation for Learners with Exceptionalities (3)

Required nine hours:

ETE 673 Self Determination for Individuals with Disabilities (3)

ETE 674 Issues, Trends, and Research in Special Education (3)

ETE 650 Topics in Special Education (1-3)

Electives required for endorsement to teach in Special Education LBS I or for the capstone (three-hour minimum) experience:

ETE 697 Advanced Practicum for Students with Exceptionalities (1-5)

ETE 698 Creative/Research Contribution (0-6 hours)

ETE 699 Thesis (0-3 hours)

Science Education

Students may select up to 6 hours of science content from graduate-level courses offered in the departments of biology, chemistry, geological science, or physics. Students electing to do so must also select ETE 618.

ETE 618 Science: An Inquiry Approach (3)

SCI 501 Topics in Investigative Science for Educators (3)
(see "Supportive Courses" below.)

ETE 650 Topics in Curriculum, Instruction, and Technology (1-3)

ETE 698 Creative/Research Contribution (0-6)

Multidisciplinary Education

Students must choose two courses from one area of concentration and one course from a second area of concentration.

Notices:

1. The Department recommends students selecting areas of concentration in Literacy and Reading or Science Education enter the program having some content background in the respective content area prior to enrolling in those area of concentration courses.
2. Courses which students wish to transfer into the program from other institutions must be approved by the Department of Teacher Education graduate program coordinator or department chair in advance.

Total Program: Minimum of 33 hours

Curriculum and Instruction LBS I Master's Degree Program

Teacher certification is necessary prior to entering the C & I LBS I Master's Degree Program. The program is available to teachers not currently certified in special education.

Prerequisites to Program: 6 hours

ETE 525 Including Learners with Exceptionalities (3)
ETE 543 Assessment and Evaluation for Learners with Exceptionalities (3)

Graduate Core: 9 hours

ELH 604 Research Methodology and Applications (3)
ELH 605 Legal and Social Change (3)
ELH 606 Interpersonal Behavior and Organizational Leadership (3)

Educational Technology Component: 3 hours

ETE 551 Technology Applications and Integration (3)

Curriculum and Instruction: 3 hours

ETE 653 Instructional Strategies and Designs (3)

Assessment: 3 hours

ETE 643 Assessment & Evaluation Practicum for Learners with Exceptionalities (3)

Program Core for LBS I: 11 -17 hours

ETE 675 Characteristics of Learners with Special Needs (3)
ETE 676 Methods for Specific Learning Disabilities, Emotional & Other Disorders (3)
ETE 677 Methods for Developmental Disabilities (3)
ETE 697 Advanced Practicum for Students with Exceptionalities (1-5)
ETE 698 Creative/Research Contribution (0-6) or
ETE 699 Thesis (0-3)

Electives: 3 hours

ETE 550 Independent Study (Special Education Focus) (1-3)
ETE 650 Topics in Education (Special Education Topic) (1-3)

Total Program: Minimum of 33 hours

Teacher Certification and Teaching Endorsements

The teacher certification program is separate and distinct from the teacher education graduate C & I program. Students wishing to pursue routes to certification are directed to the appropriate undergraduate courses and/or to the endorsements in Reading or in Special Education (see the following section). Graduate-level courses listed in the endorsement areas and not in the C & I graduate program areas of concentration cannot be used for a master's degree.

Initial to Standard Teacher Certification

Students seeking graduate work to move from initial to standard certification for teaching must take the following courses:

ETE 653 Instructional Strategies and Designs (3)
ETE 659 Curriculum and Instruction Practicum (1-5)
for one semester hour

Endorsements

Endorsement in Reading (Optional)

A minimum of eighteen (18) semester hours must be taken from the courses listed below. At least three (3) semester hours must be acquired in each lettered section.

- A. ETE 325 Introduction to Teaching Reading (3)
ETE 506 Reading in the Content Fields (3)
- B. ETE 544 Remedial Reading (3)
- C. ETE 560 Testing in Reading (3)
- D. ETE 570 Practicum in Reading (1-5)
- E. ETE 260 Children's Literature (3)
ETE 616 Analysis & Evaluation of Children's Literature (3)

Please note that these requirements may be fulfilled by a combination of undergraduate and graduate courses.

Endorsement in Special Education for Learning Behavior Specialist I (LBS I) (Optional)

A minimum of twenty-three (23) semester hours must be taken from the courses listed below.

Prerequisites to Program: 6 hours

ETE 525 Including Learners With Exceptionalities (3)
ETE 543 Assessment and Evaluation for Learners With Exceptionalities (3)

Program Core for LBS I: 14-20 hours

ETE 643 Assessment and Evaluation Practicum for Learners With Exceptionalities (3)
ETE 675 Characteristics of Learners With Special Needs (3)
ETE 676 Methods for Specific Learning Disabilities, Emotional & Other Disorders (3)
ETE 677 Methods for Developmental Disabilities (3)
ETE 697 Advanced Practicum for Students With Exceptionalities (1-5)
ETE 698 Creative/Research Contribution (0-6) or
ETE 699 Thesis (0-3)

Electives: 3 hours

Endorsement in Middle Level Education (Optional)

ETE 650 Topics in Curriculum, Instruction, and Technology (6)

Please note that these requirements may be fulfilled by a combination of undergraduate and graduate courses. To gain the Illinois LBSI endorsement, the student must meet the number of hours required by the state of Illinois.

Certificate Program in Curriculum and Instruction

The Curriculum and Instruction Graduate Certificate is a declaration indicating an individual has completed a prescribed set of graduate courses in teacher education. It is not a master's degree, nor is it the same as state teacher certification. The Graduate Certificate is awarded by the university, whereas, teacher certification is licensure awarded by the state. One does not necessarily lead to the other. The objectives of the Graduate Certificate program in Curriculum and Instruction are to provide (1) opportunities for educators to expand their learning beyond that of their bachelors or other master's degree, (2) a basic core of learning focusing on cultural diversity and instructional strategies and designs, and (3) an area of concentration of coursework that will strengthen one's pedagogical and/or pedagogical content knowledge.

College/Department Admissions Requirements

Applicants for admission to the C & I Graduate Certificate Program must hold a bachelor's degree from an institution that is accredited by the appropriate regional accrediting agency or that is recognized by the board of education of the state in which the institution is located. Students must apply for acceptance to the Graduate School, and take either the Graduate Record Examination (GRE) or the Miller Analogies Test (MAT).

For unconditional admission, the applicant must have a minimum undergraduate last-60-hour grade point average of 3.0 based on a 4.0 scale.

For conditional admission, the applicant must have a minimum undergraduate last-60-hour grade point average of 2.5 on a 4.0 scale.

The conditional student must maintain a 3.0 GPA during the first nine semester hours of Bradley University graduate work in order to gain unconditional status. All students must earn a mean GPA of 3.0 (on a 4.0 scale) throughout the program in order to successfully complete the certificate program. As with graduate program requirements, the student may receive a maximum of one "C" in one course and continue in the program.

All applicants must complete the prescribed application forms of the College of Education and Health Sciences and Graduate School.

Certificate Program Completion Requirements

The courses included in the certificate program are the same as some of those offered in the master's degree program, allowing students to apply their certificate program courses toward a full master's degree upon completion of the certificate program, if they desire to do so. The total number of certificate program courses equals 15 semester hours (compared to the master's degree minimum of 33). All students pursuing the certificate program will be required to take two core courses (for a total of six semester

hours) and those courses identified as an area of concentration within the C & I Graduate Program (nine semester hours). All students must take the following courses:

Core Courses:

ETE 553 Cultural Diversity and Schooling (3)
ETE 653 Instructional Strategies and Designs (3)

One Area of Concentration (three courses) totaling 9 semester hours:

Assessment

ETE 552 Assessment Alternatives (3)
ETE 560 Testing in Reading (3)
ETE 643 Assessment and Evaluation Practicum for Learners With Exceptionalities (3)
ETE 650 Topics in Curriculum, Instruction, and Technology (3)
ETE 654 Program Evaluation (3)
ETE 698 Creative Research Contribution (3)
ELH 670 Human Resource Management (3)

Early Childhood Education

ETE 650 Topics in Curriculum, Instruction, and Technology (3)
ETE 661 Child Growth and Development (3)
ETE 662 Family Intervention (3)
ETE 698 Creative Research Contribution (3)

Educational Technology

ETE 513 Educational Software Design (3)
ETE 650 Topics in Curriculum, Instruction, and Technology (3)
ETE 698 Creative Research Contribution (3)
ART 500 Advanced Studio (3) *
ENG 508 Composing Hypertext (3)

* Students may select either ETE 650 or ETE 698, but not both. Students selecting ART 500 must interview with the Department of Art for approval (including portfolio) and placement.

Gifted Education

ETE 543 Assessment and Evaluation Procedures for Learners With Exceptionalities (3)
ETE 554 Characteristics of and Curriculum Development for Learners Who Are Gifted (3)
ETE 650 Topics in Curriculum, Instruction, and Technology (3)
ETE 698 Creative Research Contribution (3)

Literacy and Reading

ETE 506 Reading in the Content Fields (3)
ETE 544 Remedial Reading (3)
ETE 560 Testing in Reading (3)
ETE 570 Practicum in Reading (3)
ETE 616 Analysis & Evaluation of Children's Literature (3)
ETE 620 Writing Across the Curriculum (3)
ETE 650 Topics in Curriculum, Instruction, & Technology (3)
ETE 698 Creative Research Contribution (3)

Middle School Education

- ETE 506 Reading in the Content Fields (3)
- ETE 515 Mathematics Methods for the Middle School (3)
- ETE 610 Young Adolescent Development (3) *
- ETE 611 Middle School Instructional Strategies (3) *
- ETE 618 Science: An inquiry Approach (3)
- ETE 620 Writing Across the Curriculum (3)
- ETE 650 Topics in Curriculum, Instruction, & Technology (3)
- ETE 698 Creative Research Contribution (3)
- * *Needed for the State of Illinois Middle School Endorsement*

Science Education

- ETE 618 Science: An inquiry Approach (3)
- ETE 650 Topics in Curriculum, Instruction, & Technology (3)
- ETE 698 Creative Research Contribution (3)
- SCI 501 Interdisciplinary Science (3)*
- * *Requires corequisite of ETE 550 (Independent Study) for 1 hour*

Special Education*

- ETE 643 Assessment and Evaluation Practicum for Learners With Exceptionalities (3) REQUIRED
- ETE 650 Topics in Curriculum, Instruction, and Technology (3)
- ETE 673 Self-Determination for Individuals With Disabilities (3)
- ETE 674 Issues, Trends, and Research in Special Education (3)
- ETE 698 Creative Research Contribution (3)
- * *If needed, students must also take prerequisite courses ETE 525 Including Learners with Exceptionalities (3) and ETE 543 Assessment and Evaluation for Learners with Exceptionalities (3).*

Multidisciplinary

Two courses from one area of concentration and one course from a second area of concentration

Special Education Approval

Students may choose to add a special education approval to any teaching certificate, which will entitle them to teach special education classes in the grades of their teaching certificate. This approval would be good for three years while the student pursued an LBS I certificate. The following courses are needed for this approval.

ETE 525 Including Learners with Exceptionalities.....	3
ETE 543 Assessment and Evaluation for Learners with Exceptionalities.....	3
ETE 675 Characteristics of Learners with Special Needs	3
ETE 676 Methods for Specific Learning Disabilities, Emotional & Other Disorders.....	3
ETE 677 Methods for Developmental Disabilities	3
Total	15

Course Descriptions

ETE 506 Reading in the Content Fields 3 hrs.
Instructional and reading strategies to enhance students' comprehension.

ETE 513 Educational Software Design 3 hrs.
The design and construction of educational software that is based upon sound educational theory and best practice. Students will become proficient with appropriate multimedia instructional design software in developing their projects. Investigating and applying current theories of learning, instruction, and assessment. Cross-listed as MM 513. Prerequisites: MM 113 or ETE 551; MM 213 or instructor approval.

ETE 515 Mathematics Methods for the Middle School 3 hrs.

Provides strategies and curriculum for teaching mathematics to youth in fifth through eighth grades. Strategies focus on problem solving, logical reasoning, and real-life connections. Use of dynamic software and math modeling are emphasized. Assessment strategies appropriate for middle school mathematics will be addressed. Students will develop a deep understanding of national and state standards. Prerequisites: senior standing in an education program and advancement to degree candidacy, or teacher certification.

ETE 525 Including Learners with Exceptionalities 3 hrs.

Legal, psychological, and social impact of various disabilities, including learning disabilities, for education and life planning of included learners with exceptionalities. Psychological and educational characteristics, needs, services, regulations, and laws discussed. Includes needs of learners who are intellectually gifted and talented and have other special needs. Prerequisite: advancement to degree candidacy in department.

ETE 543 Assessment and Evaluation Procedures for Learners with Exceptionalities 3 hrs.

Diagnostic processes for learners with exceptionalities, pre-school through high school. Screening, formal and informal assessment, and evaluation techniques. Practice in test administration, scoring, evaluation, individualized educational programs (IEPs).

ETE 544 Remedial Reading 3 hrs.

Methods and procedures for diagnosis and correction of reading difficulties; interpretation and use of reading tests for diagnosis. Prerequisite: a basic reading course.

ETE 550 Independent Study 1-3 hrs.

Student selects subject of study with advisor approval. Multiple sections may be taken concurrently. Maximum of 6 semester hours may be applied to a degree program. Prerequisite: approval of department chair and dean of College of Education and Health Sciences.

ETE 551 Technology Applications & Integration 3 hrs.
Integrating technology into PreK-12 curriculum. Emphasizes computer as tutor, tool, and tutee; multimedia; HyperCard; telecommunications and networking; and future impact.

ETE 552 Assessment Alternatives 3 hrs.
Qualitative and quantitative student assessment methods. Creative alternatives to traditional techniques.

ETE 553 Cultural Diversity and Schooling 3 hrs.
Multicultural issues, perspectives, and current trends. Role of the teacher as decision-maker and change agent. Evaluation of materials, methods, and programs.

ETE 554 Characteristics of and Curricular Development for Learners who are Gifted 3-6 hrs.
Class will focus on all aspects of the gifted learner cognition, psycho-social, affective, and talent development. Field placement requires curriculum design, testing procedures, identification, and direct instruction of gifted learners. Additionally, National Board Certification methodology will be utilized. Repeatable for a maximum of six hours.

ETE 560 Testing in Reading 3 hrs.
Reading assessment techniques that identify students' reading strengths and difficulties prior to diagnostic prescriptive teaching. For teachers of grades 1-9. Prerequisites: a basic reading course; ETE 544.

ETE 570 Practicum in Reading 1-5 hrs.
Field experience in elementary reading. Focuses on current research to guide reading practice. Emphasizes alternative methods of reading instruction, other than basal approaches. May be repeated for a maximum of 6 hours credit. Prerequisite: a basic reading course.

ETE 610 Young Adolescent Development 3 hrs.
Examines the theories and research surrounding young adolescents as they move through puberty and middle school. Physical, cognitive, social, moral, and emotional development are studied with concern for the psychological implications and educational ramifications. Students will develop a deep understanding of national and state standards. Prerequisite: Graduate standing and teacher certification or permission of instructor.

ETE 611 Middle School Instructional Strategies 3 hrs.
Presents curriculum, teaching strategies, and assessment for instructing youth in fifth through eighth grades. School organization, professional collaboration, active classroom environment, brain-based teaching and learning, high expectations for all students, and student progress are topics for the course. Students will develop a deep understanding of national and state standards. Prerequisite: Graduate standing and teacher certification or permission of instructor.

ETE 616 Analysis & Evaluation of Children's Literature 3 hrs.
Selection and evaluation of children's literature; emphasis

on recent material. Individual in-depth study of a specific topic required. Current trends, controversies, and problems.

ETE 618 Science: An Inquiry Approach 3 hrs.
This course is designed to help educators learn and better understand inquiry as an instructional approach. Topics include what inquiry is, how to conduct inquiry, and ways to teach inquiry processes and skills to students. The course will involve identifying and conducting an inquiry investigation into some science topic and how it can best be taught to students. Prerequisite: Admission to the C & I Program.

ETE 620 Writing Across the Curriculum 3 hrs.
This course is designed to increase teacher understanding and application of writing across content areas for primary through secondary grade levels. Writing, an essential communication skill, has many foci, which are not limited to creative writing. Expository, persuasive, and narrative writing formats will be examined, including their respective formats and how to best teach them and apply them in a clinical practice, classroom settings, and community leadership. Research skills as they pertain will also be included. Prerequisite: Admission to the C & I Program.

ETE 643 Assessment and Evaluation Practicum for Learners with Exceptionalities 3 hrs.
Practicum: use of psycho-educational tests and diagnostic teaching techniques. Preparation of a complete formal and informal educational assessment of a learner including a professional report written in a specified format.

ETE 650 Topics In Education 1-3 hrs.
Topics of special interest which may vary each time course is offered. Multiple sections may be taken concurrently. Maximum of 6 semester hours may be applied to a degree program. Prerequisite: Consent of instructor and department chair.

ETE 651 Curriculum Theory and Development 3 hrs.
Curriculum models and theories. Curriculum development processes and the teacher's role.

ETE 653 Instructional Strategies and Designs 3 hrs.
PreK-12 instructional strategies and designs. Emphasis on developmentally appropriate educational opportunities that actively engage the learner.

ETE 654 Program Evaluation 3 hrs.
Qualitative and quantitative models and techniques for evaluating educational programs. Prerequisite: ELH 604 or consent of instructor.

ETE 655 Instructional Theory 3 hrs.
Investigation and development of a theory of instruction for practitioners built upon the research based on existing strategies, models, methods, assessment, skills, improvement techniques, movements in education, theorists, curriculum, and the learner.

ETE 659 Curriculum & Instruction Practicum 1-5 hrs.
Supervised field experience. Application of knowledge and skills to contexts and environment selected by the student and advisor. May be repeated for a maximum of 6 hours credit. Prerequisite: curriculum and instruction course or consent of instructor.

ETE 661 Child Growth and Development 3 hrs.
Interaction of learning and developmental processes from birth through age 8. Influence of sociocultural and ecological factors.

ETE 662 Family Intervention 3 hrs.
The role of the family and community in the education of infants, toddlers, pre-primary, and primary-aged children. Analysis of family systems including resource development and family program development.

ETE 669 Clinical Experience 1-6 hrs.
Supervised clinical experience in p-12 setting. Provides opportunities to synthesize knowledge and skills and to demonstrate competencies as a professional teacher. May be repeated for a maximum of 6 hours credit. Prerequisite: curriculum and instruction course or consent of instructor.

ETE 673 Self-determination for Individuals with Disabilities 3 hrs.
Focuses on instructional practices that can be utilized by the student to teach self-determination skills to individuals with disabilities. The student will explore self-determination concepts, theories, assessment, instructional strategies, and issues of implementation that can in turn be taught to individuals with disabilities in order to facilitate goal-directed, self-regulated, autonomous behavior.

ETE 674 Issues, Trends, and Research in Special Education 3 hrs.
Addresses critical analysis of current issues, trends, and research in special education with attention to legislation, litigation, definitions, identification, eligibility, inclusion, placement, collaboration, and professional advocacy. Research design and methodology in special education.

ETE 675 Characteristics of Learners with Special Needs 3 hrs.
Interdisciplinary study of literature and research in specific learning disabilities, social emotional disorders, developmental disabilities, autism, traumatic brain injury, orthopedic and other health impairments. Social, educational, psychological, and legal implications are explored.

ETE 676 Methods for Specific Learning Disabilities, Emotional and Other Disorders 3 hrs.
Practical applications of educational and psychological strategies that promote learning for children and youth with learning disabilities, emotional and other disorders. The process of assessment, planning for instruction, creating positive learning environments, instructional delivery, developing collaborative relationships will be examined. Prerequisite: ETE 675.

ETE 677 Methods for Developmental Disabilities 3 hrs.
Practical applications of educational strategies that promote learning for children and youth with a spectrum of special needs (i.e., developmental disabilities, autism, traumatic brain injury, orthopedic, and other health impairments). The process of assessment, planning, program implementation, and evaluating the learning of individuals will be emphasized. Prerequisites: ETE 675

ETE 697 Advanced Practicum for Students with Exceptionalities 1-5 hrs.
Supervised field experience with students who have exceptional learning needs. Tailored to meet the learning and professional growth needs of graduate student.

ETE 698 Creative/Research Contribution 0-6 hrs.
Individual study on a topic selected by student with advisor approval. Integration and application of research. Student must produce a product such as a software program, journal article, or program portfolio. May be repeated for a maximum of 6 hours credit. Student may not receive credit for both ETE 698 and ETE 699.

ETE 699 Thesis 0-3 hrs.
Design and implement a research proposal which has implications for preK-12 education. May be repeated for a maximum of 6 hours credit. Student may not receive credit for both ETE 698 and ETE 699. Prerequisite: consent of department chair.

Supportive Courses

Family and Consumer Sciences

FCS 536 The World of Fashion 2-6 hrs.
Intensified study in a major fashion market: merchandising, public relations, advertising, and career opportunities. May be repeated for a total of 6 hours. Prerequisite: 10 hours in clothing and textiles; or consent of instructor.

FCS 585 Topics in Family & Consumer Sciences 1-6 hrs.
Topic of special interest which may vary each time course is offered. Topic stated in current Schedule of Classes. Prerequisites: senior or graduate standing and consent of instructor

SCI 501 Topics in Investigative Science for Educators 3 hrs.
Laboratory-based biological and physical science. Content developed along interdisciplinary themes. Course taught in an inquiry/investigative format, and includes application to Pre K-12 classroom settings. Course may be repeated under different topic. NOTE: Credit will not be given for SCI 501 students who have obtained credit for SCI 101 under the same theme. Registration is not open to undergraduate or graduate students enrolled in a natural science degree program. Prerequisites: Concurrent enrollment in ETE 550.

Nursing

Francesca A. Armmmer,
Chair, Department of Nursing

Bradley University offers a Master of Science in Nursing (M.S.N.). Students may choose one of three majors: nursing administration, nurse administered anesthesia, or MSN-General. The nurse administered anesthesia major is offered in cooperation with Decatur Memorial Hospital.

Degree requirements can be met on a full-time or part-time basis. Enrollment in the nurse administered anesthesia internship must be on a full-time basis. Graduation requirements must be fulfilled within five years of enrollment.

Graduates with a major in nursing administration are prepared for first line management as executives in a variety of health care settings.

Graduates with a major in nurse administered anesthesia will be eligible to write the certification examination.

The MSN-General major addresses the needs of advanced practice nurses who hold certificates/diplomas of advanced practice, but who do not have a master's degree.

The student must maintain an academic average of 3.0 (4.0 scale), achieve a "B" or better in each required nursing course, and earn a "C" or better in each course applied to graduation requirements.

The curriculum is subject to continuous review and evaluation which may necessitate revision of courses and requirements.

Thesis/Directed Research

Students may meet program requirements by completing either a thesis (4 semester hours) or directed research (2 semester hours).

Comprehensive Assessment

Nursing Administration Major: A written comprehensive examination is administered during the last semester of administration theory.

Nurse Administered Anesthesia Major: Written comprehensive examinations are administered at the end of the second and third year of the course of study.

MSN-General Major: A comprehensive assessment, as determined by the department must be completed by all students in this major.

Master of Science in Nursing

Core Component.....8 hrs.

NUR 600 Nursing Theories: Analysis and Development.....3 hrs.
NUR 605 Leadership in the Health Care System3 hrs.
NUR 610 Legal Issues in Nursing.....2 hrs.

Research Component 7-9 hrs.

NUR 620 Research Methods in Nursing3 hrs.
NUR 625 Nursing Research Seminar.....2 hrs.
NUR 699 Thesis.....4 hrs.

or

NUR 698 Directed Research in Nursing.....2 hrs.

Nursing Administration Major 19-21 hrs.

NUR 630 Nursing Administration I, Theory3 hrs.
NUR 631 Nursing Administration I, Practicum.....4 hrs.
NUR 632 Nursing Administration II, Theory.....3 hrs.
NUR 633 Nursing Administration II, Practicum.....4 hrs.
Electives5-7 hrs.

Total Program Semester Hours 36 hrs.

Nurse Administered Anesthesia Major 31-33 hrs.

PHY 541 Physics Basics2 hrs.
CHM 500 Chemical Topics.....2 hrs.
BIO 570 Seminar: Contemporary Physiology3 hrs.
BIO 525 Advanced Physiology.....3 hrs.
NUR 500 Health Assessment4 hrs.
Electives3-5 hrs.
NUR 670 Nurse Administered Anesthesia Principles I.....3 hrs.
NUR 671 Nurse Administered Anesthesia Principles II.....3 hrs.
NUR 672 Pharmacology I.....4 hrs.
NUR 673 Pharmacology II.....4 hrs.
NUR 675 Nurse Administered Anesthesia Internship 0 hrs.

Total Program Semester Hours 48 hrs.

MSN-General 13-15 hrs.

NUR 683 Advance Practice Nurse Internship6 hrs.
Electives7-9 hrs.
(Nine hours required if NUR 698 is taken; seven are required if NUR 699 is taken.)

Total Program Semester Hours 30 hrs.

Certificate Program in Nurse-Administered Anesthesia

The certificate program in Nurse-Administered Anesthesia (NRAN) is a 2-year program that has developed to respond to the need for certified registered nurse anesthetists. Registered nurses who currently have a master's degree or higher will be given an opportunity to earn a certificate in nurse-administered anesthesia. By earning the certificate, the individual will be eligible to take the certification examination that would result in the designation of Certified Registered Nurse Anesthetist (CRNA). Because certificate students and NRAN majors will take the same selected courses, enrollment in the certificate program will be very limited.

Required Courses

BIO 525 Advanced Physiology	3 hrs.
BIO 570 Seminar: Contemporary Physiology	3 hrs.
NUR 670 Nurse Administered Anesthesia Principles I.....	3 hrs.
NUR 671 Nurse Administered Anesthesia Principles II.....	3 hrs.
NUR 672 Pharmacology I.....	4 hrs.
NUR 673 Pharmacology II.....	4 hrs.
NUR 675 Nurse Administered Anesthesia Internship.....	0 hrs.
	20 hrs.

Course Descriptions

NUR 600 Nursing Theories: Analysis and Development

3 hrs.

Analysis of theoretical models. Emphasis on assessment and implications of models for advanced professional nursing practice and research. Prerequisite: nursing majors only.

NUR 605 Leadership in the Health Care System

3 hrs.

Leadership theory: role of the nurse as a leader, colleague, and consultant in health care systems. Prerequisite: nursing majors only.

NUR 610 Legal Issues in Nursing

2 hrs.

Legal and ethical issues that influence the practice of advanced nursing and leadership in health care systems. Critical assessment of the ethical implications of law and public policy in health care. Case studies. Prerequisite: nursing majors only, or consent of instructor or department chair.

NUR 620 Research Methods in Nursing

3 hrs.

In-depth study of the research process; the significance of nursing theory as a basis for nursing research. Various research designs. Development of a testable hypothesis applicable to advanced nursing practice. Prerequisite: undergraduate statistics course or ELH 510; nursing majors only.

NUR 625 Nursing Research Seminar

2 hrs.

Trends in nursing and society that influence the direction of nursing research. Problems from clinical practice. Identification and refinement of specific researchable questions through a hypothetico-deductive process. Prerequisites: NUR 600, 605, 620; or consent of instructor.

NUR 630 Nursing Administration I (Theory)

3 hrs.

Theories, concepts, and principles from nursing and related disciplines as a foundation for nursing administration. Theories of change, role, adaptation, need, and leadership as related to nursing management. Prerequisites: NUR 600, 605. Corequisite: NUR 631 or consent of department chair.

NUR 631 Nursing Administration I (Practicum)

4 hrs.

Practicum applying concepts, theories, and principles from NUR 630. Use of relevant research findings. Advanced practice in management. Prerequisites: NUR 600, 605. Corequisite: NUR 630 or consent of department chair.

NUR 632 Nursing Administration II (Theory)

3 hrs.

Advanced concepts and principles relevant to external and internal nursing organizational situations including power, authority, and politics. Review of various organizational patterns and their relationship to nursing personnel management, budgeting, public relations, leadership style, and research. Prerequisites: NUR 630, 631. Corequisite: NUR 633 or consent of department chair.

NUR 633 Nursing Administration II (Practicum)

4 hrs.

Practicum applying advanced concepts, theories, and principles from NUR 632. Use of management skills such as staffing, budgeting, and developing positive public relations. Prerequisites: NUR 630, 631. Corequisite: NUR 632 or consent of department chair.

NUR 660 Seminar in Nursing Education

3 hrs.

Application of educational theories and techniques for the nurse educator. Prerequisite: ETE 655.

NUR 670 Nurse Administered Anesthesia Principles I

3 hrs.

Introduction to clinical nurse administered anesthesia: practice, ethics, professional organizations, psychology, history of anesthesia. Emphasis on nursing process in perioperative and operative patient care; equipment and technology. Laboratory experience included. Prerequisites: BIO 506, 570, 525; CHM 500; PHY 541; nurse-administered anesthesia majors only.

NUR 671 Nurse Administered Anesthesia Principles II

3 hrs.

A progression from Principles I to more advanced anesthesia delivery. Emphasis is on nursing process in perioperative and operative client care, plus the study of equipment and technology. Laboratory experience provided to introduce the student to anesthesia practice. Prerequisites: NUR 670; nurse administered anesthesia majors only.

NUR 672, 673 Pharmacology I, II

4 hrs. each

Pharmacologic principles related to administration of anesthesia and adjunct drugs. Drug receptor theory, biotransformation, structure activity relationships, uptake, distribution, elimination. Systemic pharmacology and drug interactions. Prerequisites: NUR 500; CHM 500; BIO 506, 570, 525; PHY 541; nurse-administered anesthesia majors only. NUR 672 is prerequisite for NUR 673.

NUR 675 Nurse Administered Anesthesia Internship

0 hrs.

Internship under direct supervision of cooperating agency CRNA or anesthesiologist. Use of nursing process (assessment, planning, intervention, and evaluation) to support patient's physiological and emotional status into post-operative period. Regularly-scheduled conferences. Prerequisites: nurse administered anesthesia majors only; completion of Year I and Summer I of required course sequence.

NUR 682 Seminar in Nursing 1-6 hrs.
Seminar on special problems or areas in nursing. A variable credit hour course; may be taken more than once for a maximum of 6 credits total. Prerequisite: consent of instructor or department chair.

NUR 683 Advanced Practice Nurse Internship 6 hrs.
Internship applying advanced practice nursing concepts in selected specialty areas. Regularly scheduled conferences. Prerequisite: certified advance practice nurses only.

NUR 689 Independent Research 1-6 hrs.
Readings, research, or project complementing the student's program of study. May be repeated for a maximum of six hours. Prerequisite: consent of instructor.

NUR 698 Directed Research in Nursing 0-2 hrs.
A research-oriented, student-initiated endeavor that culminates in a scholarly paper suitable for publication or presentation. Required for MSN students who do not select the thesis option. Prerequisites: NUR 620, NUR 625, and consent of instructor.

NUR 699 Thesis 0-4 hrs.
Design and implement a research proposal which has implications for nursing practice. May be repeated for a maximum of four semester hours. Prerequisites: NUR 620, 625; consent of department chair.

Supportive Courses

NUR 500 Health Assessment 3-4 hrs.
Systematic method for collecting data used in holistic health assessment of children and adults. Interviewing techniques for history taking; physical assessment skills. Prerequisites: R.N. with B.S. major in nursing; or R.N. with consent of instructor.

NUR 522 Seminar on Nursing & Public Policy 3 hrs.
Nursing activities and organizations affecting practice, health care, public policy, and the future of the profession. Emphasis on generating recommendations for the profession and developing a personal professional plan for participating in the process that develops public policy at the local, state, national, and/or international level. Prerequisites: nursing majors and senior or graduate status; or consent of instructor.

NUR 533 Seminar in International Health & Nursing 3 hrs.
Study of healthcare systems and nursing in a foreign country in selected hospitals, healthcare settings, and universities. Establishing healthcare professional and research networks.

Physical Therapy

Steven Tippett,
Chair, Department of Physical Therapy and
Health Science

The curriculum is accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE).

Mission

The mission of the Department of Physical Therapy and Health Science is to prepare undergraduate students to enter careers in the health care industry or to enter graduate education in health related fields, and to prepare graduate students as general practitioners in Physical Therapy.

Vision

The Department of Physical Therapy and Health Science will strive to build a balanced environment of teaching, research, service, and practice, which will prepare students to live and work productively in a diverse and ever-changing society.

Doctor of Physical Therapy

The Doctor of Physical Therapy program began summer 2005.

Admission Requirements

In addition to meeting admission requirements for the Graduate School, requirements for entry into the Doctor of Physical Therapy (DPT) program include the following:

- Completion of a baccalaureate degree with a Health Science major from Bradley University with a "C" or higher in all required courses **OR**
- Completion of a baccalaureate degree with the following courses completed with a "C" or higher:
 1. Chemistry - 1 year chemistry sequence for science majors (eg. 6-8 semester hours) with laboratory experience
 2. Physics - 1 year physics sequence for science majors (eg. 6-8 semester hours) with laboratory experience
 3. Biology/Zoology - 6-8 semester hours with content that includes an introduction to cell biology, biochemistry, and genetics
 4. Anatomy - 3-4 semester hours of vertebrate, mammalian, human, or comparative anatomy that includes a laboratory experience
 5. Physiology - 3-4 semester hours of vertebrate, mammalian, or human physiology (a two-semester sequence of combined anatomy and physiology will meet the anatomy and physiology requirement)
 6. Statistics - 3 semester hours of statistics

The following courses are highly recommended:

1. Kinesiology, biomechanics, or additional courses in human anatomy
2. Exercise physiology, pathophysiology, or additional courses in physiology
3. Upper division psychology and sociology courses
4. Medical Terminology

In addition, an applicant should have:

1. Minimum 3.0 grade point average in all mathematics and science courses taken.
2. Minimum 3.0 grade point average for all courses taken.
3. GRE verbal and quantitative minimum total of 1000.
4. TOEFL score of 600 or higher, TSE of 50 or higher, and TWE of 4.5 or higher for non-native English speaking applicants.
5. Skills in computer literacy, communication (written and verbal), medical terminology, and teaching.

Along with the application, students are expected to submit:

1. An essay to articulate the applicant's perception of the physical therapy profession and examples of professional conduct.
2. Expanded résumé of education, activities, and work experiences.

Other Requirements

In addition to the University's student health form requirement, and prior to enrollment in the first full-time physical therapy course that includes a clinical experience, each student must verify:

- professional liability insurance (renewable annually)
- immunity to rubeola (measles) by one of the following: - a rubeola (measles) immunization received in 1990 or later, **or** - written verification from a physician of having had the disease, **or** - birth date prior to 1957
- immunity to rubella (German measles) by one of the following: - written verification of having had the immunization, **or** - written verification rubella titer greater than 1:10
- written verification of immunity to Hepatitis B virus
- written verification of tuberculin test results (renewable annually)
- CPR certification (renewable annually)

Contact the Department for the most current requirements

Admission is competitive for a limited number of spaces in the class.

Course of Study

Summer I

PT 612 Functional Anatomy I (Five Weeks)	2 hrs.
PT 614 Gross Anatomy I (Five Weeks)	2 hrs.
PT 616 Research I (Five Weeks)	1 hr.
PT 622 Functional Anatomy II (Five Weeks)	2 hrs.
PT 624 Gross Anatomy II (Five Weeks)	2 hrs.
	<hr/>
	9 hrs.

Fall I

PT 630 Foundations of Physical Therapy	4 hrs.
PT 636 Musculoskeletal Physical Therapy I	4 hrs.
PT 640 Clinical Science I	3 hrs.
PT 646 Research II	2 hrs.
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	13 hrs.

January Interim I

PT 650 Clinical Education I	3 hrs.
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Spring I

PT 662 Neurological Physical Therapy I	4 hrs.
PT 666 Research III	3 hrs.
PT 670 Human Development Throughout the Lifespan	3 hrs.
PT 680 Clinical Science II	2 hrs.
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	12 hrs.

Summer II

PT 700 Musculoskeletal Physical Therapy II (8 Weeks)	4 hrs.
PT 710 Clinical Education II (5 Weeks)	8 hrs.
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	12 hrs.

Fall II

PT 710 Clinical Education II (Continuation - 3 Weeks)	
PT 716 Research IV (13 Weeks)	1 hr.
PT 720 Teaching and Learning Theory in PT (13 Weeks)	3 hrs.
PT 730 Neurological Physical Therapy II (13 Weeks)	4 hrs.
PT 740 Clinical Science III (13 Weeks)	2 hrs.
	<hr/>
	10 hrs.

Spring II

PT 750 Physical Therapy Administration and Management	4 hrs.
PT 766 Research V	1 hr.
PT 770 Applied Exercise Principles	3 hrs.
PT 780 Clinical Science IV (8 Weeks)	2 hrs.
PT 790 Cardiovascular/Pulmonary/Integumentary Physical Therapy (8 Weeks)	2 hrs.
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	12 hrs.

Summer III

PT 800 Clinical Education III (8 Weeks)8 hrs.

Fall III

PT 810 Health and Wellness3 hrs.

PT 820 Professional Issues in Physical Therapy3 hrs.

PT 830 Physical Therapy Differential Diagnosis4 hrs.

PT 840 Independent Study (Optional).....1-6 hrs.

10-16 hrs.

Spring III

PT 850 Clinical Education IV (8 Weeks)8 hrs.

PT 860 Clinical Education V (8 Weeks)8 hrs.

16 hrs.

Elective

PT 760 Independent Study (1-6 hrs.)

Total required 105 hrs.

Course Descriptions

PT 612 Functional Anatomy I 2 hrs.

A lecture and laboratory study of human movement and applied kinesiology along with the introduction of physical therapy techniques to assess components of human movement. Prerequisite: consent of department chair.

PT 614 Gross Anatomy I 2 hrs.

Cadaveric dissection and study of the musculoskeletal, vascular, and peripheral nervous systems of the extremities. Prerequisite: consent of the department chair.

PT 616 Research I 1 hr.

A seminar introducing students to critical analysis of research with special emphasis on levels of evidence and evidence-based practice. Prerequisite: consent of department chair.

PT 622 Functional Anatomy II 2 hrs.

A lecture and laboratory study of human movement and applied kinesiology along with introduction of physical therapy techniques to assess components of human movement. Prerequisites: consent of department chair; PT 612.

PT 624 Gross Anatomy II 2 hrs.

Cadaveric dissection and study of the structures of the nervous, cardiovascular, pulmonary, gastrointestinal, genitourinary, and integumentary systems. Prerequisites: consent of department chair; PT 614.

PT 630 Foundations of Physical Therapy 4 hrs.

An introduction to clinical applications in physical therapy. Topics covered in this course include basic physical therapy examination procedures, professional documentation and communication, therapeutic exercise, physical agents and mechanical modalities, and patient care skills. Prerequisite: consent of department chair.

PT 636 Musculoskeletal Physical Therapy I 4 hrs.

The study and application of orthopaedic basic science in the examination, evaluation, and management of dysfunctions and disabilities of the appendicular skeleton. Prerequisite: consent of department chair.

PT 640 Clinical Science I 3 hrs.

The anatomical, biomechanical, physiological, and histological basis of the normal and pathological musculoskeletal system, along with specialized examination, assessment, and intervention strategies for the musculoskeletal system. Prerequisite: consent of department chair.

PT 646 Research II 2 hrs.

Research design, methods, and principles of basic statistical analysis; exploration of research topics with review of appropriate literature; and introduction to components of the research proposal. Prerequisite: consent of department chair; PT 616.

PT 650 Clinical Education I 2 hrs.

The first of five full-time supervised clinical experiences requiring utilization of communication skills and teaching interpersonal and evaluation skills. This course emphasizes the development of the student's interpersonal skills, professional behaviors, examination techniques, and intervention techniques learned previously in the classroom. Prerequisite: consent of department chair.

PT 662 Neurological Physical Therapy I 4 hrs.

The study and application of neurological basic science in the examination, evaluation, and management of dysfunctions and disabilities in physical therapy patient care. Prerequisite: consent of department chair.

PT 666 Research III 3 hrs.

Principles of intermediate statistical analysis and technical/research writing will be provided as the student finalizes methods for research project and prepares research proposal. Prerequisites: consent of department chair; PT 646.

PT 670 Human Development Throughout the Lifespan 3 hrs.

A multi-system analysis of the many facets of individual development from conception to death. Prerequisite: consent of department chair.

PT 680 Clinical Science II 2 hrs.

The anatomical, physiological, and histological basis of the normal and pathological neuromuscular system, and foundations of pharmacology as it relates to intervention strategies for patients with neuromuscular impairments. Prerequisites: consent of department chair; PT 640.

PT 700 Musculoskeletal Physical Therapy II 4 hrs.

The study and application of orthopaedic basic science in the examination, evaluation, and management of dysfunctions and disabilities of the axial skeleton. Prerequisites: consent of department chair; PT 636.

PT 710 Clinical Education II **8 hrs.**
The second of five full-time supervised clinical experiences requiring utilization of communication skills and teaching interpersonal and evaluative skills. This course provides the opportunity to advance physical therapy procedures and to continue to develop professional socialization. Prerequisites: consent of department chair; PT 650.

PT 716 Research IV **1 hr.**
Data collection, statistical analysis, data interpretation, and completion of the Results section of the written student research report. Prerequisites: consent of department chair; PT 666.

PT 720 Teaching and Learning Theory in PT **3 hrs.**
Discussion and application of teaching and learning theories as related to the classroom and clinical setting, including student clinical education, staff inservice, and patient education. Prerequisite: consent of department chair.

PT 730 Neurological Physical Therapy II **4 hrs.**
Applied neurological examination, evaluation, and intervention theories and strategies in physical therapy patient care. Prerequisites: consent of department chair; PT 662.

PT 740 Clinical Science III **2 hrs.**
The management of a variety of disorders resulting in physical, emotional, and cognitive impairments and their physical therapy implications. Prerequisites: consent of department chair; PT 680.

PT 750 Physical Therapy Administration and Management **4 hrs.**
Discussion and practical application of administrative and management issues relative to a variety of physical therapy patient care settings. Prerequisite: consent of department chair.

PT 760 Independent Study **1-6 hrs.**
Individual study and investigations through selected readings, discussions, and/or written assignments. Repeatable up to 6 hours. Prerequisites: Physical Therapy major and/or permission of the Department of Physical Therapy/Health Science Chair.

PT 766 Research V **1 hr.**
Completion of student research project and presentation of research findings to peers and internal and external constituents. Prerequisites: consent of department chair; PT 716.

PT 770 Applied Exercise Principles **3 hrs.**
A course composed of lecture/discussion on the scientific basis and evidence supporting the use of various exercise techniques, as well as practical application and hands-on experience performing and completing these exercise techniques and applications correctly. Therapeutic, training, and performance enhancement approaches to exercise will be addressed. Prerequisite: consent of department chair.

PT 780 Clinical Science IV **2 hrs.**
The anatomical, physiological, and histological basis of the normal and pathological cardiopulmonary, vascular, and integumentary systems. Normal and abnormal metabolic processes and their physical therapy implications. Prerequisites: consent of department chair; PT 740.

PT 790 Cardiovascular, Pulmonary, and Integumentary Physical Therapy **2 hrs.**
Using the gas transport model as a foundation, this lecture and laboratory course provides the student with the skills to apply, analyze, and synthesize the basic science of cardiovascular, pulmonary, and integumentary physical therapy as it relates to disorders of cardiac, vascular, pulmonary, and integumentary systems. The focus of this course is examination and evaluation techniques and program planning. Prerequisite: consent of department chair.

PT 800 Clinical Education III **8 hrs.**
The third of five full-time supervised clinical experiences offering the opportunity for continued development of clinical management of patients in one of a variety of clinical settings. This course allows for continued professional socialization and growth as well as further development of professional behaviors. Prerequisites: consent of department chair; PT 710.

PT 810 Health and Wellness **3 hrs.**
Physical therapy implications of common health issues in a variety of physical therapy clients, and the role of screening and prevention in dealing with these issues. Prerequisite: consent of department chair.

PT 820 Professional Issues in Physical Therapy **3 hrs.**
Presentation and discussion of pertinent issues in the field of physical therapy. Prerequisite: consent of department chair.

PT 830 Physical Therapy Differential Diagnosis **4 hrs.**
The curriculum's capstone course that emphasizes the role of the physical therapist in managing the patient with multi-system dysfunctions. Prerequisite: consent of department chair.

PT 840 Independent Study **1-6 hrs.**
An optional opportunity for the student to focus on a specific area of interest with faculty and/or clinician guidance.

PT 850 Clinical Education IV **8 hrs.**
The fourth of five full-time, supervised clinical experiences or first half of the clinical education experience requiring utilization of advanced communication skills and teaching interpersonal and evaluative skills. Students have the opportunity to further develop clinical management of patients in a different clinical setting. Furthermore, continued professional socialization and growth as well as development of professional behaviors are expected. Prerequisites: consent of department chair; PT 800.

PT 860 Clinical Education V

8 hrs.

The last of five full-time, supervised clinical experiences or second half of the final clinical education experience requiring utilization of advanced communication skills and teaching interpersonal and evaluative skills. Students have the opportunity to further develop clinical management of patients in a different clinical setting. Furthermore, continued professional socialization and growth as well as continued development of professional behaviors are expected. Prerequisites: consent of department chair; PT 850.

COLLEGE OF ENGINEERING AND TECHNOLOGY

Richard T. Johnson,
Dean

Joseph Emanuel,
Associate Dean

Robert Podlasek,
Assistant Dean

The College of Engineering and Technology offers programs leading to:

- Master of Science in Civil Engineering
- Master of Science in Electrical Engineering
- Master of Science in Industrial Engineering
- Master of Science in Manufacturing Engineering
- Master of Science in Mechanical Engineering

Students majoring in engineering are required to complete from 30 to 33 semester hours of coursework, depending on the program they are pursuing. Students should consult the department graduate program coordinator for a plan of study prior to registration.

For international graduates (unless from an English speaking country), a minimum TOEFL score of 550 is required for unconditional admission. The GRE is required by some departments and suggested for others.

A minimum undergraduate last-60-hour grade point average of 3.0 on a 4.0 scale is needed for unconditional admission. However, some programs may have other requirements for unconditional admission. Prospective graduate students who have a GPA below 3.0 or a TOEFL score below 550 may be admitted conditionally. TOEFL and GRE scores are taken into consideration for admission and when making assistantship award decisions.

Special Academic Programs

To participate in the following programs, students must have authorization to work in the United States. Eligibility of non-immigrant (F-1) students is defined on an individual basis according to regulations set forth by the Bureau of Citizenship and Immigration Services (BCIS) and the Bureau of Immigration and Customs Enforcement (BICE), formerly referred to as INS—the Immigration and Naturalization Service. For clarification of eligibility, contact the Multicultural Student Services Office or consult the BCIS Web site at www.immigration.gov.

Practicum

Graduate students enrolled in chemistry, civil engineering, computer science, electrical engineering, industrial engineering, manufacturing engineering, mechanical engineering, and physics may have an opportunity for employment for 10-20 hours per week in a practicum program that partners industry and the university. Generally, the practicum is on-site work in an industrial setting. Students are assigned technically challenging projects with a near-term economic significance. Participating students will be enrolled in EGT 500 for zero credit hours.

Internship

Engineering internships provide engineering students an opportunity to participate in a full-time internship semester and/or summer away from campus providing career-related work experience. Participating graduate students will enroll in EGT 510 for zero credit hours. While on a full-time internship assignment, students are considered to have full-time student status, making normal progress toward a degree in a recognized University program, and are entitled to all student privileges at the University. Also while on a full-time internship assignment, students may register for additional hours of classroom study upon departmental approval.

Course Descriptions

EGT 500 Graduate Engineering Practicum 0 hrs.

Solving challenging problems with a near-term economic benefit. Only for students approved for practicum by the Dean's Office. Pass/fail. Prerequisite: graduate student.

EGT 510 Graduate Engineering Internship 0 hrs.

Full-time internship away from campus for engineering and technology students to gain academic or career-related work experience in industry. May be repeated only with consent of internship coordinator and internship faculty advisor. Satisfactory/Unsatisfactory. Prerequisites: engineering and technology graduate student. Newly admitted graduate student must be unconditionally admitted and continuing student must have a minimum of 3.0 grade point average in graduate courses. Approval of internship coordinator and internship faculty advisor.

Civil Engineering

Kerrie Schattler,
Graduate Program Coordinator

The Department of Civil Engineering and Construction offers an MSCE degree program that prepares graduates for thriving engineering careers characterized by continued professional growth. Our graduates are given unique opportunities to acquire the talents and skills needed in a highly technical society facing serious uncertainties and challenges in the environment and infrastructure. Our program provides you with the broad scope necessary for a fruitful and successful career in the practice of civil engineering and construction management.

To meet the needs of industry and students, the department recently acquired a multimedia laboratory and equipped it with the most sophisticated software and hardware available anywhere in the country. This recent acquisition provides a vivid example of the commitment to excellence and persistent drive that has become the hallmark of our department. The departmental goal is to provide an educational experience that is nationally and internationally recognized. Our students and faculty aspire to be leaders in their respective fields on and off campus.

Financial Support Research and teaching assistantships are available for qualified graduate students through the department and ongoing funded research projects. Currently more than 60% of all graduate students are being supported. The department has numerous endowed scholarships, and some of these funds provide fellowships to selected graduate students. Qualified students may also receive up to 100% tuition waiver from the University. Additionally, faculty and graduate students have received research grants from major companies, state agencies, the National Science Foundation, and other private and government sources.

Students have abundant opportunities to gain practical experience off campus either part time or full time during semester breaks and summers. For example, the Illinois Department of Transportation has hired many graduate students. Various industries have employed our graduates under a pollution prevention program sponsored by the Illinois EPA.

Internationalization and Our Global Explorer Program The Global Explorer program is designed to expand the professional capabilities, stimulate intellectual growth, and broaden the personal perspectives of all participants. Arrangements have been made with universities around the world to send our students either for short courses or for the entire academic year. Students with financial need have received financial support that enables them to study abroad for equal or less than what it would cost them to study at Bradley University. This program enables students to meet

the challenges of tomorrow and equips them with the needed skills to compete in an international marketplace.

Programs of Study The graduate program can be characterized by areas of concentration: construction management, structures, and geo-environmental/water resources. New course offerings have been introduced in multimedia, pavement and superpave, GIS/GPS, and transportation systems. Selected courses in other engineering departments, the college of business, and computer science are permissible. The program's flexibility provides graduate students with a wide variety of means to prepare for their future careers.

Construction Management The construction industry is the largest industry in the United States. Its impact is felt in every area of civil engineering, both nationally and internationally. This fast-growing area provides courses that enhance the education of students by examining the most recent trends and methods in the management of the construction process. Opportunities are provided through coursework dealing with advanced cost estimating, contract administration, productivity analysis, total quality management (TQM), cutting-edge software dealing with design/build processes and multimedia presentations, and many other areas that affect the profession.

Structural Engineering The graduate courses in the structural program offer a wide variety of courses that provides a strong theoretical and applied background suitable for both practice and research. The structural engineering group has five faculty members with a diverse academic background. The group employs experimental, numerical, and analytical techniques in their research activities. The research interests within the group include: behavior and design of reinforced concrete, structural durability, analysis and design of bridges, finite element analysis, computational mechanics, structural stability, and seismic analysis and design of structures.

Students are given the opportunity to utilize a spectrum of computer facilities, including a networked personal computer and workstations. These computers are equipped with the state-of-the-art structural engineering and finite elements software packages. The well-equipped structures laboratory provides state-of-the-art research tools. Among them are an MTS 80 kips Cyclic Testing System, NI data acquisition system, a large number of transducers and LVDT's, Universal Testing Machine, and an ELE compression testing machine.

Geo-Environmental Engineering This program option meets the growing need for professionals who are well educated in the science and engineering of treatment processes and pollutant transport and impact on the environment. The program also addresses the need for more informed decision-making with respect to environmental risks and impacts. Graduates from this program are employed by governmental agencies, by consulting com-

panies that specialize in environmental engineering and environmental planning, and by industrial manufacturing companies in pollution prevention or environmental control rules. Funded research from Caterpillar Inc. and from regional and national environmental agencies provides an opportunity for graduate students to participate in the research of hazardous waste treatment, biological wastewater treatment, physico-chemical treatment, and management models of environmental policies and systems.

Facilities The Department has major laboratories with state-of-the-art equipment in multimedia, Archicad, geo-technical, concrete, asphalt, environmental, surveying, structural, microcomputers, construction, design, projects, research, and fluids. Our students have 24-hour access to a spectrum of computer facilities, including networked personal computers and workstations. These computers are equipped with cutting edge software packages in structural, geotechnical, environmental, and construction management. The CEC laboratories include needed instrumentation for education and research. For example, the structural laboratory includes an MTS 80 kips Cyclic Testing System, NI data acquisition, a universal testing machine, and an ELE compression testing machine. The environmental laboratory includes a gas chromatograph with purge trap, atomic absorption spectrophotometers, and FTIR. The asphalt laboratory is being updated to include Superpave testing equipment. These laboratories are well equipped to meet the educational needs of students and research objectives of graduate students and faculty.

Career Services Graduate students have numerous opportunities to develop through professional activities such as the student chapters of ASCE and AGC. These organizations sponsor noted speakers on a variety of topics and provide a forum for interaction between students and industry. In addition, graduate students may become involved with community projects such as the Bridge Pal program that fosters engineering interest in high school seniors.

The departmental advisory board is composed of successful civil engineers and construction leaders. Advisory board members are very active as speakers and outside professional contacts for our students. The departmental director for job placement also helps our students with their search for employment.

Faculty Qualifications The faculty are renowned worldwide and have published more textbooks (25) than any other civil engineering or construction department of similar size in the United States. These textbooks are used at a large number of highly regarded institutions. CEC faculty members have received numerous awards for teaching excellence and scholarship. Faculty have also conducted research for national, state, and local sponsors that have benefited our students.

MSCE Degree Requirements After selecting core courses, the student may study in any one of three areas of concentration: construction management, structural, or geo-environmental/water resources. The student has the opportunity of selecting a thesis or a non-thesis option. The thesis option requires 6 semester hours of CE 699 (Thesis). The non-thesis option requires a minimum of 6 semester hours in an area of concentration.

In addition to the requirements of the Graduate School, the Department of Civil Engineering and Construction has the following requirements:

1. The MSCE program requires a minimum of 30 semester hours beyond the bachelor's degree.
2. All MSCE students are required to take CE 610 to meet the mathematics requirement and a minimum of 18 semester hours from the department.
3. A plan of study is required by the end of the first semester. The plan may be changed by filing a request for amendment. This request must be filed with and approved by the graduate coordinator prior to registering for courses. Courses not on the approved study plan may not be counted towards the MSCE degree.
4. Admission of undergraduate students into 500-level courses requires that the student have the necessary prerequisites and a minimum average of 2.50/4.0 in the major field.
5. Admission into the MSCE program requires a bachelor's degree in civil engineering or construction. Qualified graduates from other engineering or related fields may be admitted conditionally. The conditional status may be changed to unconditional only after all deficiencies are removed.
6. Each student is required to pass a comprehensive examination during the last semester of his/her study. Students seeking the thesis option are required to make oral defense of their thesis instead.

Exceptions to the departmental requirements listed above may be made with the approval of the department chair. Such exceptions are rare and will only be granted in cases where clear justification can be demonstrated.

Course Descriptions

Civil Engineering

CE 508 Advanced Soil Mechanics 3 hrs.
Consolidation theory and settlements, stress-path method, strength and deformation behavior of soils, failure theories, confined flow, flow nets, numerical analysis of flow, unconfined flow, seepage through earth dams. Laboratory experiments on consolidation and shear strength. Prerequisites: CE 380.

CE 515 Advanced Foundation Engineering 3 hrs.
Advanced pile capacity formulations, buckling, and lateral loading. Mat foundations, finite difference solutions. Foundations on difficult soils. Slope stability; stability of earth dams. Excavations; geotechnical instrumentation. Prerequisite: CE 422.

CE 541 Pollution Modeling 3 hrs.
Phenomena that affect mass balance of contaminants in environmental systems. Advection, diffusion, dispersion, and interfacial mass transfer. Physical, chemical, and biological descriptions of these processes with mathematical models. Solutions to these models with illustrations from reactor engineering and surface water quality modeling. Application to actual process reactor. Prerequisites: senior or graduate standing; consent of instructor.

CE 542 Advanced Water Treatment 3 hrs.
Design of physical and chemical unit processes and unit operations with an emphasis on water treatment. Design of aeration systems, coagulation and flocculation processes, sedimentation tanks, filtration systems, chemical precipitation processes, ion exchange processes, and disinfection processes. Advanced purification methods including adsorption, reverse osmosis, electro-dialysis, and membrane processes. Treatment and disposal of physiochemical process sludges. Prerequisite: CE 360.

CE 543 Advanced Wastewater Treatment 3 hrs.
Application of concepts from microbiology and biology to environmental engineering systems. Detailed integrated design of wastewater treatment. Microbiology of wastewater treatment processes and soil bioremediation processes. Interaction between biogeochemical phenomena and microbial processes in an environmental engineering context. Prerequisite: CE 360.

CE 546 Groundwater Hydrology 3 hrs.
Groundwater in the hydrological cycle, fundamentals of groundwater flow; flow net analysis; steady-state and transient well testing techniques for parameter estimation; multiple well systems; leaky aquifers; sea water intrusion; groundwater investigation; artificial recharge of aquifers, design of wells; subsidence and lateral movement of land surface due to groundwater pumping. Design and computer applications. Prerequisites: CE 304.

CE 550 Geoenvironmental Engineering 3 hrs.
Soil composition and behavior. Development and movement of groundwater. Soil sampling and monitoring of contaminants in groundwater. Drilling techniques based on soil type. Land disposal of wastes. Solidification of wastes and design of landfills. Processes affecting the distribution of inorganic and organic pollutants in the environment. Exchange among soil, water, sediment, and biota. Remediation of contaminated soil and groundwater at existing sites. Prerequisites: CE 380, CE 360.

CE 555 Sustainability and Environmental Regulations **3 hrs.**

Sustainability as it is expressed in environmental regulations and policies for conventional and hazardous wastes in air, water, and groundwater. Toxicological, risk assessment, risk-based engineering, and regulatory aspects for the sustainable management of all types of waste. Prerequisite: senior or graduate standing.

CE 558 Solid Waste Management **3 hrs.**

Sources, composition, and properties of solid waste. Transport of solid wastes and design of transfer stations. Separation, transformation, and recycling of waste materials. Landfill siting. Leachate generation, collection, and removal systems. Liner system design. Landfill settlement and stability analysis. Accelerated treatment of solid waste. Methane recovery from landfills. Closure, restoration, and rehabilitation of landfills. Case studies. Prerequisites: CE 360, CE 380.

CE 560 Advanced Structural Analysis **3 hrs.**

Direct stiffness method for the analysis of two-dimensional trusses and frames, equivalent nodal forces, thermal and settlement effects, principle of virtual work, space trusses, grid structures, static condensation, Lagrange multipliers, tapered elements. Prerequisites: CE 210, CE 359.

CE 562 Advanced Steel Design **3 hrs.**

Structural framing systems; rigid frame design; design of bracing; design of simple rigid and moment resisting connections; torsion of steel open sections; design of beams subjected to torsion; design of steel plate girders; design of composite beams. Prerequisite: CE 442.

CE 565 Advanced Concrete Design **3 hrs.**

Advanced topics in flexural design; torsion in beams; behavior and design of slender columns; biaxial bending of columns; design of two-way slabs; behavior and design of frame-wall structural systems; inelastic analysis of flexural members; use of strut and tie analysis; yield line analysis; design of mat foundations. Prerequisite: CE 403.

CE 567 Prestressed Concrete Design **3 hrs.**

Theory and analysis of prestressed concrete members by various methods of prestressing; design of simple and continuous beams and slabs; prestress losses; composite beams. Extensive study of materials used in prestressed concrete. Precast concrete systems. Prerequisites: CE 403; senior or graduate standing.

CE 570 Advanced Mechanics of Materials **3 hrs.**

Two- and three-dimensional stress and strain at a point; two-dimensional elasticity; beams on elastic foundations; torsion of noncircular sections; curved beams; unsymmetrical bending; plastic collapse and limit analysis. Prerequisite: CE 270.

CE 575 Structural Dynamics **3 hrs.**

Single degree of freedom systems; multi-degree of freedom systems; lumped mass and consistent mass—MDOF beams; free and forced vibrations; earthquake loading; impact and impulsive loads; numerical procedures.

CE 577 Seismic Design **3 hrs.**

Theory, analysis, and design of building structures under earthquake loading. Application of current codes and standards related to steel, concrete, masonry, and wood structures. Prerequisite: CE 403.

CE 580 Highway Safety **3 hrs.**

Safety aspects of streets and highways; planning, implementation, and evaluation of highway safety improvement projects and programs. Highway risk analysis and risk management systems. Prerequisite: senior or graduate standing.

CE 583 Geometric Highway Design **3 hrs**

Application of standards, theory, and practice in design of streets and highways. Design of streets and highways including cross section elements, shoulder, and roadside features. Prerequisite: senior or graduate standing.

CE 585 Advanced Pavement Design **3 hrs.**

Advanced methods in pavement design: mechanistic empirical pavement design, performance models, overlay design, back calculation of layer moduli, perpetual pavement design. Prerequisites: CE 356, senior or graduate standing.

CE 586 Pavement Management Systems **3 hrs.**

Condition assessment of the infrastructure with emphasis given to pavement, deterioration modeling, engineering economics of payment systems, evaluation of project alternatives, optimization and ranking, sustainability, and strategic environment assessment for infrastructure decision-making. Prerequisite: CE 356.

CE 591 Special Topics I **1-3 hrs.**

Topics of special interest, which may vary each time course is offered. Topic stated in current Schedule of Classes. Prerequisite: senior or graduate standing.

CE 592 Special Topics II **1-3 hrs.**

Topics of special interest, which may vary each time course is offered. Topic stated in current Schedule of Classes. Prerequisite: senior or graduate standing.

CE 610 Advanced Numerical Methods **3 hrs.**

Selected numerical methods and applications chosen to meet current needs for solving problems in civil engineering. Prerequisite: CE 210 or equivalent. Not open to students who have previously earned credit in CE 510.

CE 655 Environmental Management Modeling 3 hrs.

Development, solution, and interpretation of management models used in environmental planning and water resource systems. Risk analysis and management. Risk and how its various aspects influence environmental regulations and policy. Decision making with risk including risk-based design. Environmental impact assessment. Water resource allocation decisions. Prerequisite: CE 360.

CE 670 Theory of Elasticity 3 hrs.

Stress and strain tensors; stress on arbitrary planes; principle stresses in three dimensions; equilibrium equations; strain displacement equations and compatibility conditions; transformation of stresses and strains; plane elasticity in rectangular and polar coordinates; boundary value problems; yield and failure criteria; energy principles. Prerequisites: CE 610, CE 570.

CE 681 Traffic Signal Design 3 hrs.

Analysis and design of traffic signals for isolated intersections and coordinated systems. Hardware, communication, and detection systems associated with signal systems. Fundamental concepts of simulation of traffic operations. Application of optimization/simulation computer software programs. Not open to students who have previously earned credit in CE 581. Prerequisites: CE 310 or equivalent.

CE 682 Transportation Economics 3 hrs.

Application of engineering economy for transportation systems; analysis of congestion costs, highway transportation costs, and road user consequences. Identification and measurement of highway benefits, concepts of value and time, and willingness to pay; discount rate and vest charge; concepts of depreciation and service life; life cycle cost analysis; evaluation of transportation alternatives and evaluation of completed projects and programs. Not open to students who have previously earned credit in CE 582. Prerequisite: graduate standing.

CE 691 Advanced Topics in Civil Engineering I 3 hrs.

Advanced topics of special interest in civil engineering and construction which may vary each time course is offered. Topic stated in current Schedule of Classes. Prerequisites: graduate standing and consent of instructor.

CE 692 Advanced Topics in Civil Engineering II 3 hrs.

Advanced topics of special interest in civil engineering and construction which may vary each time course is offered. Topic stated in current Schedule of Classes. Prerequisites: graduate standing and consent of instructor.

CE 699 Thesis 3-6 hrs.

Research on a topic selected by the student and approved by the thesis advisor. Prerequisite: graduate standing in CE.

Construction

CON 520 Construction and Engineering Practice 3 hrs.

Issues of the processes affiliated with the construction and engineering consulting profession: project delivery, conception through construction of projects, phases of design, and unique challenges. Case studies will be utilized. Prerequisites: senior or graduate standing.

CON 522 Advanced CADD 3 hrs.

Applications of CAD systems. Visualization and optimization of the processes used in construction through three-dimensional modeling and utilization in various civil engineering and construction applications. Prerequisites: CE 224 or consent of department chair.

CON 524 Building Information Modeling 3 hrs.

Application of state-of-the-art technology in projects during various phases from inception to completion including planning, design, procurement, construction, handing over, and operation and maintenance. Investigation of different available tools and technologies in recording, storing, and sharing project information. Prerequisites: senior or graduate standing in the College of Engineering and Technology.

CON 526 Advanced Cost Estimating 3 hrs.

Advanced techniques in taking-off quantities, pricing techniques, computer estimating, and bidding strategy models. Prerequisite: CON 396 or consent of department chair.

CON 528 Advanced Scheduling 3 hrs.

Project scheduling methods with emphasis on network scheduling techniques, work breakdown structure (WBS), resource and cost loading, scheduling under uncertainties, project time compression, resource leveling, scheduling for linear projects (LOB), time-cost trade-offs, project status, reporting and updating, schedules as tools for claims documentation. Case studies. Computer based. Prerequisites: CON 392 or consent of department chair.

CON 529 Advanced Contracts 3 hrs.

Issues in the administration and implementation of a construction contract. Coordinating and controlling the construction project under legal and ethical considerations. Prerequisites: CON 492 or consent of department chair.

CON 536 TQM Principles 3 hrs.

Theory and analysis of the Total Quality Management system as applied within the construction industry. Case studies. Prerequisites: QM 262, CE 310, or IME 311 or consent of department chair.

CON 537 Construction Simulation**3 hrs.**

Decision making using simulation and simulation languages to model construction operations. Simulation of construction process using what-if analysis. Role of simulation and decision making in the planning and scheduling phases in the construction industry. Topics include introduction to discrete event simulation, generation of random numbers, queuing, simulation languages for construction. Prerequisites: QM 262, CE 310, or IME 311 or consent of department chair.

CON 540 Project and Company Management **3 hrs.**

Unique issues of company and project management in the construction industry not traditionally found in construction programs, such as fraud, regulatory issues, and international construction. Presentations on project and company management by renowned experts will give the student knowledge and insights on new trends, innovative procedures, practical case studies, and exposure to innovation in construction. The course will give the student knowledge of the business aspects of running a wide range of construction companies and a variety of projects. Prerequisite: senior or graduate standing.

Electrical Engineering

Prasad Shastry,
Graduate Program Coordinator

The Department of Electrical and Computer Engineering offers a graduate program leading to the degree Master of Science of Electrical Engineering. The goal of the program is to enhance the student's understanding of advanced concepts in core areas of modern electrical and computer engineering and to enrich the student's design and/or research skills in a specialization of his or her choice. This is done through coursework and a design project or thesis as described below.

Students work closely with the Graduate Program Coordinator in tailoring an overall program best suited to their background and interests. Course sequences, design projects, and research are available in applied electromagnetics, communication theory, control theory, digital systems and computers, microprocessor applications, signal processing, and wireless components and systems. The ECE department has excellent computer and laboratory facilities to support advanced studies in these areas.

Degree Requirements

A total of 33 semester hours is required for the degree and all students must do either a thesis (thesis option) or design project (design option). The specific requirements for each option are as follows:

Thesis Option

- EE 501 Principles of Electrical Engineering Design, 3 hours
- Thesis, 6 hours
- 18 hours of electrical engineering courses with two 6-hour specializations
- 6 hours of EE or approved technical electives

Design Option

- EE 501 Principles of Electrical Engineering Design, 3 hours
- Design Project, 3 hours
- 21 hours of electrical engineering courses with two 6-hour specializations
- 6 hours of EE or approved technical electives

In addition to the two six-hour specializations, at least six hours of the EE coursework must utilize advanced mathematical concepts. Examples of such courses are EE 532, EE 540, EE 550, EE 630, EE 631, EE 642, EE 643, and EE 651. Technical electives can be chosen from graduate courses offered by other engineering programs or by the biology, chemistry, computer science, math, or physics depart-

ments. The one-semester EE 501, Principles of Electrical Engineering Design, covers design techniques in key areas of electrical engineering. This course will be waived for students unconditionally admitted to the MSEE program. In addition, those students conditionally admitted but with considerable design experience can seek to waive EE 501 by petitioning the graduate coordinator.

All the courses used to satisfy the degree requirements for the MSEE degree must be listed in the student's Graduate Program of Study. This document must be completed and approved by the EE Graduate Program Coordinator before completion of 12 hours of coursework. The student must also complete a final degree experience, normally an oral comprehensive or colloquium.

Admission

Successful completion of an undergraduate electrical or computer engineering program is required for admission. In addition to the material described in the general admission section of this catalog, applicants to the MSEE program must also submit their scores from the GRE General Test. Undergraduate GPA, number of repeated undergraduate courses (if any), and GRE scores are the primary factors considered in admission decisions. International students must also submit material and information described in the general admission section of this catalog.

Plans of study are available for those with non-electrical engineering or non-engineering undergraduate degrees. These plans require a number of undergraduate foundation courses to be successfully completed before admission to the MSEE program. Further information can be obtained by contacting the ECE graduate program coordinator.

Course Descriptions

EE 501 Principles of Electrical Engineering

Design **3 hrs.**

Analog, digital, and software design experiments: use of instrumentation transistor amplifiers and switches, operational amplifiers, active and passive filters, digital logic, microcontrollers, and signal processing circuits. Use of computer-aided design and simulation tools for system analysis and design. (Cannot be used to satisfy MSEE elective.) Prerequisite: BSEE degree or consent of the department chair.

EE 531 Communication Theory I **3 hrs.**

Orthogonal signal representation; review of Fourier series and Fourier transform; basic probability theory; random processes; power spectral density; Shannon's channel capacity; sampling theorem; baseband signaling; bandpass signaling; complex envelop representation of signals and systems; analog modulations; binary and M-ary digital modulations; phase locked loops, demodulation circuits; matched filter; error performance in digital communications. Prerequisite: a minimum grade of C in both EE 301 and EE 302 or equivalents.

EE 532 Communication Theory II **3 hrs.**

Digital communication systems; modulation; demodulation; maximum likelihood detection; trade-offs between bandwidth and power; bit error rate; channel coding techniques: block coding, convolutional coding, and iterative decoding; mutual information; channel capacity; trellis-coded modulation; synchronization. Prerequisite: EE 531.

EE 533 Digital Image Processing **3 hrs.**

Design of computer-based imaging systems; multidimensional filtering and quantization methods for image enhancement, restoration, and pattern recognition. Prerequisite: EE 302 or MTH 325.

EE 534 Digital Signal Processing **3 hrs.**

Representation and analysis of discrete time signals and systems. Finite and infinite impulse response filter design; computer-aided-design; Fast Fourier Transform; implementation of digital filters. Prerequisites: EE 302.

EE 535 Engineering Applications of Neural Networks **3 hrs.**

Provides a working knowledge of the theory, design, and engineering applications of artificial neural networks. Emphasis will be directed to low-level implementation such as embedded microcontrollers and integrated circuits. Specific architectures such as correlation matrix memory, perceptron, adaline, multilayer networks, radial-basis function networks, and Hopfield networks will be examined as well as their corresponding learning rules. Prerequisite: EE 302 or graduate standing.

EE 540 Dynamic Systems Analysis **3 hrs.**

Advanced techniques for analysis of electrical, mechanical, and electromechanical systems. State function concepts are emphasized with methods for determining state equations, system stability, and control. Prerequisite: EE 302 or graduate standing.

EE 550 Electromagnetic Theory **3 hrs.**

Time-varying electric and magnetic fields; Maxwell's equations, electromagnetic potentials, electromagnetic boundary conditions, plane-wave propagation in unbounded conducting and non-conducting media, wave polarization, Poynting vector, reflection and transmission of waves at boundaries; radiation and antennas. Prerequisite: EE 381 or equivalent with a grade of C or better.

EE 551 Radio Frequency Circuits and Systems **3 hrs.**

Review of transmission lines, impedance matching and transformations, S-parameters, passive R.F. junctions, R.F. amplifier design, R.F. systems, and front end design. Prerequisites: EE 205, 206.

EE 555 Optical Fiber Communication **3 hrs.**

EM wave propagation in silica glass and step index optical fibers, LP modes, multimode and singlemode fibers, optical transmitters and receivers, design of optical fiber

communication systems meeting industry standards. Prerequisite: EE 381 or consent of instructor.

EE 561 Digital Systems: Logic Design 3 hrs.
Boolean algebra; logical design; storing and switching phenomena. Prerequisite: EE 304 or graduate standing.

EE 562 Digital Systems: Computer Structures 3 hrs.
Use of hardware programming language to design a small computer or other digital system; busing; control units; interfacing; transfer design. Prerequisite: EE 201.

EE 563 Advanced Electronics - VLSI System Design 3 hrs.
Design and implementation of very-large-scale integrated systems (VLSI). Integrated circuit devices, subsystems, and architecture. Computer-aided-design (CAD) and design testing. Prerequisites: EE 304 or graduate standing.

EE 565 Digital Systems: Microprocessor and PC Architecture 3 hrs.
Architecture of PC-compatible computers; 32-bit processor architecture and assembly language programming; standard buses. Design of peripheral cards to interface with the standard PC bus architectures. Prerequisites: EE 365 or consent of instructor.

EE 566 Digital Systems: Memory and Interfacing 3 hrs.
Design of single-board computers using 32-bit processors; processor architecture and assembly language programming. Introduction to RISC processors. Prerequisites: EE 365 or consent of instructor.

EE 567 Advanced VLSI Design 3 hrs.
Addresses the testability of integrated systems, using very large scale integration or VLSI, which includes topics on devices, circuits, and digital subsystems in CMOS technology. Includes the concept and methodology for the design for testability of digital integrated systems. Prerequisite: EE 563.

EE 568 VHDL: Digital System Design 3 hrs.
A structured guide to the modeling of the design of digital systems, using VHDL, a hardware description language. VHDL is designed to fill a number of needs in the design process. It allows description of the structure of a system, and the specification of the function using familiar programming language forms. As a result it allows the design of a system to be simulated and synthesized.

EE 575 Power Systems 3 hrs.
Analysis of electric power systems; fault studies; load flow; economic loading; stability; relaying; high voltage DC transmission; lightning and switching transients. Prerequisite: senior or graduate standing in EE. .

EE 582 Medical Imaging 3 hrs.
Introduction to the common methods and devices employed for medical imaging, including conventional x-ray imaging, x-ray computed tomography (CT), nuclear medicine (single

photon planar imaging), single photon emission computed tomography (SPECT), and positron emission tomography (PET), magnetic resonance imaging (MRI), and ultra-sound imaging. The physics and design of systems, typical clinical applications, medical image processing, and tomographic reconstruction. Cross-listed as ME 582. Prerequisites: Senior standing in engineering or consent of instructor.

EE 630 Random Variables and Signals 3 hrs.
Axiomatic probability; probability distributions; correlation functions; power spectral density; random processes; Markov chains and Markov processes; linear and non-linear systems with random inputs; linear mean square estimation; Wiener and Kalman filtering; applications to signal processing problems. Prerequisites: a minimum grade of B in both EE 301 and EE 302 or equivalents; completion of a senior or graduate-level course in the area of signals and systems with a minimum grade of C.

EE 631 Advanced Communication Theory 3 hrs.
Wireless communication systems, spread spectrum systems; multiple access techniques; software-defined radios; iterative receiver design; application to engineering problems: Global Navigation Satellite Systems. Prerequisites: EE 532 with a minimum grade of B.

EE 642 Advanced Control Systems 3 hrs.
Continuation of EE 540. Prerequisite: EE 540.

EE 643 Optimal Control Systems 3 hrs.
Analysis and design of multivariable control systems: stability, observability and controllability, deterministic/stochastic linear optimal regulator and observers, and multivariable stability robustness. Prerequisite: EE 540 or permission of instructor.

EE 651 Advanced Electrodynamics 3 hrs.
Continuation of EE 550. Special theory of relativity; plasma dynamics. Prerequisites: EE 540, 550.

EE 681, 682 Research 3-6 hrs. each
Graduate research on a project selected by student and advisor.

EE 691, 692 Topics in Electrical Engineering 1-3 hrs. each
Topics of special interest which may vary each time course is offered. Topic stated in current Schedule of Classes.

EE 699 Thesis 3-6 hrs.
Advanced electrical engineering research or design under the guidance of a faculty advisor. Required of students choosing thesis option. Total of 6 semester hours to be taken in one or two semesters. Prerequisites: consent of department chair; unconditional status.

Industrial Engineering Manufacturing Engineering

The Department of Industrial & Manufacturing Engineering & Technology offers two graduate programs leading to the Master of Science degree: M.S.I.E. in industrial engineering and M.S.Mf.E. in manufacturing engineering.

These degree programs respond to a wide range of manufacturing and service industry needs.

Each program has a graduate coordinator. The admission requirements for each are stated in the following program statements.

Industrial Engineering

Contact IMET Department

The Department of Industrial & Manufacturing Engineering & Technology offers a graduate program leading to the M.S.I.E. degree stressing the role of industrial engineers as problem solvers at managerial and staff levels in both manufacturing and service industries. The program offers students the opportunity to customize a plan of study, beyond an IE core, based on the student's educational background and career objectives. Courses will be drawn from such disciplines as engineering, science, mathematics, and business administration.

Admission is selective and is open to holders of an undergraduate degree in engineering, science or mathematics who meet Graduate School admission requirements. Students without an IE undergraduate degree may be required to make up undergraduate deficiencies. Those who do not have an engineering degree should have worked in an engineering environment for at least three years. International graduates should have a TOEFL score of 550 for unconditional admission and a score of 52 on part 1 of the test. Both part-time and full-time students are welcome.

Degree Requirements

The total program is 30 semester hours of graduate level work of which a minimum of 18 hours must be taken from IME designated courses, including 3 semester hours of a project course to demonstrate ability to identify, define and solve unstructured IE related problems. Most entering students who do not have the undergraduate degree in IE must complete IME 500, Engineering Economy and Costs, and IME 503, Engineering Quantitative Analysis. Neither will count towards graduate degree requirements. A 36-hour, non-project program is also available.

A course of study must be prepared by each student

in consultation with the academic advisor and must be approved by the department as early as possible but not later than the beginning of the second semester of study at Bradley.

Manufacturing Engineering

Contact IMET Department

The Department of Industrial and Manufacturing Engineering and Technology offers a graduate program leading to the Master of Science in Manufacturing Engineering. The objective of the program is to educate professionals who will design, build, operate, and control world-class manufacturing systems with enhanced productivity and competitiveness.

The program is structured with five interrelated areas: design, materials, processes, systems, and automation and integration.

Students applying for admission to the program must have a baccalaureate degree in engineering or science and must meet the grade point requirements of the Graduate School. Transcripts of all prior work at the college level and two letters of recommendation must accompany the application. All applicants will be considered on an individual basis. Successful applicants will have a background in the areas of processes, materials, mathematics, mechanics, computer science, and manufacturing systems. If a candidate does not have the required level or breadth of preparation in the areas specified above, the candidate may be admitted conditionally and will be advised of appropriate preparatory courses or conditions for full unconditional entrance to the program.

A total of 33 graduate credit hours is required to complete the program. Of the total credit hours:

- A. A minimum of 15 semester hours must be taken from the list entitled Manufacturing Engineering Areas. At least one course must be taken from each of the five manufacturing engineering areas. Selected topic courses and professional projects do not fulfill this requirement.
- B. Six semester hours should be devoted to thesis work. If a student elects not to undertake a thesis, a minimum of 3 semester hours must be devoted to project work.
- C. A minimum of 3 semester hours will be taken in advanced mathematics.
- D. A minimum of 6 semester hours must be taken outside of the program. A list of suggested courses is available from the graduate coordinator.

The student must file and secure approval for a plan of study with the manufacturing graduate advisory committee prior to completing 9 semester hours. Such a plan will specify the courses to be taken and the proposed the-

sis or project topic. In the event that a change in the plan is desired, such a change can be accomplished by filing a request for amendment with the advisory committee. This amendment must be approved prior to taking the alternative course. Candidates will be expected to demonstrate their capacity to draw upon and integrate their knowledge from all courses presented for their degree in a written comprehensive examination. Scheduling, grade reporting, and retakes will conform to the rules of the Graduate School.

Manufacturing Engineering Areas

Design

IME 590 Geometric Modeling
IME 591 Design for Manufacturability
IME 592 Tribology

Materials

IME 531 Nonmetallic Materials
IME 533 Composite Materials

Processes

IME 541 Forming Processes
IME 543 Materials Removal Processes
IME 545 Joining and Fabrication

Systems

IME 563 Process Engineering
IME 568 Introduction to Expert Systems and Artificial Intelligence
IME 583 Production Planning and Control

Automation and Integration

IME 553 Advanced Computer Aided Manufacturing
IME 555 Computer Integrated Manufacturing

Course Descriptions

IME 500 Engineering Economy and Costs 3 hrs.
Analysis of the economic aspects of engineering decisions including the time value of money and the techniques of obtaining cost data. Does not count toward MSIE. Prerequisite: graduate standing in engineering or consent of instructor.

IME 503 Engineering Quantitative Analysis 3 hrs.
Probability, random variables, distributions, inference, regression, linear programming, simulation. Does not count towards MSIE. Prerequisite: graduate standing in engineering or consent of instructor.

IME 511 Engineering Statistical Analysis 3 hrs.
Concepts in probability and statistics from practical and theoretical angles. Definition of probability, random variable, distribution, important discrete and continuous distributions, sampling distribution of X-bar, Central Limit Theorem, t, chi-squared and F distributions, estimation, hypothesis testing, regression analysis, and analysis of variance. Prerequisite: IME 503 or consent of instructor.

IME 512 Design and Analysis of Experiments 3 hrs.
Design and analysis of experiments in research, development, and production activities. Experimental designs for evaluating significance of main effects and interactions of several variables. Treatment of problems of measurement, planning, and evaluating programs. Prerequisite: two semesters of statistics or consent of instructor.

IME 514 Introduction to Operations Research 3 hrs.
Mathematical model building and use of deterministic and non-deterministic tools in problem solving. Problem solving structure, linear programming, transportation and assignment algorithms, game theory, networks, branch and bound algorithms, dynamic programming, deterministic and stochastic inventory models, markov chains, queueing theory and simulation. Prerequisite: IME 503 or consent of instructor.

IME 515 Linear Programming and Network Analysis 3 hrs.
Theoretical and computational aspects of linear programming; application to practical problems. Prerequisite: MTH 202; IME 117; consent of instructor.

IME 522 Manufacturing Quality Control 3 hrs.
Analysis of factors affecting product quality during manufacturing; process control charts; process capability studies; error of measurement; sampling plans; motivation programs; quality audit; organization. Prerequisite: one semester of statistics or consent of instructor.

IME 524 Advanced Quality Control 3 hrs.
Comparative study of philosophies of using quality as a business management tool, with special reference to Deming's Theory of control charts and a study of their strengths and weaknesses. Special control charts such as CUSUM chart, median chart, moving average chart, and their application. The latest published articles used to keep up-to-date in quality technology. Prerequisite: IME 522 or consent of instructor.

IME 526 Reliability Engineering 3 hrs.
Specification, prediction, and evaluation of product reliability and maintainability. Use of models for failure distribution—exponential, Weibull, lognormal—and analytical and graphical methods for failure data analysis. Test plans and accelerated testing models. Design methods for increasing reliability and maintainability. Prerequisite: IME 511 or consent of instructor.

IME 531 Non-metallic Materials 3 hrs.
Recent developments and applications of polymeric and ceramic materials. Selection and design criteria, material properties, process engineering, quality considerations, and failure prevention. Prerequisite: IME 331.

IME 533 Composite Materials 3 hrs.
Science and technology of modern composite materials: properties, design, toughening mechanisms, fabrication methods, evaluation, mechanisms of failure and quality assurance. Prerequisite: IME 331.

IME 541 Forming Processes 3 hrs.
Analytical methods in metal forming processes including slab approach, upper bound techniques, slip-line field and visio-plasticity methods. Forging, rolling, extrusion, drawing, sheet forming, near net-shape processes, and CAD/CAM. Prerequisite: IME 441.

IME 543 Material Removal Processes 3 hrs.
Current and future trends in: mechanics of chip generation; forces and energies in cutting and dynamometry; thermal aspects of machining; cutting tool materials; friction, wear, vibrations and tool life; applications of engineering fundamentals to design and analysis of machining operations with emphasis on computer control. Prerequisites: IME 441; IME 341.

IME 545 Joining and Fabrication 3 hrs.
Principles of advances in joining and fabrication of engineering materials including metallic, nonmetallic, and electronic materials. Process science and technology with emphasis on casting, welding, and microjoining of electronic components. Physical and mathematical modeling of various processes. Prerequisite: IME 331.

IME 553 Advanced Computer Aided Manufacturing 3 hrs.
Computer Aided Manufacturing (CAM) within the CAD/CAM and CIM contents. Computer Assisted Process Planning (CAPP), Computer Assisted Tool Design, Computer Assisted NC Programming (APT), Interactive Graphics, NC Programming, and the elements of computer control of manufacturing equipment (CNC). A semester project. Prerequisite: IME 445.

IME 555 Computer Integrated Manufacturing 3 hrs.
Computer Integrated Manufacturing (CIM); elements of hardware and software within the manufacturing automation environment. Islands of factory automation and their interactions, information flow and Local Area Networks within the CIM architecture, standardization of electronic data and interfaces. Prerequisite: IME 386.

IME 561 Simulation of Human/Machine Systems 3 hrs.
Procedures and rationale for planning, designing, and implementing computer simulation experiments used to analyze human-machine systems in engineering, business, and social sciences. Prerequisite: MTH 202, IME 117, IME 311.

IME 563 Process Engineering 3 hrs.
The process design function interaction with product design, and the responsibilities within a manufacturing organization. Selection and design of machinery, tools, and methods. Com-

puter aided process design and interactive accessing of machining data and tooling element of group technology and expert systems. Prerequisites: IME 395; IME 443.

IME 566 Advanced Facility Planning 3 hrs.
Extension of IME 466. Facility design consideration of internal and external service functions; logistic concerns; design flexibility. Prerequisites: IME 383 or IME 386 or IME 500.

IME 568 Introduction to Expert Systems and Artificial Intelligence 3 hrs.
Knowledge-based systems design and implementation; expert system shells and programming environments; validation and implementation of expert systems; case studies/laboratories. Cross-listed as CIS 588. Prerequisites: two semesters of computer programming and one semester of statistics, or consent of instructor.

IME 570 Selected Topics in Industrial and Manufacturing Engineering 1-3 hrs.
Topics of special interest which may vary each time course is offered. Topic stated in current Schedule of Classes. May be repeated up to a maximum of 6 hrs. Prerequisite: consent of instructor. Combined credit for IE 590 and IME 570 may not exceed 6 hours.

IME 583 Production Planning and Control 3 hrs.
Analysis of production-inventory systems using common planning and scheduling techniques. Mathematical models for project planning, aggregate planning, master scheduling, and inventory analysis. Interface with quality control and computer systems. Prerequisites: IME 386; minimum grade of C in IME 311 and IME 313; or consent of instructor.

IME 584 Advanced Production Planning 3 hrs.
Planning methods for converting to or creating Just-in-Time and/or group technology systems. Analytical and behavioral aspects. Prerequisite: IME 564; consent of instructor.

IME 585 Human Factors Engineering 3 hrs.
Functional anatomy and physiology of muscle and skeletal systems and their relationship to work design. Work physiology, kinesiology, and anthropometry in relation to their application in work-place design and hand tool design. Utilization of physical work capacity and job demands for job design, personnel assignment, and assessment of work-rest scheduling. Prerequisites: IME 311, IME 386, CE 150.

IME 587 Occupational Safety and Health 3 hrs.
Occupational safety and health standards and regulations. Injury and illness statistics. Employer's responsibilities and bookkeeping requirements. Hazard analysis and systems safety, occupational and environmental hazards and controls. Prerequisite: consent of instructor.

IME 590 Geometric Modeling**3 hrs.**

Computer-based representations of the shape and spatially dependent attributes of real or conceived physical objects. Techniques and concepts needed to couple the digital computer with the techniques of geometric modeling and graphics display for analysis and viewing. Prerequisite: IME 395; MTH 223.

IME 591 Design for Manufacturability**3 hrs.**

The design process; interaction of materials, processes, and design; economic considerations; design considerations for machining, casting, forging, extrusion, forming, powder metallurgy; designing with plastics; design for assembly; projects and case studies. Prerequisites: IME 395; IME 341.

IME 592 Tribology**3 hrs.**

An introduction to systems approach to tribology, surface topography, physical, chemical, and geometric nature of surfaces. Mechanics of contact between surfaces. Various theories of friction and wear, hydrodynamic, elastohydrodynamic, and boundary lubrication. Frictional instabilities. Rolling contact problems. Application of system methodology to tribological problems in engineering design and manufacturing. Prerequisites: IME 331 or ME 351 or consent of instructor.

IME 670 Independent Study**3 hrs.**

Critical investigation and analysis in management systems design, facilities and/or process design, material selection, or industrial economics. Prerequisites: consent of instructor.

IME 691, 692 Research**0-3 hrs. (each)**

Research project or professional problem to be selected by student and advisor. May be repeated to a maximum of 3 hours credit. Beyond initial enrollment the student must register for 0 hours. Prerequisite: unconditional graduate status; consent of instructor.

IME 699 Thesis**0-6 hrs.**

Required of students choosing thesis option. Total of six hours to be taken; any semester after six hours, the student must register for zero hours to maintain progress. Prerequisites: unconditional status, consent of graduate coordinator.

Mechanical Engineering

Dean Kim,

Graduate Program Coordinator

The Department of Mechanical Engineering offers opportunities for graduate study providing for advanced professional competency and leading to the degree of Master of Science in Mechanical Engineering. The main goal of the graduate program in mechanical engineering is to strengthen the ability of the student to solve complex technological problems in a creative way. To achieve this, the program of study is designed to broaden the student's knowledge, to provide for in-depth study in an area of concentration, and to complement theoretical study with relevant and significant research and/or design. The student will ordinarily concentrate in either the mechanical systems design area or in the area of energy systems/thermosciences.

To qualify for unconditional admission, applicants should have the equivalent of an undergraduate degree in mechanical engineering with a minimum undergraduate last-60-hour grade point average of 3.0 on a 4.0 scale. Transcripts of all prior work at the college level and two letters of recommendation should accompany the application. Students with undergraduate degrees in related fields of science and engineering or those who do not meet the minimum grade point requirement can be admitted conditionally at the discretion of the department. Requirements for removal of conditional status will be specified in the letter of admission. For students whose primary language is not English, a TOEFL score of at least 550 is required for unconditional admission.

Students with undergraduate degrees in mechanical engineering from institutions other than Bradley University may be required to take undergraduate coursework if their transcripts do not show a satisfactory level of preparation in certain areas.

New students who are planning to take their coursework at an off-campus site must submit copies of their transcripts for evaluation purposes with their first application for off-campus registration. To ensure that appropriate academic advising takes place, all continuing students, including those off-campus, will have their registration capability encumbered each semester until they have met with their advisor or appropriate faculty representative from the Department of Mechanical Engineering.

The student must file an approved plan of study with the graduate program director that describes the courses to be taken and any proposed research. It must be filed prior to registering for more than nine semester hours that will be applied toward satisfying degree requirements. The plan of study must be approved by the graduate program director and by the student's advisor.

Master's Degree Curriculum Requirements

A total of 30 graduate credit hours is required to complete the Mechanical Engineering program. The total credit hours must include:

- One advanced mathematics course is a general requirement for all MSME students and must be approved by the student's advisor. Courses in statistics, numerical methods, and engineering analysis are applicable to this requirement.
- Students must take ME 681 project(s) or thesis in order to graduate, unless the ME Department approves the student's work experience to satisfy this requirement.
- In the systems and solid mechanics specialization, the student must gain fundamental knowledge in the following three areas and must acquire basic knowledge in one of the fundamental areas in the thermal sciences. The following courses fulfill the above mentioned requirement:

Mechanical Systems Design students must take

Systems (Vibration ME 540, Systems ME 544, **or** Advanced Controls)

Dynamics (ME 502)

Advanced Design of Machine Elements (ME 557)

One course in thermal science chosen from three fundamental areas namely, thermodynamics, heat transfer and fluids. The student must select one of the courses outlined below.

Thermal science students must take

Thermodynamics (ME 501)

Heat Transfer (ME 515)

Fluids (ME 521)

One fundamental course in solid mechanics (one of the above mentioned)

Applied Science students must take

at least four of the following courses plus one fundamental course in either mechanical systems or energy systems as required above.

ME 503 Internal Combustion Engines

ME 509 Solar Engineering

ME 533 Propulsion Systems

ME 534 Environmental Engineering - Air Conditioning ME

535 Environmental Engineering - Refrigeration

ME 536 Industrial Pollution Prevention

ME 537 Building Energy Management

ME 547 Fluid Power Control Systems

ME 549 Microprocessor Interfacing in Mechanical Systems

ME 560 Principles of Robotic Programming

ME 604 Design of Internal Combustion Engines

ME 648 Advanced Computer Aided Design

The student's advisor must approve the program of study, including any subsequent changes.

Students opting not to do a thesis will be required to register for three but not more than nine semester hours of research (ME 681, 682) unless waived because of demonstrated experience. All students are required to pass a comprehensive examination in their respective area of concentration according to the policies outlined above.

Comprehensive Exam

The student will be eligible to take the MCE after he/she successfully completes **all** the requirements stated above. The student must report to the department by February 15 or September 15 a list of five courses (excluding math and the course from other side) to be tested on. The list must include all the three fundamental/applied required courses listed above and two additional ME courses. The department's graduate committee will combine the list of courses to be tested on by the 3rd week of February or September. A request for test questions will be issued by March 1 or October 1 by the graduate committee to the faculty members who teach the listed courses. The involved faculty will provide two (2) problems for each of their listed courses to the ME Department office by the first Friday of March or October. The student will be required to solve one of the two problems. Each problem should not take more than one-half hour to solve. All tests are open book. Faculty who request a closed-book option for their part must notify the ME Department by the first Friday of March or October and will be encouraged to proctor the exam. The students must be notified by the ME Department by the second Friday of March or October whether certain tests will be closed book. The students will be instructed to solve 5 of the 10 problems. No two problems can be on the same topic. Passing the MCE requires successful completion of 4 of the 5 submitted problems. The student must retake the topic that he/she failed during the next regularly scheduled MCE. Students who fail have only one additional opportunity for reassessment. Time allotted for the test will be three hours. Students who opt to take thesis option will not be required to take the MCE written exam, but still must abide by the degree guidelines as described above. These students will be tested on their fundamental knowledge during the oral defense of their thesis.

Course Descriptions

ME 501 Advanced Thermodynamics 3 hrs.

Laws and concepts of classical thermodynamics; real gases and equations of state; availability; irreversibility; property relations; potential functions; equilibrium; multicomponent systems. Prerequisite: ME 302.

ME 502 Problems in Advanced Dynamics 3 hrs.

Application of analytical and graphical methods to problems involving velocities, accelerations, working and inertia forces. Prerequisite: ME 341.

ME 503 Internal Combustion Engines 3 hrs.

Thermodynamic analysis, thermo-chemistry, and performance characteristics of spark ignition and compression ignition engines. Prerequisites: ME 301; ME 302 or consent of instructor.

ME 504 Experimental Stress Analysis 3 hrs.

Experimental methods of stress analysis. Strain gages and related transducers. Photoelasticity and polariscopes. Instrumentation amplifiers, integrated circuits, and other electronics used for connecting transducers with a terminating device. Analog to digital conversion. Extensive hands-on laboratory exercises are emphasized. Prerequisites: ME 303, 403 or consent of instructor.

ME 507 Nuclear Energy 3 hrs.

Introduction to nuclear reactors, the physics of nuclear radiations and interactions, the effects of radiation on people, and the issues and potentials that will govern the future use of nuclear energy. Prerequisites: consent of instructor; senior or graduate standing; PHY 201.

ME 509 Solar Engineering 3 hrs.

Nature and characteristics of solar energy as a renewable energy source. Solar geometry and radiation. Thermodynamics of solar systems; emphasis on 2nd Law considerations. Performance characteristics of collectors, storage systems, house heating systems, cooling and refrigeration, and photovoltaics. Comprehensive design project. Theory and performance characteristics of solar devices and application to design of a comprehensive solar energy system. Prerequisite: ME 415 or consent of instructor.

ME 511 Heat Transfer - Conduction 3 hrs.

General conduction equation in Cartesian, cylindrical, spherical, parabolic, and paraboloidal coordinate systems solved for various boundary conditions. Inversion theorem and residue theorem used to solve Laplace transform equation. Prerequisite: ME 415.

ME 512 Heat Transfer - Convection 3 hrs.

Non-isothermal flow of fluids in Cartesian, cylindrical, spherical, and other coordinate systems: slug flow, laminar flow, flow entrance effects, property variation effects, and turbulent flow. Prerequisite: ME 415.

ME 515 Intermediate Heat Transfer 3 hrs.

In-depth treatment of the three modes of heat transfer; design applications. Development of analytical and specific numerical skills needed for solving design problems involving heat transfer. Prerequisite: ME 415.

ME 520 Gas Dynamics 3 hrs.

One dimensional flow: wave and shock motion in subsonic and supersonic flow; flow with heat transfer and friction; viscosity effects; similarity. Introduction to multi-dimensional flow. Prerequisite: ME 308.

ME 521 Intermediate Fluid Mechanics 3 hrs.

Analysis of statics and dynamics of non-viscous and viscous fluids. Derivation of differential equations of motion. Potential flow; vortex motion; creeping motion; introduction to boundary layer theory; turbulence. Prerequisites: MTH 224; ME 308.

ME 533 Propulsion Systems 3 hrs.

Gas turbine analysis; stationary power plants; turboprop, turbojet, and ramjet engines; rocket propulsion; applications of thermodynamics. Prerequisite: ME 308.

ME 534 Environmental Engineering - Air Conditioning 3 hrs.

Heating and cooling of moist air; solar radiation; computation of heating and cooling loads; study of heating, ventilating, and cooling systems and equipment; design project. Prerequisite: ME 301.

ME 535 Environmental Engineering - Refrigeration 3 hrs.

Mechanical vapor compression refrigeration cycles; refrigerants; absorption refrigeration; miscellaneous refrigeration processes; cryogenics; semester design project. Prerequisite: ME 301.

ME 536 Industrial Pollution Prevention 3 hrs.

Industrial pollution prevention for small quantity generators such as foundries, metal fabrication, electroplating, electronics, soldering, wood products, cleaning, degreasing, and coating. Study of emerging technologies for pollution prevention. Relationships among energy consumption, waste production, and productivity enhancement. Actual plant assessments. Prerequisite: consent of instructor.

ME 537 Building Energy Management 3 hrs.

The energy problem. Energy consumption patterns in existing and new buildings. Analysis of energy saving strategies for existing buildings; developing designs for new, energy efficient buildings, including reliability, comfort, and economic considerations. Formal oral presentations.

ME 540 Advanced Mechanical Vibrations 3 hrs.

Principles of vibration in one or more degrees of freedom; application to machine members. Prerequisite: ME 341; MTH 224.

ME 544 Mechanical Systems Analysis 3 hrs.

Mathematical modeling of mechanical, electrical, pneumatic, hydraulic, and hybrid physical systems emphasizing a unified approach such as the Bond graph technique. LaPlace, state-variable, and matrix formulation of models. Systems response characteristics, prediction, and analysis. Prerequisite: ME 341.

ME 547 Fluid Power Control Systems 3 hrs.
Definition and scope of fluid power control systems. Fluid properties. Continuity and power balance equations. Components function, operation, and dynamic performance. Use of perturbation theory for developing linearized transfer functions. Application of conventional control theory. Prerequisite: ME 301, 308.

ME 548 Optimization of Mechanical Systems 3 hrs.
Development and application of optimization techniques in design of engineering systems and elements; mathematical modeling and formulation of design problems for optimization; different optimization methods including linear, non-linear, geometric and dynamic programming; shape optimization. Emphasis on development and choice of appropriate search methods, sensitivity analysis, and programming. Prerequisite: senior standing in engineering or consent of department.

ME 549 Microprocessor Interfacing in Mechanical Systems 3 hrs.
Principles of microprocessor hardware and software; integration of microprocessor hardware and software in mechanical systems for data acquisition and control purposes (e.g., robotics, internal combustion engine monitoring systems, and pneumatic controls). Intensive hands-on laboratory exercises and practical problem solving. Introduction of "mechatronics." Prerequisites: ME 303; EE 328; proficiency in at least one computer language; or consent of instructor.

ME 554 Fracture of Solids 3 hrs.
Mechanical failure caused by the stresses, strains, and energy transfers in mechanical parts: conventional design concepts relationship to occurrence of fracture; mechanics of fracture; fracture toughness; macroscopic and microscopic aspects of fracture; high and low cycle fatigue failures; creep; stress rupture; brittle fracture; wear; case studies of failure analysis. Emphasis on time-dependent failures. Prerequisites: ME 354 and CE 270.

ME 556 Mechanics of Composite Materials 3 hrs.
Mechanical behavior, analysis, and design of various advanced composite materials: introduction to composite materials and their applications; elasticity of anisotropic solids; micromechanics of fiber reinforced composites and particulate composites; short fiber composites; macromechanics of laminated composites; thermal stresses; failure criteria; fracture and fatigue, reliability, testing, and design of composite materials. Emphasis on developing simple microcomputer programs for analysis. Projects involve curing and testing composites. Prerequisite: CE 270.

ME 557 Advanced Design of Machine Elements 3 hrs.
Review of mechanical testing, 3-D stress-strain relationship, complex and principal states of stress, yielding and fracture under combined stresses, fracture of cracked members, stress and strain based approaches to fatigue, creep damage analysis, and plastic damage analysis as applied to the design of machine elements. Prerequisites: ME 342, ME 351, ME 354 with a minimum grade of C or graduate standing in ME. Requires consent of instructor if non-ME student.

ME 560 Principles of Robotic Programming 3 hrs.
Programming of industrial robotic manipulators with external inputs, tactile sensing and vision sensing. A design project is required. Cross-listed as IME 560. Prerequisites: graduate or senior standing in engineering or computer science.

ME 562 Analysis & Design of Robotic Systems 3 hrs.
Underlying theories of robotic systems; implications for engineering design. Kinematic, dynamic, and control analysis of robotic arms; robotic systems design. Plant visits to observe robots in action; hands-on experience using open-loop and closed-loop robots. Prerequisites: ME 344, 403, 441; EE 328; or consent of department.

ME 573 Methods of Engineering Analysis 3 hrs.
Application of principles of analog and digital computers and numerical methods to solve mechanical engineering problems. Prerequisites: ME 341; ME 273; MTH 224.

ME 577 Finite Element Methods in Engineering 3 hrs.
Theory of finite element methods and applications in mechanical engineering; review of matrix algebra and basic theorem of elasticity. Direct formulation of plane truss element and variational formulations of plane stress/strain, axisymmetric solids, flexural beam, and flat plate elements. Element analysis and isoparametric formulation. Applications to problems of stability, vibrations, thermal stress analysis, and fluid mechanics. Computer programming techniques. Prerequisite: senior standing in ME or consent of instructor.

ME 580 Fundamentals of Bio-Medical Engineering 3 hrs.
Human body as a thermal and mechanical system. Mathematical modeling. Thermodynamics aspects of biological systems. Energy balance of a human body as a closed and open thermodynamic system. Static and dynamic analysis of a human body as a mechanical system. Principles of instrumentation used in the medical field. Interfacing of microprocessors with rehabilitative devices. Demonstrative laboratory exercises. Field trips. Prerequisites: ME 301, 302, 303; BIO 200.

ME 582 Medical Imaging 3 hrs.

Introduction to the common methods and devices employed for medical imaging, including conventional x-ray imaging, x-ray computed tomography (CT), nuclear medicine (single photon planar imaging), single photon emission computed tomography (SPECT), and positron emission tomography (PET), magnetic resonance imaging (MRI), and ultra-sound imaging. The physics and design of systems, typical clinical applications, medical image processing, and tomographic reconstruction. Cross-listed as EE 582. Prerequisites: Senior standing in engineering or consent of instructor.

ME 591 Topics in Mechanical

Engineering 1-3 hrs. each

Topics of special interest which may vary each time course is offered. Topic stated in current Schedule of Classes. Graduate students may repeat the course up to a maximum of 9 credits. Prerequisite: consent of instructor.

ME 604 Design of Internal Combustion

Engines 3 hrs.

Detailed study of design of internal combustion engines. Gas-pressure and inertia-force diagrams; determination of bearing loads; torsional vibration analysis; stress analysis and design of components, including piston, connecting rod, crankshaft, flywheel, valve mechanism, and cam layout. Prerequisites: undergraduate courses in dynamics of machines, internal combustion engines, and machine design, or consent of instructor.

ME 648 Advanced Computer Aided Design 3 hrs.

Augmentation of mechanical design through application of computer graphics. Hardware/software characteristics; elements of geometric/solid modeling. Emphasis on integration in the application of the design process through packages for geometric/solid modeling, finite element analysis, and mechanisms and system simulation. Prerequisites: BSME; or background in mechanical and thermal systems and consent of department chair. Students without a BSME degree may take ME 342, ME 344, ME 415, and ME 411 to help develop an appropriate background for the course.

ME 681, 682 Research 0-6 hrs. each

Individual study on a topic selected by the student with advisor approval. Integration and application of research. Student must produce a product such as a software program or journal article Prerequisite: consent of instructor.

ME 691 Topics in Mechanical Engineering 3 hrs.

Topics of special interest which may vary each time course is offered. Topic stated in current Schedule of Classes. Prerequisite: consent of instructor.

ME 699 Thesis 0-6 hrs.

A comprehensive research project containing a synthesis of several components of the student's course work. Repeatable for a maximum of six hours total. Prerequisite: consent of instructor.

COLLEGE OF LIBERAL ARTS AND SCIENCES

Claire Etaugh,
Dean

Kelly McConaughay,
Associate Dean

The mission of the College of Liberal Arts Sciences is to:

1. Provide an environment for students to develop an awareness of the great issues facing humanity.
2. Encourage students to be imaginative, critical, intellectually curious individuals, who will aspire to life-long learning.
3. Develop career interests and abilities appropriate to the needs of the students.
4. Foster in students communicative and evaluative competencies. Develop self-renewing people in a value-centered interdisciplinary, intercultural, and humanistic context that puts career goals of students into a societal context in ways that will have significant impact on contemporary and future society, and will bring continuing personal satisfaction to them.

Interdisciplinary Courses

SCI 501 Topics in Investigative Science for Educators

3 hrs.

Laboratory-based biological and physical science. Content developed along interdisciplinary themes. Course taught in an inquiry/investigative format, and includes application to Pre K-12 classroom settings. Course may be repeated under different topic. NOTE: Credit will not be given for SCI 501 students who have obtained credit for SCI 101 under the same theme. Registration is not open to undergraduate or graduate students enrolled in a natural science degree program. Prerequisites: Concurrent enrollment in ETE 550.

Biology

Sherri Morris,
Graduate Program Coordinator

Minimum prerequisites for admission to the graduate program in biology are: 16 semester hours of biology beyond freshman biology, one semester of organic chemistry, one semester of physics, one semester of calculus, GPA above 3.0, and a sum of the GRE verbal and quantitative sections above 1000.

A student desiring a Master of Science in biology will need to complete 32 semester hours of graduate work. A minimum of 26 hours will be biology; the remaining hours may include cognate courses (e.g., in education, psychology, or computer science) approved by the graduate coordinator. Of the total 32 hours, sixteen hours must be classroom courses (i.e., non-independent study) and twelve hours must be taken at the 600 level. The graduate coordinator must approve the entire course of study.

The student must pass a comprehensive oral exam covering any aspect of biology, with an emphasis on the graduate classes taken by the student and the student's field of study. The oral comprehensive exam must be passed during the semester immediately following completion of 24 graduate semester hours. Oral comprehensive exams will be offered during a one-week period in each of the spring and fall semesters.

All biology graduate students must complete an independent research thesis and enroll in six hours of thesis (BIO 699). In the student's first year, a committee of three members of the graduate faculty (including the thesis advisor) will be chosen in consultation with the graduate coordinator. A majority of committee members must be from the faculty of the department of Biology at Bradley University. This committee will advise the student in his or her thesis research. Within three semesters following enrollment in the graduate program (or prior to completion of 18 semester hours), the student must submit a thesis proposal to his or her thesis committee. The student will be permitted to enroll in BIO 699 (thesis) only upon written acceptance of the proposal by the thesis committee. Upon completion of the thesis, a student will present a departmental seminar.

The student must then successfully defend the thesis to the committee members. Full-time students should anticipate requiring a minimum of four semesters for completion of the biology graduate program.

Course Descriptions

BIO 501 Biology of Fishes 3 hrs.

Fishes: organ-system structure and function, ecology, embryology, behavior, and economic importance. Prerequisites: 6 hours college-level biology.

BIO 502 Biometry 3 hrs.

Principles of biological measurement. Topics include the nature of data, sampling, experimental design, and statistical analysis. Prerequisites: C or better in BIO 223, or six hours of college biology.

BIO 506 Advanced Microbiology 3 hrs.

Comprehensive analysis of selected topics of current interest in bacteriology, immunology, and virology: genetic engineering, plasmid research, bactericidal and bacteriostatic agents, complement system, viruses, tumor formation, and cancer. Prerequisites: one semester of laboratory bacteriology; organic chemistry; or consent of instructor.

BIO 509 Human Genetics 3 hrs.

Genetic theory and methodology applied to humans. Prerequisites: C or better in BIO 224.

BIO 510 Population and Evolutionary Ecology 3 hrs.

Emphasis on structure, growth patterns, and interactions of populations; relationship to evolutionary theory. Prerequisites: MTH 115; one semester of environmental biology or consent of instructor.

BIO 519 Comparative Animal Behavior 3 hrs.

Animal communication, social behavior, and evolution of behavior. Comparisons of a wide variety of vertebrates and invertebrates. Prerequisites: 6 hours of college level biology or zoology.

BIO 525 Advanced Physiology 3 hrs.

Detailed study of the structure and function of animals; special reference to the human body; theories and methods of investigation mostly at organ system level; adaptational strategies to special conditions. Prerequisite: one semester of physiology or consent of instructor.

BIO 530 Plant Systematics 3 hrs.

Evolution, classification, and characteristics of various flowering plant families. Prerequisites: 6 hours college-level biology.

BIO 545 Biophysics 3 hrs.

Applications of physics principles and methods of investigation of biological systems. Emphasis on physical environmental effects on biological systems. Cross listed as PHY 545. Prerequisites: PHY 108 or 201; senior standing; or consent of instructor. PHY 345 recommended.

BIO 561 Natural History of Vertebrates 3 hrs.

Vertebrates as integrated organisms: emphasis on activities and interaction with environment under natural conditions. Field work on local fauna. Introduction to classification. Prerequisite: 6 hours of college-level biology or zoology.

BIO 563 Advanced Plant Ecology 3 hrs.

Physiological and growth responses of plants to environmental stresses, and consequences to the structure and function of communities and ecosystems. Prerequisites: 6 hours college-level biology.

BIO 564 Advanced Molecular Biology 3 hrs.

Selected topics in molecular biology. Emphasis on proteins and nucleic acids. Prerequisites: C or better in BIO 224.

BIO 565 Aquatic Ecology 3 hrs.

Emphasis on survival and dispersion of natural aquatic populations as related to environmental degradation in lakes, rivers, and streams. Prerequisites: 6 hours college-level biology or zoology.

BIO 566 Advanced Biochemistry 3 hrs.

Quantitative aspects of all areas of biochemistry. Emphasis on metabolism. Prerequisite: one semester of biochemistry or physical chemistry, or consent of instructor.

BIO 568 Cellular and Molecular Immunology 3 hrs.

Interaction between antigen presenting cells, B lymphocytes, and T lymphocytes to mount immune responses. Molecules responsible for immune interactions. Methods to study cell and molecular interactions in immunity. Prerequisites: BIO 564 or equivalent.

BIO 570 Seminar 1-3 hrs.

Selected topics in biological sciences. May be repeated under different topics for a maximum of 6 hours credit. Prerequisites: 3.0 grade point average in student's major; senior or graduate standing; consent of instructor.

BIO 575 Special Graduate Topics in Biology 2-3 hrs.

Selected graduate-level coursework in biology. May be repeated under different topics for a total of 6 credit hours. Prerequisites: 3.0 grade point average in graduate-level biology program; or consent of instructor.

BIO 580 Readings 1-3 hrs.

Individual assignments of relevant topics in biological sciences. Prerequisites: 3.0 grade point average in student's major; senior or graduate standing; consent of instructor.

BIO 585 Research 1-6 hrs.

Individual research for qualified students in special areas of biology. Prerequisites: 3.0 grade point average in student's major; senior or graduate standing; consent of instructor.

BIO 681 Readings 1-6 hrs.

Readings in an area of interest to the student. Prerequisites: graduate standing and consent of instructor.

BIO 683 Research**1-6 hrs.**

Research in an area of interest to the student. Prerequisites: graduate standing and consent of advisor.

BIO 699 Thesis**1-6 hrs.**

Research and thesis preparation. Repeatable for up to 6 hours credit. A student can receive no more than a total of 6 hours credit in BIO 699 or CHM 699 or PHY 699. Prerequisite: consent of program coordinator.

Chemistry

Wayne Bosma,
Graduate Program Coordinator

The Department of Chemistry has long offered a Master of Science degree in chemistry. The program is designed for students who are locally employed and wish to advance their knowledge and professional careers by taking advanced work in chemistry and related disciplines. Most courses are offered in the late afternoon or evening. Candidates for the M.S. degree must take a minimum of 30 semester hours in chemistry and related subjects. Of these hours, 6 semester hours must be devoted to original research. A publishable thesis is required for graduation based on this research. Of the remaining 24 semester hours, up to a maximum of 12 semester hours may be taken at the graduate level in cognate fields such as engineering, education, mathematics, business or biology. Individual programs are developed in conference between the student and the advisor.

Course Descriptions

CHM 500 Chemical Topics **1-3 hrs.**

Topics of special interest which may vary each time course is offered. Topic stated in current Schedule of Classes. Prerequisite: CHM 351, 461.

CHM 509 Advanced Inorganic Chemistry **3 hrs.**

Theoretical-descriptive approach to inorganic chemistry. Emphasis on dependence of selected chemical and physical characteristics of elements and compounds on extranuclear structure. Prerequisites: CHM 320, 461.

CHM 510 Advanced Inorganic Chemistry**Laboratory** **1 hr.**

Laboratory work in inorganic chemistry. Prerequisite: CHM 509 or concurrent enrollment.

CHM 530 Advanced Analytical Chemistry **4 hrs.**

Theory and applications of modern qualitative, quantitative, and instrumental methods. Prerequisite: CHM 320, 462.

CHM 550 Industrial Organic Chemistry **1 hr.**

Survey of modern industrial organic chemistry; emphasis on petroleum derivatives. Prerequisite: one year of organic chemistry.

CHM 551 Advanced Organic Chemistry **3 hrs.**

Organic reactions and reaction mechanisms. Prerequisite: CHM 351.

CHM 556 Organic Spectroscopy **3 hrs.**

Characterization/identification of compounds using spectrometric methods. Not open to students with credit in CHM 356 or equivalent. Prerequisites: CHM 351 or equivalent.

CHM 568 Selected Topics in Biochemistry 1-3 hrs.

Content and credit will vary as indicated in current schedule of classes. May be repeated for up to eight credits, with no more than two credits counting towards the major. Prerequisite: CHM 366.

CHM 630 Advanced Chemical Instrumental Analysis 3 hrs.

Modern chemical instrumental analysis: theory of operation of instruments and related chemical theory. Lecture and laboratory. Prerequisite: CHM 530.

CHM 652 Advanced Organic Chemistry 3 hrs.

Theoretical aspects of organic chemistry: stereoisomerism, conformational analysis, molecular rearrangements, and electronic interpretations of organic reactions. Prerequisite: CHM 551.

CHM 671 Reading in Chemistry 1-6 hrs. total

Directed reading for qualified students. Maximum of 3 hrs. per semester. Prerequisite: CHM 509 or 551.

CHM 683 Research 1-6 hrs.

Required of all candidates for the Master of Science degree in chemistry. Prerequisite: accepted thesis proposal.

CHM 699 Thesis 1-6 hrs.

Research and thesis preparation. Open to students in the MNS program only. Repeatable for up to 6 hours credit. A student can receive no more than a total of 6 hours credit in BIO 699 or CHM 699 or PHY 699. Prerequisite: consent of program coordinator.

Computer Science and Information Systems

Jiang B. Liu,
Graduate Program Coordinator

Jiang B. Liu, Young Park,
Graduate Advisors

The Department offers graduate programs leading to the degrees of Master of Science in computer science and Master of Science in computer information systems. These courses of study are designed to prepare students for professional careers in the field of computing and information processing or for further study and research.

Computer scientists are developers of basic computer technology such as operating systems, language translators, data management software and other programming, processing, and operating aides to be used in conjunction with computer hardware. They are usually employed by computer manufacturers and software houses specializing in systems software. Computer information systems specialists are principally users of computer technology, usually in systems projects for applications in business, industry, or government.

In addition to satisfying all the Graduate School requirements for the degree, all candidates for the master's degree must satisfy the following departmental requirements:

1. At least 36 hours of graduate-level coursework.
2. No "D" grades can be counted in the completion of requirements for the degree.
3. Every student must pass a written comprehensive examination that will be based on the core requirements for the program pursued.

Interested and qualified students are offered the option of writing a master's thesis. Students selecting this option are encouraged to choose an advisor and topic as early as possible in order to plan the thesis development and any needed supporting coursework. The following policies apply to theses:

1. A minimum grade point average of 3.5 in computer science and computer information systems graduate courses is required for students enrolling in CS 699 (Thesis).
2. No student may register for CS 699 until 18 hours of graduate courses have been completed in the department.
3. Six credit hours of CS 699 are required and, upon completion, the thesis must be defended in an oral examination. No grade will be given for CS 699 until after the oral defense.

4. A written outline of the thesis project and a tentative schedule must be submitted to and approved by the graduate coordinator and the chair prior to the registration for CS 699.

Admission requirements and graduation requirements specific to computer science and computer information systems are given below. In addition, applicants must submit GRE General Test scores taken with the last five years. The applicant may request a GRE waiver under certain circumstances. Note that prospective students who do not meet the conditions for admission may be admitted conditionally, in which case the department will prescribe a program for the removal of such admission conditions. Conditional status must be removed prior to graduation.

Computer Science

In addition to meeting all the general requirements of the Graduate School and of the department as stated above, candidates for the master's degree in computer science must satisfy the following requirements.

1. At least 30 of the 36 hours required must be in computer science courses. At most, six hours may be earned in approved courses other than those labeled CS.
2. The following core requirements must be satisfied (either by taking the course or showing evidence of the completion of an equivalent course elsewhere): CS 503 or CS 615, CS 516, CS 518, CS 519, CS 550 or CS 643, CS 682, CS 609, CS 521 or CS 514.
3. Two of the following two-course sequences must be completed: CS 500 and CS 530, CS 615 and CS 616, CS 514 and CS 614, CS 521 and CS 522, CS 510 and CS 511, CS 519 and CS 570, CS 609 and CS 505.

For admission into the computer science program, a student must have completed discrete mathematics, at least two semesters of calculus, matrix or linear algebra, and at least one semester of calculus-based statistics; must have at least 15 hours of computer science coursework including knowledge of one structured or object-oriented programming language, elementary data structures, assembly language, advanced data structures, and introductory computer architecture; and must have approval of the Department.

Computer Information Systems

In addition to meeting all the general requirements of the Graduate School and of the department as stated above, candidates for the master's degree in computer information systems must satisfy the following requirements:

1. At least 21 of the 36 hours required must be in computer information systems or computer science courses.
2. A minimum of 12 hours must be taken in courses outside the department. These courses must form a

coherent program in an applications area and must be approved by the graduate coordinator.

3. The following core requirements must be met (either by taking the course or by showing evidence of having completed an equivalent course elsewhere): CIS 571, CIS 572, CIS 588, CIS 607, CIS 608, and CS 609. (CS 500 and CS 615 are recommended).

The admission requirements for the computer information systems program are one semester of calculus, one semester of calculus-based statistics, two semesters of accounting, one semester of finance, two semesters of programming and data structures in a structured or object-oriented programming language, and one semester of data communications.

Course Descriptions

Computer Information Systems

CIS 571 Computer Law 3 hrs.
Ethical considerations of computer scientists and computer-related security and privacy issues; copyright, patent, trademark, and trade secret issues, deceptive trade practices, computer crime, contract issues, venture capitalists, tax issues, computer torts, constitutional issues, and international trade considerations. Prerequisite: one semester of programming.

CIS 572 Computing Services Management 3 hrs.
Management of computing resources: planning for computing services; operational considerations; evaluation of service. Prerequisites: CS 310 or equivalent.

CIS 588 Introduction to Expert Systems and Artificial Intelligence 3 hrs.
Knowledge-based systems design and implementation; expert systems shells and programming environments; validation and implementation of expert systems; case studies/laboratories. Cross-listed as IME 568. Prerequisites: two semesters of programming and one semester of statistics, or consent of instructor.

CIS 606 Software Systems Design 3 hrs.
Planning, writing, debugging, and documenting large software systems. Consult with instructor for details on programming language to be used. Prerequisite: a grade of C or better in CS 121 or equivalent.

CIS 607 File Organization and Management 3 hrs.
File organizations and access methods. Sort/merge operations; hashing schemes for storage and retrieval. Projects involve data validation; creation and updating of files; simulation and/or implementation of direct and indexed files. Prerequisite: CS 121 or equivalent.

CIS 608 System Specification and Development 3 hrs.
Techniques and tools of system specification and development. Case studies; problems. Prerequisite: a grade of C or better in CS 121 or equivalent.

Computer Science

CS 500 JAVA Programming and Web Design 3 hrs.

Introduction to JAVA programming and PERL. Internet and Web-based applications, design and building of multimedia systems, user interface design, Gateway Interface (CGI) scripting; VRML. Prerequisite: CS 121 or equivalent.

CS 502 Advanced Programming 3 hrs.

Introduces the fundamental concepts of programming from an object-oriented perspective with emphasis on advanced programming skills and good software development principles in a closed laboratory setting. Covers topics including object-oriented paradigm, design and programming, fundamental data structures and computing algorithms, and software development principles. Prerequisites: consent of graduate program coordinator; at least two semesters of programming experience.

CS 503 Programming Methodology 3 hrs.

Predicate calculus, Dijkstra's methodology of algorithm development. Algorithm development. Algorithmic language characteristics; syntax, semantics. Postconditions and preconditions. Verification of postcondition states satisfied by algorithmic programs executed from preconditions. Problems. Prerequisites: a grade of C or better in both MTH 120 and CS 121.

CS 505 Advanced Topics in Databases 3 hrs.

Current trends in information technology. Hypertext navigation, intelligent navigation with expert systems and neural nets, multimedia, text management and retrieval, deductive and object-oriented databases, distributed databases, the integrated intelligent database. Prerequisites: CS 405 or equivalent.

CS 510 Numerical Methods I 3 hrs.

Introduction to numerical and computational aspects of various mathematical topics: finite precision, solutions to nonlinear equations, interpolation, approximation, linear systems of equations, and integration. Cross-listed as MTH 510. Prerequisites: CS 104 or 106; MTH 207 and 223.

CS 511 Numerical Methods II 3 hrs.

Continuation of CS/MTH 510: further techniques of integration, ordinary differential equations, numerical linear algebra, nonlinear systems of equations, boundary value problems, and optimization. Cross-listed as MTH 511. Prerequisites: MTH 224 or 345; CS 510.

CS 514 Algorithms 3 hrs.

Design and analysis of algorithms. Dynamic structures maintenance and hashing. Searching, sorting, and traversal. Time and space requirements; simplification; computational complexity; proof theory and testing; NP-hard and NP-complete problems. Prerequisites: a grade of C or better in CS 302; one semester of statistics.

CS 516 Programming Languages 3 hrs.

Design concepts of high-level languages. Description languages; grammars and syntax; expressions and data structures; selection and control structures; constructs for input and output; subprograms and parameter communications. Prerequisite: CS 302 or 310.

CS 518 Programming Language Translation 3 hrs.

Overview of programming language translation with emphasis on modern compiler construction. Lexical analysis, parsing, syntax and semantic analysis, code generation, garbage collection, and optimization. Prerequisite: grade of C or better in CS 302. Corequisite: CS 516 or CS 216.

CS 519 Introduction to Operating Systems 3 hrs.

Design principles of software for operation of computers. Storage, processor, device, and file management as an integrated system; input/output control. Prerequisite: a grade of C or better in CS 302.

CS 521 Introduction to Artificial Intelligence 3 hrs.

Basic concepts and techniques of artificial intelligence: philosophical considerations, examples, pattern recognition, search strategies, game playing, knowledge representation, logic and resolution, planning, vision, natural language processing, programming in LISP. Prerequisite: a grade of C or better in CS 302.

CS 522 Neural Networks, Knowledge-based Systems, and Applications 3 hrs.

Theorem proving, logic programming, expert systems, uncertainty, fuzzy logic, machine learning, neural networks, programming in PROLOG. Prerequisites: a grade of C or better in CS 302; one course in statistics.

CS 530 Client-Server Computing with JAVA 3 hrs.

Continuation of CS 500. JAVA programming in client-server environment. JAVA distributed computing and distributed object computing protocols. Internet and object Web computing in JAVA. JAVA Enterprise computing technologies. Prerequisite: CS 500 or equivalent.

CS 535 Introduction to Computer Graphics 3 hrs.

Mathematics and algorithms of computer graphics. Device differences, lines, arcs, curves, transformations, input and output primitives. Data structures for geometric entities. Prerequisites: MTH 207, 223; CS 302.

CS 550 Advanced Computer Architecture 3 hrs.

Fundamental computer sub-systems: central processing unit; memory systems; control and input-output units. General purpose computing systems design. Examples from existing typical computers. Prerequisite: CS 350.

CS 609 Database Management Systems 3 hrs.

Relational, hierarchical, and network database models. Conceptual and physical schema. Data definition and data manipulation languages. Normal forms and database design. Database administration, security, integrity, and backup re-

covery. Query optimization. Latest developments in databases. Prerequisite: a grade of C or better in CS 302 or CIS 607.

CS 610 Advanced Topics **3 hrs.**
Special projects under staff supervision on advanced problems in numerical or nonnumerical branches of computer science. May be taken more than once under different topics. Prerequisite: consent of instructor.

CS 611 Directed Individual Studies **1-3 hrs.**
Individual study in an area of computer science relevant to the student's professional goals and not covered in a formal course offered by the department. May be repeated twice for a maximum of 6 hours credit. Prerequisites: consent of the department.

CS 614 Parallel Algorithms **3 hrs.**
Parallel algorithms for multi-processor computer architectures: concurrent programming, SIMD and MIMD systems, and time complexity. Prerequisite: CS 514.

CS 615 Software Engineering I **3 hrs.**
Software engineering: technical management; project management, estimation, and control; economics; environments; standards; products and their phases. Prerequisites: a grade of C or better in CS 302 or CS 310.

CS 616 Software Engineering II **3 hrs.**
Background and overview of software production: requirements for engineering and analysis; software specifications, design, coding, qualification, manufacture, support, and standards. Emphasis on a specific topic in software engineering. Prerequisites: a grade of C or better in CS 302 or CS 310.

CS 643 Data Communications and Distributed Computing **3 hrs.**
Introduction to communication technologies. Emphasis on application to computer networks, information and coding theory, design considerations, and architecture, including topologies, implementation techniques, and standard distributed computing architectures. Prerequisites: MTH 120, 325; CS 519.

CS 682 Theory of Computation **3 hrs.**
Theory of formal languages and computability. Automata, Turing machines, grammars. Context-free and context-sensitive languages; parsing. Recursion theory; limits of effective computability. Unsolvability, reducibility, complexity. Prerequisites: a grade of C or better in CS 302.

CS 699 Thesis **3-6 hrs.**
Computer science research and thesis preparation. Required of candidates choosing the thesis option. Total of 6 semester hrs. to be taken in one or two semesters. Prerequisite: consent of department chair.

English

Kevin Swafford,
Graduate Program Coordinator

The Master of Arts in English provides post-baccalaureate students with study in the theory and practice of English. It is intended to prepare students for professional advancement and for further study in either literature or writing. The literature track emphasizes the study of literary texts with related study of writing, theory, and methods. The literature track also requires an internship within the context of an undergraduate literature course, a portfolio of written work, and a written comprehensive exam over selected work taken in the program. The writing track emphasizes the study and practice of writing with related study of literature, theory, and methods. The writing track also requires an internship within the context of an undergraduate writing course, a portfolio of written work, and a written comprehensive exam over selected work taken in the program.

Because the master's program is predicated upon the complementary relationship between theory and practice in the study of English, both tracks of the program require ENG 500 Theory and Practice of English, another course in theory, and the internship. Students in either program not only will become familiar with the aesthetic, formal, and theoretical underpinnings of their field of study, but also will learn how to address their audiences by means of professional discourse. In this way, the program enriches students' professional lives and enhances their uses of the discipline in the classroom and the workplace.

Special Admission Requirements

In addition to the admission requirements of the Graduate School, the applicant shall present the following material with the application:

1. An essay of under 1500 words stating what the applicant expects to achieve from the study of English (literature or writing) at the master's level.
2. A writing sample (professional, critical, creative) that the applicant deems to be representative of the quality of his or her work. The sample may be an undergraduate paper, professional work, or work prepared for personal use. (The sample will not be returned. Submit a copy.)
3. Two letters of recommendation from references whose discipline is English literature or writing or from employers who have experience in the field of literature or writing. For those applicants who no longer have contact with either, the recommendations should be from those who can comment on the applicant's ability to benefit from a graduate program in English.

Programs of Study

Literature Emphasis Requirement

Theory and Practice of English.....	3 hrs.
Language Theory or Writing Theory or Literary Criticism.....	3 hrs.
American or English Periods	6 hrs.
Selected Authors/Genres	6 hrs.
Internship in Literature.....	3 hrs.

Writing Emphasis Requirement

Theory and Practice of English.....	3 hrs.
Writing in the Professions and/or Workshop for Writers and/or Creative Non-Fiction	6 hrs.
Language Theory or Writing Theory or Literary Criticism.....	3 hrs.
Literature Courses	6 hrs.
Internship in Writing	3 hrs.

To complete either 30-hour program, students elect 3 courses (9 credits) from literature, writing, theory, or independent study.

Course Descriptions

ENG 500 Theory and Practice of English 3 hrs.

Overview of the practices, theories, and history of the field of English and an introduction to the Bradley program. Required of all graduate students. Must be taken in first nine hours.

ENG 503 Creative Non-Fiction 3 hrs.

Practice in writing non-fiction genres, such as autobiography, biography, nature writing, and travel writing. Prerequisite: submission to instructor of an acceptable manuscript.

ENG 506 Writing in the Professions 3 hrs.

Study and practice of the writing conventions and rhetorical characteristics of individual professions.

ENG 507 Workshop for Writers 3 hrs.

Individual guidance in creative writing projects. May be repeated for a maximum of six hours credit. Prerequisite: consent of instructor, after submission of an acceptable manuscript.

ENG 508 Composing Hypertext 3 hrs.

Elements of hypertext composition, mechanics, style, and theory. Prerequisite: graduate standing; or specially qualified junior or senior; or completion of C2 general education requirement; or consent of instructor.

ENG 550 Language Theory 3 hrs.

Study of the relationships between language and writing, thinking, and society. Prerequisite: senior or graduate standing.

ENG 560 Writing Theory 3 hrs.

Theoretical approaches to the study of writing. Prerequisite: senior or graduate standing.

ENG 570 Contemporary Literary Criticism 3 hrs.

Advanced study of contemporary critical approaches to literature, including, but not limited to, feminism, semiotics, cultural criticism, post structuralism. Study of the critical theories and applications of the criticisms to literary texts.

ENG 580 Theories and Methods of Teaching Composition 3 hrs.

Theoretical and pedagogical issues and approaches in teaching composition.

ENG 630 American Periods 3 hrs.

Study of selected periods or movements from the 17th century to the present. May be repeated under a different topic for a maximum of six hours credit.

ENG 640 English Periods 3 hrs.

Study of selected periods or movements from the 7th century to the present. May be repeated under a different topic for a maximum of six hours credit.

ENG 650 Selected Authors 3 hrs.

Study of one or two authors who write in English. May be repeated under different authors for a maximum of six hours credit.

ENG 660 Genres 3 hrs.

Study of a single genre: fiction, prose, poetry, or drama. May be repeated under a different genre for a maximum of six hours credit.

ENG 690 Internship in Literature 3 hrs.

Theory, analysis, and practice of literature within the context of an undergraduate literature course. Prerequisites: 21 hrs. English graduate courses.

ENG 691 Internship in Writing 3 hrs.

Theory, analysis, and practice of writing within the context of an undergraduate composition class. Prerequisite: 21 hrs. English graduate courses.

ENG 695 Independent Study 3 hrs.

Independent research in literature, writing, or theory.

ENG 699 Thesis 3-6 hrs.

Independent research. Three hours required in the first program (traditional M.A.). Prerequisite: consent of department chair.

Liberal Studies

Max Taylor,
Coordinator/Director, Liberal Studies Program

Definition and Purpose

The purpose of the Master of Liberal Studies program is to provide motivated adults with opportunities to continue intellectual growth by integrating knowledge and perspectives from different disciplines in an innovative and challenging manner. The program introduces students to the pleasures and principles of science, the arts, technology, business, and the humanities as a means of exploring the problems and possibilities of life in modern society.

The program is designed for the adult student who wants a flexible part-time program offered during evening and weekend hours. Courses in the program bring Bradley's most distinguished faculty together with practitioners of business, education, law, medicine, journalism, and others who seek to understand the most controversial issues of the age and to extend their intellectual knowledge and vision.

Special Regulations

The M.L.S. degree meets the standards and policies of the Graduate School of Bradley University. But as with other programs, it has its own curriculum and integrity which require special regulations.

Admission

Admission to the M.L.S. program is limited to those who qualify for unconditional admission to the Graduate School. A personal letter of intent and an interview will be required in addition to the customary transcript and two recommendations.

Course Requirements

All work must be on the 600 level in M.L.S. courses. Thirty semester hours are required for the degree.

Transfer of Credit

The M.L.S. program ordinarily does not allow for transfer of credit. However, the Dean of Liberal Arts and Sciences will act on individual petitions.

Colloquium

In the final semester of the program, the candidate will participate in a colloquium with members of the M.L.S. faculty. The M.L.S. faculty in cooperation with each candidate shall devise the colloquium.

Course Descriptions

Most MLS courses are offered only when there is a demonstrated demand and faculty members are available. Contact the coordinator/director for further information.

MLS 601 Physical Science Concepts & Society 3 hrs.

Great concepts of modern physical science and their impact on society. The scientists and their creative insights; influence of governmental policies on science.

MLS 602 Physics: Resonance With Reality 3 hrs.

Influence of historical and cultural notions (such as the world being organism, pure number, and total harmony) on creative minds of the West, and how these notions are enmeshed in modern physics theories and developments.

MLS 603 Origins, Structure, and Dependability of Information 3 hrs.

Eastern and Western attitudes in the 20th Century concerning the source, nature, and accuracy of human knowledge. Analysis of artistic creativity, psychological experiments of left and right hemispheric brain activity, and methods of scientific discovery.

MLS 604 Philosophical Foundations and Law 3 hrs.

"Law" as an idea and as seen from a general perspective. Existing and proposed laws are explored in terms of underlying, fundamental considerations to develop a meaningful concept of law in the context of the student's own life.

MLS 605 A Philosophical Description of the Human Condition 3 hrs.

A rigorous investigation of our presuppositions about what a "better" way of being human should be, in context of developments in the life sciences that allow persons to alter or modify their own nature.

MLS 606 The Development of Social Thought 3 hrs.

Survey of theoretical perspectives for critical social science; emphasis on classic socio-economic thought of the 19th and 20th century. Construction of a theoretical framework for critical analysis of late industrial societies. Importance of Marxian theory to analyses of cultural forms and quality of everyday life. Relation of thought and social structures; doctrine of ideology; social organization of scientific and intellectual activities; processes of bureaucratization, rationalization, and alienation; social status; the role of intellectual activity in processes of revolution and social criticism.

MLS 608 American Egalitarianism and Mass Education 3 hrs.

Investigation of the ambivalence in American culture and educational philosophy between commitment to mass education as a force for democratization and suspicion of the educated as fostering an undemocratic elitism. The effects of this ambivalence on American education.

**MLS 609 Popular Music and Poetry
in the Twentieth Century**

3 hrs.

Techniques and broad historical outlines of all forms of twentieth-century music and poetry. Emphasis on the inter-relatedness of the two arts, and on familiar popular forms. Practice writing, analyzing, and criticizing popular music and poetry.

**MLS 610 Weimar Germany: Culture
and Politics Before Hitler**

3 hrs.

Interdisciplinary, conceptual study of the profound changes that shaped the evolution of Weimar Germany. The disintegration of the values of old Germany, post-World War I alienation, and Weimar political and economic chaos as contrasted with the enormous creativity that brought forward exciting developments in art, film, architecture, science, literature, and popular culture.

MLS 611 Contemporary World Issues

3 hrs.

Sophisticated analysis of major contemporary international issues such as relations among industrial societies, the North-South dialogue, nationalism, and global economic problems. No more than four issues will be explored in depth in any one semester. Prerequisite: graduate standing.

**MLS 612 Perspectives on United States
International Relations**

3 hrs.

In-depth analysis of United States foreign relations from North American, European, Asian, African, and Latin American perspectives. Prerequisite: graduate standing.

MLS 613 The Energy Situation: An Overview

3 hrs.

In-depth study of the U.S. and world energy situation, problems and methods associated with energy production, and effects of various factors such as population on the energy problem. Technical, social, economic, political, and moral implications of the energy situation. Prerequisite: graduate standing.

**MLS 614 Cultural Dimensions of Psychological
Theory**

3 hrs.

Ideological roots of psychological science in American culture. Social science understandings of the good person and the good society.

**MLS 615 Philosophy, Psychology, and Religion
in the Works of William James**

3 hrs.

How William James brought together studies in psychology, philosophy, and religion to develop a comprehensive theory of human nature. James's writings as an exemplary attempt to build a model of human experience in its many and varied expressions (philosophical anthropology).

**MLS 616 Female and Male: Origins
of Sex Differences in Behavior**

3 hrs.

Critical analysis of research findings and theories concerning the origin and development of differences in the behaviors of females and males; psychological, sociological, and biological factors.

MLS 617 All Reality is Astronomy

3 hrs.

The impact of astronomy on our present culture; our place in the cosmic environment. Planetarium scenarios and models display visually how various cultures in the past viewed our place in the universe, and also project modern cultural and cosmic views and theories. A cooperative venture with Lakeview Planetarium.

MLS 618 Controversial Issues in Biology

3 hrs.

A detailed examination of the important topical issues that are currently under intense debate in biology. Topics such as genetic engineering, the patenting of life forms, sperm banks, and nuclear waste disposal discussed from a scientific, political, moral, and religious point of view.

**MLS 619 Controversial Psychological Issues
and Society**

3 hrs.

Topics in psychology that have stimulated heated controversy in both the professional and public arenas because of their potential impact on individuals and on society. Topics such as control of human behavior, use of psychosurgery, effectiveness of psychotherapy, effects of televised violence, and states of altered consciousness.

MLS 620 Literature and Society

3 hrs.

The primary "social" theories of literature; the relationships between society and literature as an institution; and literary documents themselves.

MLS 621 Communicating Change and Innovation

3 hrs.

Basic communication principles used in creating change and having change and innovation adopted by people and/or organizations. Practical examples used to demonstrate effective communication channels and means for getting change accepted.

**MLS 622 The Places We Inhabit: Design of Cities
and Towns**

3 hrs.

An examination of the value and importance of the physical structure and physical characteristics of human settlements. Treating them metaphorically as living organisms, like any other, which need careful, thoughtful creation and maintenance. Includes some history of the evolution of human settlements and considers examples of utopian and purpose-built cities and towns, taken from America and elsewhere. The art and science of physical space (architecture), at both the micro and macro scale, figure prominently in class discussions and exercises. Prerequisite: enrollment in the M.L.S. program.

MLS 623 Death and Dying:

An Interdisciplinary Inquiry

3 hrs.

Interdisciplinary investigation of the human experience of death. Modernism and death, religion and death, euthanasia, the mourning and bereavement process, psychoanalytic interpretation of death anxiety.

**MLS 624 The North American Frontier
in Literature**

3 hrs.

Literature relating to the North American Frontier as both a body of themes and as a group of conditions surrounding literature: gender, genre, language, region, and nationalism. United States, Canadian, Colonial, and European literatures.

MLS 625 Music and Western Society

3 hrs.

Relationship of music to other areas of human endeavor. Basic elements of music; various beliefs and myths about music. Required concert attendance.

**MLS 626 Three Ideas that Formed
Western Culture**

3 hrs.

Diagnostic examination of the origins in Greek, Hebrew, and Roman antiquity of three pillars of Western culture: Protestant Christianity, natural science, and democratic self-government. Prerequisite: graduate standing.

MLS 627 Religion in the Modern World

3 hrs.

Sociological, psychological, and philosophical issues confronting religion in the late twentieth century.

MLS 628 The Western Legal Tradition

3 hrs.

A survey of Western legal history from the Roman Republic to the present.

MLS 629 Critical Thinking and Reasoning

3 hrs.

Study of critical thinking, defined as the ability to weigh evidence judiciously in making decisions. Application of the scientific method to everyday decision making. Examination of examples from a broad array of disciplines and media. Prerequisite: graduate standing.

MLS 630 Nature Writers and Writing

3 hrs.

Selected American nature writers from Thoreau to the present, concentrating on the cultural implications of the genre for writers, general readers, and environmentalists.

MLS 631 Controversial Legal Issues

3 hrs.

An analysis of controversial legal issues and the arguments that support them, with emphasis on contemporary conflicts. Prerequisite: graduate standing.

MLS 632 The Pacific Century: US Asian/Pacific Relations Since 1900

3 hrs.

Examines America's role and influence in the rise of Japanese and Chinese power and the meaning and significance of the Korean and Vietnam wars.

MLS 633 Issues in Higher Education

3 hrs.

Covers both controversial and topical issues in higher education. Examination of the myriad of issues (sometimes changing daily) that occur in higher education, the challenges and opportunities facing higher education, and the nature and complexity of universities and higher education.

MLS 634 Understanding Cancer

3 hrs.

Cancer is one of the most prevalent and publicized diseases in most of the world, yet the general nature of the disease is not well understood by most of the population. Discussion of a myriad of issues related to the disease of cancer from a definition of the disease to the types, treatments, and causes. Opportunity to discuss the disease with a medial oncologist, radiation oncologist, and cancer geneticist. Students who successfully complete the course will have general knowledge and understanding of the many aspects of cancer. They will also be able to intelligently discuss cancer issues and be able to answer general questions about the disease.

MLS 690 Independent Study

3 hrs.

Student pursues a topic of interest in depth under the guidance of a single instructor. Subject must naturally evolve from study undertaken in one or more courses in the student's MLS program. To be undertaken only after 21 semester hours have been completed.

Supportive Courses

The following courses are offered by departments in liberal arts and sciences to graduate students and qualified undergraduates. Graduate students who intend to use them as an integral part of their degree program should consult both their graduate coordinator and the chair of the department concerned.

History

HIS 505, 506 Seminar in Directed

Reading 1-3 hrs. each

Program of directed readings; analysis, synthesis, and interpretation of materials. Prerequisites: senior or graduate standing; 15 hrs. of college-level history with at least a B average; consent of department chair.

HIS 507, 508 Area Study in Directed

Reading 1-3 hrs. each

Projects and readings in area studies; e.g. Asia, Russia, Africa, or South America. Prerequisites: 15 hours of college-level history with at least a B average; consent of department chair.

Mathematics

MTH 501 Topics in Applied Mathematics I 3 hrs.

Theory, applications, and algorithms for basic problems of modern applied mathematics. Symmetric linear systems, minimum principles, equilibrium equations, calculus of variations, orthogonal expansions, and complex variables. Prerequisite: MTH 224 or 345.

MTH 502 Topics in Applied Mathematics II 3 hrs.

Continuation of MTH 501. Selected numerical algorithms: Fast Fourier transform, initial value problems, stability, z-transforms, and linear programming. Prerequisite: MTH 501 or consent of instructor.

MTH 510 Numerical Methods I 3 hrs.

Introduction to numerical and computational aspects of various mathematical topics: finite precision, solutions of non-linear equations, interpolation, approximation, linear systems of equations, and integration. Cross listed as CS 510. Prerequisites: CS 104 or 106; MTH 207 and 223.

MTH 511 Numerical Methods II 3 hrs.

Continuation of CS/MTH 510: further techniques of integration, ordinary differential equations, numerical linear algebra, nonlinear systems of equations, boundary value problems, and optimization. Cross listed as CS 511. Prerequisites: MTH 224 or 345; CS/MTH 510.

MTH 514 Partial Differential Equations 3 hrs.

Fourier series and applications to solutions of partial differential equations. Separation of variables, eigenfunction expansions, Bessel functions, Green's functions, Fourier and Laplace transforms. Prerequisite: MTH 224 or 345.

Philosophy

PHL 551, 552 Readings in Philosophy 1-3 hrs. each

Directed individual study. Prerequisites: 6 hours in philosophy; senior or graduate standing; consent of department chair.

Physics

PHY 501 Quantum Mechanics I 3 hrs.

Inadequacies of classical physics when applied to problems in atomic and nuclear physics. Development of mathematical formalism used in basic quantum theory, with applications to simple models of physical systems. Prerequisites: PHY 301; PHY 202, 303, 306 or consent of instructor. MTH 207 recommended.

PHY 502 Quantum Mechanics II 3 hrs.

The mathematical formalism of quantum mechanics with applications to problems of electron spin and many-particle systems will be studied along with development of approximation techniques with applications to complex physical systems. Prerequisite: PHY 501.

PHY 539 Topics in Theoretical Physics 3 hrs.

Topics of special interest which may vary each time course is offered. Topic stated in current Schedule of Classes. Prerequisites: PHY 301, 305, 501; consent of instructor.

PHY 541 Physics Basics 2 hrs.

Numerical and graphical analysis of data; basic mechanics including Newton's laws and gas laws; hydrostatics and hydrodynamics; energy conservation principles; thermal physics; electricity and magnetism; and solubility and transport processes. Only students in the Nurse Administered Anesthesia Program may register.

PHY 545 Biophysics 3 hrs.

Applications of physics principles and methods to investigation of biological systems. Emphasis on physical environmental effects on biological systems. Cross listed as BIO 545. Prerequisites: PHY 108 or 201; senior standing; or consent of instructor. PHY 345 recommended.

PHY 555 Independent Readings 1-3 hrs.

Individually assigned reading assignments of relevant topics in physics or astronomy. Prerequisites: senior or graduate student standing; background appropriate to the study; consent of instructor.

PHY 563 Special Problems in Physics 1-3 hrs.

Qualified students work on an individually assigned problem and prepare oral and written reports on the problem solution. Approved for off-campus programs when required. May be repeated for a maximum of 6 hours credit. Prerequisites: physics preparation sufficient for the problem; consent of instructor and department chair.

PHY 568 Condensed Matter Physics **3 hrs.**

Introduction to the physics of the solid state and other condensed matter especially for students of physics, materials science, and engineering; structure of crystals; molecular binding in solids, thermal properties, introduction to energy band structure and its relation to charge transport in solids; semiconductors; superconductivity. Prerequisite: Physics majors: PHY 301, 202, or 303; PHY 305. Corequisite: PHY 306. Other majors need instructor consent.

Political Science

PLS 583, 584 Reading in Political Science **1-3 hrs. each**

Individual in-depth work on a subject approved and supervised by a PLS faculty member. For highly qualified students. Prerequisites: senior standing; political science major; consent of instructor.

Sociology

SOC 571 Field Studies **1-3 hrs.**

Individual research. Prerequisite: senior or graduate standing and consent of department chair.

Administration and Faculty

Administration

Joanne K. Glasser, B.A., J.D., President

Robert Bolla, Ph.D., Interim Provost and Vice President for Academic Affairs

Gary Anna, B.S., C.P.A., Vice President for Business Affairs

Alan Galsky, Ph.D., Vice President for Student Affairs

Shelley Epstein, B.S., Assistant Vice President of Communications

Kurt Field, Ph.D., Interim Dean of the Graduate School

Leslie Betz, B.A., M.B.A., Assistant Dean of the Graduate School

Lynne Franks, B.S., Director of Graduate International Admissions and Student Services

Staff

Bonnie Price, Admissions Secretary

Janet Pesek, Records Evaluator

Darlene Jacobs, Secretary/Receptionist

Kristina Ptashnik, Records Coordinator-Admissions

Susan Tanner, Records Coordinator-Graduation

Executive Committee of the Graduate Faculty

Permanent Member

Kurt Field, Ph.D., Interim Dean of the Graduate School

Elected Members

Kevin Finson, Ph.D., College of Education and Health Sciences (2006-2009)

Bernard Goitein, Ph.D., Foster College of Business Administration (2006-2009)

Jiang B. Liu, Ph.D., College of Liberal Arts and Sciences (2007-2010)

Sherri Morris, Ph.D., College of Liberal Arts and Sciences (2008-2011)

Oscar Gillespie, M.F.A., The Henry Pindell Slane College of Communications and Fine Arts (2008-2011)

Lori Russell-Chapin, Ph.D., College of Education and Health Sciences (2008-2011)

Edward Sattler, Ph.D., Foster College of Business Administration (2007-2010)

Prasad Shastry, Ph.D., College of Engineering and Technology (2008-2011)

Jobie Skaggs, Ph.D., College of Education and Health Sciences (2006-2009), Secretary

Fisher Stolz, M.F.A., The Henry Pindell Slane College of Communications and Fine Arts (2006-2009)

David Zietlow, Ph.D., College of Engineering and Technology (2007-2010)

TBA, Student Representative (2008-2009)

Graduate Faculty

Jorge Luis Abanto-Bueno, 2004, Assistant Professor of Mechanical Engineering. National University of Trujillo, B.S.; University of Puerto Rico, M.S.; University of Illinois, Ph.D.

Jerries Abou-Hanna, 1986, Professor of Mechanical Engineering. University of Alabama, B.S.M.E., M.S.M.E., Ph.D.

James J. Adrian, 1972, Professor of Civil Engineering and Construction. University of Illinois, B.S.C.E., M.S.C.E., Ph.D.; Bradley University, B.S., P.E., C.P.A.

In Soo Ahn, 1986, Associate Professor of Electrical and Computer Engineering. Seoul National University, Seoul, South Korea, B.S.; Korea Advanced Institute of Science, Seoul, M.S.; Iowa State University, Ph.D.

Amir Al-Khafaji, 1986, Professor of Civil Engineering and Construction. Wayne State University, B.S.C.E., M.S.C.E.; Michigan State University, M.S.C.E., Ph.D.

Winfred K.N. Anakwa, 1985, Professor of Electrical and Computer Engineering. Brown University, B.S., M.S., Ph.D.

Brad Andersh, 1993, Associate Professor of Chemistry. University of South Dakota, B.S., Iowa State University, Ph.D.

Heljä Antola-Crowe, 1993, Professor of Education. University of Jyväskylä, B.S., M.A.; University of Mississippi, Ph.D.

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Index

A

Academic Calendar 4
Academic Regulations 21
Accounting 39
Accreditation 8
Administration 120
Admission 12
 Categories of 12
 Eligibility 12
 Requirements for 13
Affiliate Members of Graduate Faculty 126
Age of Courses Eligible to Meet Prerequisite Requirements 27
Application Fee 17
Application for Graduation 27
Application or Admission Deferral 15
Art 55
Assistantships 19
Audited Courses 26
Average Class Size 6

B

Biology 107
Bookstore 28
Bradley Alumni 7
Bradley, Lydia Moss 7
Bradley Seniors Taking Courses for Graduate Credit 12
Bradley University, Description of 6

C

Calendar, Academic 4
Campus Visits 10
Cap, Gown, and Hood Rentals 18
Career Center, Smith 32
Caterpillar Masters Fellowships 19
Certificate Programs, Graduate 11,15
Change of Program 26
Cheating 22
Chemistry 109
Civil Engineering 90
College of Education and Health Sciences 59
College of Engineering and Technology, 89
College of Liberal Arts and Sciences 107
Communications and Fine Arts, Slane College of 55
Comprehensive Assessment 27
Computer Science and Information Systems 110
Computing Services 28

Conditional Admission 12
Cooperative Education/Internship Program 20, 33
Counseling 29
Course Load 25
Course Numbering System and Requirements 21
Cultural Center, Romeo B. Garrett 28
Curriculum and Instruction 73
 Certificate Program 77
 LBS I Master's Degree Program 76
 Master's Degree Program 74

D

Deferral of Application or Admission 15
Deferred Payment Plan 17
Degrees 11
Dismissal for Non-Academic Reasons 24

E

Educational Leadership and Human Development 61
Electrical Engineering 95
E-mail accounts 28
Endorsement
 in Middle Level Education 76
 in Reading 76
 in Special Education for (LBS I) 76
Engineering and Technology 89
English 113
Entrance Examinations 13
Executive Committee of the Graduate Faculty 120
Executive Master of Business Administration (EMBA) 42

F

Facilities 28
Faculty, Graduate 120
Family and Consumer Sciences Supportive Courses 80
Federal Direct Subsidized Loans 20
Fees and Expenses 17
Fees, Miscellaneous 18
Finance
 Master of Science in Quantitative Finance 51
 MBA concentration 48
Financial Assistance 19
Financial Certification 14
Formal Grievance Process 23
Former Students 13
Foster College of Business Administration 39

G

Garrett Cultural Center 28
Grading System 21
Graduate Certificate Programs 11;15
Graduate Faculty 120

Graduate School 9

Graduate School Interdisciplinary Program 34

Graduate School Policies 25
Graduate Student-at-Large 12
Graduation Application 27
Grievance Policy, Procedures 22

H

Health Fee 18
Health Services Center 29
History Supportive Courses 118
Human Development Counseling 64

I

IE M.B.A. Program 47

Immunization Requirement 29
Incomplete Work 21
Industrial Engineering 98
Informal Grievance Procedures 22
Instructional Technology and Media Services (ITMS) 28
Interim Certification as School Counselor Intern and
Employment 68
International (F-1) Students and Financial Assistance 20
International Students 14
Internet2 6
Internship, College of Engineering and Technology 89
Internship Program 20

L

Leadership

Educational Administration Master's Degree

Program 61

Human Service Administration Master's Degree

Program 62, 63

Liberal Studies 115

Library, Cullom-Davis 29
Loans 20

M

Manufacturing Engineering 98

Master of Business Administration (MBA) 45

Mathematics Supportive Courses 118

Mechanical Engineering 101

Mission and Vision, Bradley University 6

N

Nursing 81

Nurse Administered Anesthesia Major 81

Nursing Administration Major 81

P

Permanent Residents/Immigrants 15
Philosophy Supportive Course 118
Physical Therapy 83

Physics Supportive Courses 118
Plagiarism 22
Police Department 30

Policies, Graduate School 25
Policy Violation Issues and Grievance Procedures 22
Political Science Supportive Course 119

Post-Master's Certification in School Counseling 66

Practicum, College of Engineering and Technology 89
Prerequisites 21

Professional Master of Arts, STEM Education, 34

Program, Change of 26
Program of Study 27
Progression Toward Degree 27
Psychology Supportive Courses 119
Public radio, WCBU FM 89.9 30

R

Refunds 17
Registration 15
Removal of Conditional Status 27
Repeated Courses 26
Residential Living and Leadership, Center for 32
Room and Board 18

S

Safety and Security 30
Scholarship 19
Scholastic Requirements 22
School Counseling Program 65
Slane College of Communications and Fine Arts 55
Smith Career Center 32
Sociology Supportive Courses 119
STEM Education, Professional Master of Arts, 34
Student Affairs 31
Student Center 30
Student Health Services, Center for 29
Student-Right-to-Know and Campus Security Act
Compliance Report 3
Student Services 31

T

Teacher Certification 76
Teaching Endorsements 76
Telecommunications 30
Thesis 27
Thesis Binding Fee 18
Time Limit for Degree Completion 24
Title II Institutional Report 71
TOEFL 14
Transcript Evaluation to Pursue Counseling Certification 67
Transcript of Credits 24
Tuition 17

Type 75 Certificate Program 62

U

Unconditional Admission 12
University Student Grievance Committee 23
Unsubsidized Federal Direct Loans 20

V

Vehicle Registration 18

W

Work in Progress 21