

Graduate Catalog

2001-2002

2002-2003



BRADLEY
UNIVERSITY

Directory for Bradley University Contacts

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Interlibrary Loan, (309) 677-2837
Reference, (309) 677-3502
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About Peoria

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. Peoria is a medical center for central Illinois, home to Caterpillar Inc. and a number of innovative technological firms, and provides a healthy business climate.

Peoria is proud to be home to Bradley University and joins in welcoming you to your graduate school experience.

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Bradley University is committed to non-discrimination and equal opportunity in employment, programs, activities, and treatment for all job applicants and members of its student body, faculty, and staff regardless of race, color, religion, sex, national origin, age, disability, veteran status, or other factors prohibited by law. Exception is made when justified as a bona fide occupational qualification. Further, Bradley University is committed to provide and promote equal opportunity to all persons through positive, on-going Affirmative Action efforts.

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 website 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.

2001-2002

First Semester

| | |
|------------------------|----------------------------|
| August 20, Monday | Reporting date for faculty |
| August 25, Saturday | Residence halls open |
| August 29, Wednesday | Classes begin |
| October 6, Saturday | Fall Recess begins |
| October 10, Wednesday | Classes resume — 8:00 a.m. |
| November 21, Wednesday | Thanksgiving Recess begins |
| November 26, Monday | Classes resume — 8:00 a.m. |
| December 11, Tuesday | Last day of classes |
| December 12, Wednesday | Study Day |
| December 13, Thursday | Final examinations begin |
| December 19, Wednesday | Final examinations end |
| December 22, Saturday | Commencement |

January Interim

| | |
|----------------------|--|
| January 2, Wednesday | First day of classes Classes meet Monday-Friday |
| January 21, Monday | Final examinations will be held in the morning only. |

Second Semester

| | |
|-----------------------|--------------------------------|
| January 14, Monday | Reporting date for new faculty |
| January 20, Sunday | Residence halls open |
| January 23, Wednesday | Classes begin |
| March 16, Saturday | Spring Recess begins |
| March 25, Monday | Classes resume — 8:00 a.m. |
| May 7, Tuesday | Last day of classes |
| May 8, Wednesday | Study Day |
| May 9, Thursday | Final examinations begin |
| May 15, Wednesday | Final examinations end |
| May 18, Saturday | Commencement |

Summer Sessions

| | |
|--------------------------------------|--|
| May 20, Monday | Three-week Interim Registration ends Classes begin |
| (No classes on Memorial Day holiday) | |
| June 7, Friday | Three-week Interim ends |
| June 10, Monday | First Session classes begin |
| (No classes on Thursday, July 4) | |
| July 12, Friday | First Session ends |
| July 16, Tuesday | Second Session classes begin |
| August 16, Friday | Second Session ends |

2002-2003

First Semester

| | |
|------------------------|----------------------------|
| August 19, Monday | Reporting date for faculty |
| August 24, Saturday | Residence halls open |
| August 28, Wednesday | Classes begin |
| October 12, Saturday | Fall Recess begins |
| October 16, Wednesday | Classes resume — 8:00 a.m. |
| November 27, Wednesday | Thanksgiving Recess begins |
| December 2, Monday | Classes resume — 8:00 a.m. |
| December 10, Tuesday | Last day of classes |
| December 11, Wednesday | Study Day |
| December 12, Thursday | Final examinations begin |
| December 18, Wednesday | Final examinations end |
| December 21, Saturday | Commencement |

January Interim

| | |
|---------------------|--|
| January 2, Thursday | First day of classes Classes meet Monday-Friday |
| January 20, Monday | Final examinations will be held in the morning only. |

Second Semester

| | |
|-----------------------|--------------------------------|
| January 13, Monday | Reporting date for new faculty |
| January 19, Sunday | Residence halls open |
| January 22, Wednesday | Classes begin |
| March 15, Saturday | Spring Recess begins |
| March 24, Monday | Classes resume — 8:00 a.m. |
| May 6, Tuesday | Last day of classes |
| May 7, Wednesday | Study Day |
| May 8, Thursday | Final examinations begin |
| May 14, Wednesday | Final examinations end |
| May 17, Saturday | Commencement |

Summer Sessions

| | |
|--------------------------------------|--|
| May 19, Monday | Three-week Interim — Registration ends Classes begin |
| (No classes on Memorial Day holiday) | |
| June 6, Friday | Three-week Interim ends |
| June 9, Monday | First Session classes begin |
| (No classes on Friday, July 4) | |
| July 11, Friday | First Session ends |
| July 15, Tuesday | Second Session classes begin |
| August 15, Friday | Second Session ends |

2003-2004

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 – 8:00 a.m. |
| November 26, Wednesday | Thanksgiving Recess begins |
| December 1, Monday | Classes resume – 8:00 a.m. |
| 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 13, Saturday | Spring Recess begins |
| March 22, Monday | Classes resume – 8:00 a.m. |
| 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 | Three-week Interim – Registration ends Classes begin |
| (No classes on Memorial Day Holiday) | |
| June 4, Friday | Three-week Interim ends |
| June 7, Monday | First Session Classes begin |
| July 9, Friday | First Session ends |
| July 13, Tuesday | Second Session classes begin |
| August 13, Friday | Second Session ends |

2004-2005

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 - 8:00 a.m. |
| November 24, Wednesday | Thanksgiving Recess begins |
| November 29, Monday | Classes resume - 8:00 a.m. |
| 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 - 8:00 a.m. |
| 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 | Three-week Interim - Registration ends Classes begin |
| (No Classes on Memorial Day Holiday) | |
| June 3, Friday | Three-week Interim ends |
| June 6, Monday | First Session-Classes begin |
| (No classes on Monday, July 4) | |
| July 8, Friday | First Session ends |
| July 12, Tuesday | Second Session - Classes begin |
| August 12, Friday | Second Session ends |

Bradley University and Its Mission

The Mission

Bradley University is committed to excellence in teaching and learning. At Bradley, students, faculty and staff unite to create a dynamic academic community of the highest quality committed to the exploration of what is known and the discovery of what is not.

Our Core Commitments

Lydia Moss Bradley founded the University in 1897 with the goal of preparing students to lead productive and useful lives.

The academic community at Bradley University, in achieving that goal, is founded on and embodies many values. At both the undergraduate and graduate levels, among the most important of these is our belief in free and open inquiry and the inherent worth of the individual. Knowledge can only be expanded and truth discovered where members of the academic community are free to pursue their inquiries wherever evidence and argument lead them and to discuss the results of that pursuit. Further, that pursuit is most effective where the individual is respected and responsible, where each person is the object and source of humane and civil behavior.

We believe students learn best and grow the most when they receive individual attention and when they have available a broad range of academic programs and co-curricular activities of the highest quality in a culturally rich and diverse environment. We are committed, in consequence, to remaining a medium-sized comprehensive university that offers academic breadth and depth and opportunities for both the intellectual and personal development of students, providing for them the very best formal and informal opportunities to learn about themselves and the world.

We believe that the most successful professional education and the most broadening liberal education are profoundly intertwined. Our students must be prepared to learn throughout their lives, launch and sustain careers, be effective citizens, and lead rich, fulfilling personal lives in a global and multicultural society. They must, therefore, have the advantage of curricula that develop fully the relationship between the personal and professional and between general competencies and special expertise. They must master both the theoretic and the applied, developing practical skills in combination with conceptual and analytic abilities.

Bradley University

Just as importantly, students must have the advantage of academic and living experiences that enlarge their affective and aesthetic lives, their moral and ethical natures, and their capacity to function in and contribute to our global community.

We believe that an enterprise flourishes when all members participate and feel ownership. Therefore, we are committed to an evaluation and reward structure that facilitates and maintains the development of a dynamic learning community.

Accreditation

Bradley University is accredited as a master's-level degree-granting institution by the Commission on Institutions of Higher Education of the North Central Association of Colleges and Schools.

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

- Accreditation Board for Engineering and Technology, Engineering Accreditation Commission and Technology Accreditation Commission
- The International Association for Management Education, formerly known as American Assembly of Collegiate Schools of Business (AACSB)
- American Council for Construction Education
- National League for Nursing Accrediting Commission (NLNAC)
- National Association of Schools of Art and Design
- National Association of Schools of Music
- American Chemical Society
- National Council for Accreditation of Teacher Education
- American Dietetic Association (didactic program approval)
- Council for Accreditation of Counseling and Related Educational Programs
- Council on Accreditation of Nurse Anesthesia Educational Programs
- Commission on Accreditation in Physical Therapy Education

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 renamed 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 50,000 worldwide. Prominent alumni include General John Shalikashvili '58, retired chairman of the Joint Chiefs of Staff; Dr. Joan Scott Wallace '52, former U.S. Assistant Secretary of Agriculture; David Markin '53, president and chairman, Checker Motors Co., L.P.; Hersey Hawkins '88, Charlotte Hornets; Dr. Janet Barry '66 MA '71, National School Superintendent of the Year, 1996; Wendy Ross '64, assistant managing editor, *Washington Post*.



THE GRADUATE SCHOOL

Bradley University

Bradley University is an independent, privately endowed, coeducational institution. Located on a 75-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. It is fully accredited.

Bradley is the ideal size for living and learning. As a private, comprehensive university of about 5,000 undergraduate and 1,000 graduate students, Bradley provides a broad choice of academic and pre-professional programs with more than 90 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, Slane College of Communications and Fine Arts, and Graduate School.

The Graduate School

The Graduate School at Bradley University targets areas of special strength for the offering of select master's programs in more than 31 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.

The Graduate School at Bradley University offers programs that enable students to lead rich lives, with advanced professional skills and a strong foundation for life-long growth. By balancing breadth and depth, theory and practice, self-development and selfless commitment, these programs prepare students for life and work.

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 bugrad@bradley.edu.

Degrees

Bradley University offers the following graduate degrees:

Foster College of Business Administration

| | |
|-------------------------|--------|
| Business Administration | M.B.A. |
| Accounting | M.S.A. |

Slane College of Communications and Fine Arts

| | |
|-------------|-----------------|
| Ceramics | M.A. and M.F.A. |
| Painting | M.A. and M.F.A. |
| Photography | M.A. and M.F.A. |
| Printmaking | M.A. and M.F.A. |
| Sculpture | M.A. and M.F.A. |

College of Education and Health Sciences

| | |
|--|--------|
| Nursing Administration | M.S.N. |
| Nurse Administered Anesthesia | M.S.N. |
| Human Development Counseling | M.A. |
| Curriculum and Instruction | M.A. |
| Leadership in Educational Administration | M.A. |
| Leadership in Human Service Administration | M.A. |
| Learning Disabilities | M.A. |
| Physical Therapy | M.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 Science | M.S. |
| Computer Information Systems | M.S. |
| English | M.A. |
| Liberal Studies | M.L.S. |

Off-Campus Credit and Degree Programs

In addition to the courses offered on Bradley's campus, the university offers selected graduate courses and degrees at off-campus sites and via videotape and video conferencing.

In cooperation with businesses, the Division of Continuing Education and Professional Development also coordinates the delivery of graduate-level courses offered on a contract basis to individual companies. Credit courses offered on a contract basis can be delivered directly on site at company locations, or these courses can be offered on campus with registration open only to company employees.

For more information about off-campus courses or degrees, or contract credit programs, contact the Division of Continuing Education and Professional Development, (309) 677-2820.

General Admission Information

Eligibility

(see also: *Admission Requirements*)

Graduate study is open to any student who holds a bachelor's degree from an accredited college or university, or the international equivalent, and to certain qualified Bradley seniors (see Categories of Admission below). Students who have already received a master's degree from Bradley must reapply for admission if they wish to take further coursework.

Non-Accredited Institutions

A student who has earned a bachelor's degree from a college or university that is not fully accredited may be admitted on a conditional basis (see below) if the following stipulations are fulfilled: (1) the student's undergraduate grade average is B or above; (2) credits of the school from which the student graduated are fully accepted by that school's principal state university; (3) additional work (if any) needed to meet Bradley's baccalaureate requirements is completed here or at another accredited school; and (4) the student earns A's or B's in the first 12 semester hours of courses at the advanced undergraduate or beginning graduate level at Bradley University.

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 an overall grade point average on a 4.0 scale of at least 2.50 (halfway between B and C), and an average of not less than 2.75 (B-) in courses considered to be in the student's major area of study.
2. **Conditional.** This status may be given if the student's overall undergraduate grade point average is below that required for unconditional admission (2.50 overall and 2.75 in the major area of study). 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 completed and filed in the Graduate School.

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. Graduate students-at-large do not qualify for scholarships or assistantships.

At the time of application or during the first semester of enrollment, a graduate student-at-large must provide official transcripts as evidence of having earned a bachelor's degree. Students who have met the prerequisites may enroll in any graduate course. 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 advisor.

4. **Bradley Undergraduate Students.** Bradley seniors of superior academic standing 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 if approved by the graduate advisor, undergraduate dean, and the Graduate School prior to registering for the course. However, a senior may not take more than 15 hours of graduate work prior to completing baccalaureate requirements. If approved, the student registers as a senior and files the appropriate form with the Registrar's Office, graduate advisor, and the Graduate School prior to registering for any graduate coursework. Eligible seniors who request graduate credit must submit the *Application for Graduate Credit for a Senior* form to the dean of the Graduate School. Forms may be obtained from the Graduate School, Bradley Hall, Room 118.

Former Students

Students who have received an undergraduate or graduate degree from Bradley must reapply if they want 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 Internet at www.bradley.edu/academics/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 is a processing fee that cannot be waived or deferred. Applications submitted without an application fee will not be processed. Fees are subject to change without notice.

Applicants are allowed to postpone their admission to one consecutive semester at no additional cost. Postponement of admission beyond the semester immediately following the initial semester of application results in the requirement to pay a nonrefundable reactivation fee (domestic applicants: \$30, international applicants: \$40). Any deferment to the following year, or beyond, requires payment of the reactivation fee for each request. Applicants requesting reactivation may need to provide updated information.

3. **Transcripts.** Applicants are required to provide two official transcripts sent directly from the Registrar's office for all undergraduate and graduate institutions attended. International applicants see requirements for international students (below).
4. **Recommendations.** Applicants must have 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. The department of nursing requires three recommendations: from an immediate supervisor, a faculty member, and a professional associate. Recommendation forms are available through the Graduate School.
5. **Entrance Examinations.** Certain programs require entrance examinations as part of the application process. Official score reports should be sent to the Graduate School if applicable:

Biology: Graduate Record Examination (GRE) of a minimum of 1000 combined verbal and quantitative scores.

Business Administration and Accounting: Graduate Management Admission Test (GMAT).

Education (all fields): Miller Analogies Test (MAT) or Graduate Record Examination (GRE) general test.

Electrical Engineering: Graduate Record Examination (GRE) (for students from non-ABET-accredited schools) general test or new test #2 when available.

Nursing: Graduate Record Examination (GRE) general test only; or Miller Analogies Test (MAT).

Testing Information: Information about the GMAT, 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 GMAT, GRE, and TOEFL is available on the Internet at www.ets.org. Local administration of the GMAT, GRE, and TOEFL is available through the Sylvan Technology Center, 4001 N. War Memorial Drive, Peoria, IL, 61614, (309) 682-0825. To have scores sent to the Graduate School, indicate the Bradley institutional code 1070. Additional information on testing is also available through the Bradley Center for Orientation, Testing, and Advisement, Bradley Hall 133, (309) 677-2409, or the Graduate School.

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

- 6. Language Proficiency.** All applicants whose native language is not English are required to submit official results from the Test of English as a Foreign Language (TOEFL) administered by the Educational Testing Service. The minimum requirement on the paper-based TOEFL examination is 500, or the equivalent on the computer-adapted test, 213. Some programs have a higher minimum requirement.

Language proficiency is required of students-at-large as well as applicants to graduate programs. Non-native English speakers who have earned a degree from a U.S. institution, or from an institution in a country whose official language is English, are exempt from the TOEFL requirement. For additional information, see Entrance Examinations, above, and International Students, below.

Further information on the TOEFL examination can be obtained by contacting the nearest U.S. embassy, consulate, or U.S. Information Agency or by contacting the Educational Testing Service (ETS) directly at Box 899, Princeton, NJ 08540, U.S.A. Detailed information and registration information is available through the ETS website at www.ets.org. Bradley University's institutional code for score reporting is 1070.

International Students

International students are applicants who are not U.S. citizens or permanent residents/immigrants.

International students must meet the admission requirements of the Graduate School as enumerated 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 schools 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. The Graduate School will issue the Form I-20 to applicants who have been admitted and 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 (1) an affidavit of support from the applicant's sponsor (normally parents or family) indicating the intent and ability to provide at least \$18,118 each year for two years; and (2) an official bank statement (signed, dated, and current) from the sponsor indicating an account balance of at least \$18,118. 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.

- 3. Language Certification.** Any applicant whose native language is not English is required to submit official results from the Test of English as a Foreign Language (TOEFL) administered by the Educational Testing Service. The minimum requirement on the paper-based TOEFL examina-

tion is 500, or the equivalent on the computer-adapted test, 213. Some programs have a higher minimum requirement.

Further information on the TOEFL examination can be obtained by contacting the nearest U.S. embassy, consulate, or U.S. Information Agency or by contacting the Educational Testing Service (ETS) directly at Box 899, Princeton, NJ 08540, U.S.A. Detailed information and registration information is available through the ETS website at www.ets.org. Bradley University's institutional code for score reporting is 1070. The TOEFL is administered locally by the Sylvan Technology Center, 4001 N. War Memorial Drive, Peoria (phone: (309) 682-0825).

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, page 12.)

Interruption of Studies

Degree-seeking students who are working toward a master's degree but have not enrolled for one or more semesters must contact the Graduate School Office for reinstatement. Non-degree-seeking students who have not enrolled for one or more sessions must contact the Graduate School office for a graduate student-at-large application.

Students who maintain continuous enrollment may graduate under either the catalog in effect at the time of their entrance or under the catalog in effect at the time of their graduation. Students whose work has been interrupted for one or more regular semesters may be held to requirements in effect at the time of their re-enrollment. Some departments may have additional requirements.

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 to graduate students in the Graduate School office.

Application Deadlines

The Graduate School processes applications as they are received. Some departments have specified deadlines. Be certain to check individual programs for deadline information.

Telephone Registration

Bradley University uses a touch-tone telephone registration system. Using their Bradley ID number and a Bradley Registration Number (BRN) assigned upon admission, students may register by calling the system and entering the appropriate codes using any touch-tone telephone—local or long distance. Instructions for telephone registration are included in the *Schedule of Classes* each semester.

Graduate students who have not enrolled for one or more semesters must notify the Graduate School of their intent to be reinstated before they can use the telephone registration system.

Schedule Change After Registration

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

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

To add a class(es), the signatures of the graduate advisor (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 by the telephone up until the last day for dropping classes outlined in the *Schedule of Classes*. To drop classes after the drop date, the *Late Withdrawal Request* must be used and signed by the graduate advisor, the instructor of the dropped class, the department chair of the dropped class, and the dean of the Graduate School.

Complete withdrawals cannot be done at any time through telephone procedure. Please see the Registrar's Office for the appropriate form and procedure.

Admission to Interim and Summer School

Students who have been enrolled in graduate study at Bradley University in the preceding regular semester do not need to apply for admission to interim or summer sessions.

Degree-seeking students who have been admitted to graduate study at Bradley University but did not attend classes during the semester immediately preceding the summer or interim session for which they wish to register must contact the Graduate School office for readmission.

Any non-degree-seeking student who has previously enrolled as a graduate student-at-large must complete another graduate student-at-large application for admission. Forms are available in the Graduate School office or on the Graduate School website: www.bradley.edu/academics/grad/.

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 is a processing fee that cannot be waived or deferred. Applications submitted without an application fee will not be processed. Fees are subject to change without notice.

Graduate students-at-large and 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.

Proposed 2001-2002 Tuition

Tuition rates and fees are subject to change. Tuition for the 2001-2002 academic year is as follows:

- Part-time students (7 hours or fewer)
\$415.00 per semester hour
- Part-time students (under 12 hours, more than 7)
\$515.00 per semester hour
- Full-time students (12 to 16 hours)
\$7,615.00 per semester
- Full-time students (over 16 hours)
\$7,615.00 per semester, plus \$395 per semester hour over 16

Tuition rates are subject to change for 2002-03 and subsequent academic years. Current tuition and fees are published each semester in the *Schedule of 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 \$220.00 per semester hour for the 2001-2002 academic year.

Senior citizens (individuals 62 or older) may take classes at the rate of \$10.00 per semester hour.

Enrollment is subject to availability of classroom space.

Tuition and any fees must be paid by the deadline and in accordance with the instructions found in the current *Schedule of 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, 103 Swords Hall, (309) 677-3120.

Bradley University

Interim and Summer Sessions

See the *Schedule of Classes* for specific details concerning payment.

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*.

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. Students requiring assistance with housing should contact the Director of Housing, Sisson Hall, Bradley University, Peoria, IL 61625.

Other Fees

Health Fee

All students registering for 7 or more hours will be assessed a \$20.00 health fee 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 \$12.00 per copy (three copies required) for thesis binding and handling. This fee, which is subject to change, must be paid to the Controller's Office prior to submitting the completed thesis to the Graduate School Office. The thesis must be signed by the advisor and stamped by the Controller's Office showing that the fee has been paid.

Cap, Gown, and Hood Rentals

Graduate students electing to participate in graduation ceremonies must pay a fee to the bookstore for cap, gown, and hood rental. 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 *Application for Graduation* form with the Graduate School Office. There is a \$5.00 late fee assessed for orders made after the indicated deadline.

Financial Assistance

The Graduate School awards financial assistance on a competitive basis to qualified new and continuing students based on a variety of factors, including academic excellence, financial need, and availability of funds. All necessary application forms are available through the Graduate School or the Graduate School website: www.bradley.edu/academics/grad/. Students who are admitted to graduate programs on a conditional basis are not eligible for scholarships or assistantships until the conditions of their admission are met and a *Removal of Conditional Admission Status* form has been submitted and approved.

Priority Application Deadlines

| | |
|-----------------------|-----------|
| Fall Semester | March 1 |
| January Interim | October 1 |
| Spring Semester | October 1 |
| 3-week May Interim | March 1 |
| 8-week May Interim | March 1 |
| First Summer Session | March 1 |
| Second Summer Session | March 1 |

Assistantships

Full- and part-time graduate assistantships are available in most departments that offer graduate work and also in certain administrative areas. Assistantships for research, teaching, and other academic activities are awarded annually on a competitive basis, with scholastic ability and evidence of special qualifications being the most important criteria. Full-time graduate assistants are required to work 20 hours each week for the assigned department. In return, graduate assistants receive a stipend commensurate with the full-time nature of their work assignments in the department. Students qualifying for full-time assistantships also qualify for tuition scholarships for 100% of actual tuition costs. Full-time graduate assistants may not enroll in more than 12 semester hours nor work more than 20 hours each week without written permission of their graduate advisor and the dean of the Graduate School. Part-time graduate assistants are required to work 10 hours each week for the assigned department and receive 50% of the full-time stipend. Students qualifying for part-time assistantships qualify for tuition scholarships for 50% of actual tuition costs.

Minimum requirements:

1. Unconditional admission to a graduate degree program.
2. Approval by the department chair, the dean of the appropriate college, and the dean of the Graduate School.
3. For international students only:
 - a. TOEFL score of at least 550 and an overall undergraduate grade point average of 3.5 on a 4.0 scale OR
 - b. an overall graduate grade point average of at least 3.0 after completion of 12 semester hours of graduate study at Bradley or at another accredited U.S. institution.

Renewal requirements:

1. Submit the Graduate School Application for Financial Assistance by the priority application deadlines listed above.
2. Complete at least 6 hours (for a full-time assistantship) or 3 hours (for a part-time assistantship) of coursework each semester.
3. Maintain a minimum 3.0 grade point average.
4. Receive a positive recommendation from an assistantship advisor.

Scholarships

Scholarships are financial awards based on a student's academic achievement or financial need and do not require any repayment (in money or service) to the University. Graduate School Tuition scholarships may cover up to 50% of tuition costs for up to nine semester hours of coursework taken during the fall and spring semesters. In addition, students may apply for up to 50% of tuition costs for up to three semester hours during the January Interim, and up to nine semester hours total during the May Interims and Summer Sessions. Scholarships are to be used towards coursework taken in a student's graduate degree program. The value of the award is dependent upon the student's academic achievement at the time the award is made.

Academic Excellence Scholarships

Minimum requirements:

1. Unconditional admission to a graduate degree program.
2. Overall undergraduate grade point average of at least 3.5 on a 4.0 scale.
For international students only: TOEFL score of at least 550 OR
 - a. Removal of conditional admission status.
 - b. Overall graduate grade point average of at least 3.5 in 12 semester hours of graduate study at Bradley or at another accredited U.S. institution.

Renewal requirements:

1. Submit the Graduate School Application for Financial Assistance by priority application deadlines listed above.
2. Maintain a 3.5 grade point average.

Special Scholarships

A limited number of special scholarships are awarded on a competitive basis to qualified students.

Minimum Requirements:

1. Unconditional admission to a graduate degree program (or removal of conditional admission), and
2. Member of a protected class (African American, Hispanic American, Asian American, Native American, or Alaskan Native), and/or
3. Demonstration of financial need through submission of the Free Application for Federal Student Aid (FAFSA) and other correspondence as requested by the Graduate School.

Renewal Requirements:

1. Submission of the Graduate School Application for Financial Assistance by the priority application deadlines listed above.
2. Demonstration of financial need through submission of the Free Application for Federal Student Aid (FAFSA) and other correspondence as requested by the Graduate School.

Other Scholarships

Illinois Consortium for Educational Opportunity (ICEOP): This scholarship of up to \$10,000 annually (a maximum of \$20,000 total for master's degree students) 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 118 Bradley Hall or 677-2371.

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. 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 Bradley's Loan Coordinator, 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 \$10,000 each academic year. For additional information contact Bradley's Loan Coordinator, Financial Assistance Office, Swords Hall, (309) 677-3089.

USX Loans: The USX Foundation makes loans available to full-time students studying in the fields of business, computer science, and engineering. Loans may not exceed \$2,000 in an academic year and are made at an annual rate of 7%. For additional information contact the Graduate School Office.

Deferred Payment Plan

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

A late fee of \$20 per month is assessed for each payment not received by the date stipulated on the deferred payment agreement. For further information contact the Controller's Office, 103 Swords Hall, Bradley University, Peoria, IL 61625; (309) 677-3120.

Employees who work for employers who pay 100% 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.

Cooperative Education/Internship Program

Graduate students may participate in Bradley's Cooperative Education/Internship Program, which effectively integrates classroom theory with paid, supervised work experience related to the student's academic and career interests. Students can choose from one of two Co-op/Intern models to follow. The traditional Full Time Alternating model is based on alternating periods of full-time study and full-time work which corresponds to the academic calendar. The part-time option involves local employers and allows students to attend classes while working part-time.

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

For further information contact the Smith Career Center.

Academic Regulations

Course Numbering System and Requirements

Graduate courses are numbered 500 to 699, and only these courses 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.

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.

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 to 15 semester hours of coursework during a semester of the regular academic year; the maximum permitted is 16 semester hours. Full-time graduate assistants may not enroll in more than 12 semester hours nor work more than 20 hours each week without written permission of their graduate advisor and the dean of the Graduate School. During the summer, a full-time graduate course load is 6 semester hours each session.

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 Office, 118 Bradley Hall, or from the graduate advisor.

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 Office, 118 Bradley Hall, or from the graduate advisor.

Scholastic Requirements

A graduate student must have a minimum cumulative GPA of 3.0 (B) in graduate coursework at this University to be in academic good standing at the graduate level. A graduate student whose cumulative grade point average drops below a 3.0 will be placed on probation. While a student is on probation, the student's record will be reviewed each semester. The student will be dismissed from the program if the semester grade point average in any succeeding semester of enrollment falls below 3.0. Whenever a student's cumulative grade point average equals at least 3.0, the student will be removed from probation.

A dismissed student may petition for reinstatement by filling out a Petition for Reinstatement to Graduate Study and sending it to the dean of the Graduate School, 118 Bradley Hall.

A student admitted to a degree program who receives grades of less than "B" for 9 semester hours in that graduate program will be dismissed and must petition the dean of the Graduate School for permission to continue. The petition must be approved by the graduate advisor, the department chair, and the dean of the Graduate School. Petitions for Reinstatement to Graduate Study are available in the Graduate School Office, 118 Bradley Hall.

To graduate, a student must be in academic good standing, must have met all conditions placed on him or her by the department, and must have been approved for unconditional status.

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.

Time Limit for Degree Completion

Candidates should complete all requirements for the master's degree within five years following the recording of their first graduate grades, including graduate courses taken as a student-at-large. If they do not do so and wish to use courses for the degree that were taken prior to the five-year limitation, they must validate those courses by examination, if their major department gives them permission to do so. This examination is to be devised by the department in which the courses were offered. Students will be expected to be familiar with contemporary developments in subjects they have taken prior to the five-year limitation. Credit will be allowed for courses that extend beyond the limit only if the advisor recommends to the dean that the candidates are proficient in the subjects. Students should begin the approval process by contacting their graduate advisor.

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

A graduate student who is admitted to a degree program (full- or part-time) may audit any course at no charge, by permission of the instructor of the course. Students who are admitted as graduate students-at-large pay the same fee for auditing a course as they would if they were taking the course for credit.

Audited courses are not recorded on the permanent record. Students auditing courses should consult with the course instructor prior to the start of the class to clarify expectations for course participation.

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 advisor recommends its acceptance to the dean of the Graduate School. In rare instances, more than 6 semester hours may be transferred; but in no instances will Bradley accept more than 12 semester hours of transfer credit. In order to transfer more than 6 hours, the student must petition the dean of the Graduate School. 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 to the Graduate School. This transcript will be kept in the student's graduate file.

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

Requests for transfer of ungraded courses must be accompanied by the instructor's written evaluation of the student's performance. Ungraded courses accepted for transfer can not be computed in the overall grade point average.

Academic Forgiveness Policy

To qualify for the Academic Forgiveness Policy, students must not have been enrolled in a Bradley degree program for at least five years.

Persons who wish to be readmitted to Bradley University under the Academic Forgiveness Policy must petition the Graduate School and request forgiveness of previous grades earned at Bradley. The petition must be approved by the recommendation of their graduate advisor, the department, chair/division director, and the graduate dean. If the petition is approved, grades for all Bradley courses taken before the hiatus of five or more years will be removed from the GPA calculation. Students will retain credit for those courses with grades of "C" or better, whether the credit was taken in residence at Bradley or from another source.

The forgiven grades shall not count in determining the student's grade point average for academic probation or dismissal or for graduation; however, they shall remain on the transcript with an appropriate notation.

Forgiveness is a one-time option which is final and irreversible once granted.

Progression Toward Degree

1. Graduate Program of Study

Within the first 12 semester hours of a degree seeking student's graduate coursework, a completed *Program of Study* form must be approved by the program graduate advisor 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 advisor and dean of the Graduate School.

The dean of the Graduate School and the program advisor 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 Examinations

In the final semester, each department requires a comprehensive examination that is suitable to its program. The student must make arrangements with his/her advisor to take this examination at the time of registration for his/her final hours of coursework. Results of the comprehensive examination must be reported to the Graduate School Office not less than two weeks prior to the date on which the degree is to be conferred.

A master's degree candidate who fails the comprehensive examination will be given only one opportunity for re-examination. Arrangements for a new examination should be made with the graduate advisor after approximately one semester has elapsed, but within the time limit prescribed for the degree.

Results of all comprehensive examinations will be posted to the student's transcript with the designation of Pass, Pass with Distinction, or Fail.

3. Thesis

Departments of the University govern the thesis

option. Those students selecting this option must obtain information about thesis requirements from their graduate advisor. The general format and procedures for thesis filing are available from the Graduate School.

4. Application for Graduation

An *Application for Graduation* is included in each semester's *Schedule of Classes*. The form must be completed and filed with the Graduate School when a 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.

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.

Policies and Procedures Governing Student Academic Concerns

The student first discusses academic concerns with the faculty person involved. If the problem is not resolved, the student then goes to the graduate advisor, and then the director or chairperson of the program. If no satisfactory solution is reached the student writes or visits the dean of the Graduate School to present his or her petition, informal grievance, or other matter related to graduate education.

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.

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

Facilities and Services

Bradley University provides a comfortable setting designed for living and learning. A beautiful 75-acre campus contains both historic buildings and state-of-the-art learning centers. Surrounded by a historic residential district, the campus has restaurants, shops, and a supermarket within walking distance.

Bradley continuously updates facilities to keep pace with new methods of teaching and learning. The Caterpillar Global Communications Center features state-of-the-art audio and video technology and worldwide communications systems. A complete renovation and addition of Olin Hall of Science, which will provide new and innovative teaching and laboratory space for physics, chemistry, biology, and physical therapy, will be completed in fall 2002.

St. James Place, a new student residential community, provides suite-style living for upperclass students and new outdoor intramural facilities. In addition to these new playing fields, the university recently added lighted tennis courts to campus. Major facility renovations are in planning stages for two additional academic buildings.

Bradley University Bookstore

The Bradley University Bookstore handles the books and supplies necessary for coursework. Also, for the convenience of the campus, a large variety of other items is stocked, such as greeting cards, T-shirts, and other clothing, gifts, posters, and decorator items.

At the bookstore students can special order books not carried in stock, cash checks, and purchase snacks and soda.

All of these items and services can be charged to VISA, Mastercharge, Discover, American Express cards or BU Quick Card.

In addition to the main store, the Fast Break in the Student Center offers convenience items, soft goods, candy, and a variety of other merchandise (including bus tickets).

Computing Services

Computing Services supports both the academic and administrative aspects of University computing. Academic resources include a variety of computer systems and software used for instruction, research, and public service. Administrative support includes system

development and information processing. Computing Services also supports campus-wide computer networks, network connections to the Internet, on-line information services, and electronic mail. Bradley is an affiliate of the National Center for Supercomputing Applications, which provides supercomputer access to Bradley students and faculty for instruction and research.

Clusters of microcomputers are conveniently located in the Library and several academic buildings. Most students living in residence halls participate in the Residence Hall Network (ResNet) program, which provides a networked microcomputer in many residence hall rooms. All residence hall rooms have network connections for students bringing their own computers. Selected living facilities have links to Bradley's network.

The Computing Services staff assists students, faculty, and administrators in their use of computers through the Technology Help Desk, documentation, training seminars, and other support services.

To establish an account for use of computer facilities and access to the Internet, contact Computing Services, 677-2950, or come to Morgan 205.

Romeo B. Garrett Cultural Center

Located at 824 North Duryea Place (next to the Caterpillar Global Communications Center), the Garrett Center houses the offices of Multicultural Student Services and various student organizations. The Center serves as a meeting place for student and community groups as well as a place for social and cultural events. Named in honor of the distinguished professor emeritus of sociology, Dr. Romeo B. Garrett, the Center is open every day during the regular academic year.

Hausler Hall

Hausler Hall is the main recreational facility for students, faculty, and staff at Bradley University. Contained in the building are several workout areas including a weight training room with Nautilus-style equipment and free weights, a cardio-fitness room, three racquetball courts, a 25-yard, 6-lane swimming pool, and three basketball courts for recreational purposes. Also there are men's and women's locker rooms where equipment can be checked out and lockers rented.

Health Center

The Student Health Center is an out-patient clinic that provides service to enrolled Bradley students who have paid the health fee and 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 treatments, payment for services provided through referral to outside agencies is the student's responsibility.

The Center's qualified staff of physicians 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.

The Center is open during the school year from 8:00 a.m. to 4:30 p.m. daily by appointment. The Center is open limited hours during breaks and regular summer school sessions. At times when the Health Center is closed, patients are referred to the Saint Francis Medical Center Emergency Room or Prompt Care for emergent or urgent problems.

In addition to regular medical services, the Health Center also offers special men's and women's clinics during the regular academic year. Students may call the Center for an appointment at the clinic after classes start in the fall.

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

IMMUNIZATION REQUIREMENT: In compliance 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 plus dates of polio immunization.

Instructional Technology & Production Services

ITPS is a comprehensive media services which provides technological support of academic and administrative needs. Services available include full-service photographic, graphic, and desktop publishing production, broadcast quality video production, distant learning, asynchronous web support, compressed video and satellite conferencing, multimedia, software rental and purchase, equipment checkout, media services, rapid copy service, and audio/video recording.

Cullom-Davis Library

The Bradley University Cullom-Davis Library serves the needs of the University's students and faculty, providing seating for over 1,000 students. Its collection encompasses more than 1,304,000 items—including approximately 525,000 books, periodicals, and government documents, 792,000 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.

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 13,400 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 country and abroad. The Library provides access to a wide variety of electronic journal indexes and abstracts, and to several 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 the Illinois Library Computer Systems Organization (ILCSO). As a member, the Library provides an online catalog and circulation system that incorporates Bradley's holdings and those of 44 other academic libraries in Illinois.

Robert H. Michel Student Center

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

The facilities of the Center include: Student Center Dining Facility, Café Bradley, ballroom, Fast Break convenience store, meeting rooms, billiards, amusement devices, television, browsing lounges, and Food Court. Besides the Dining Center, meeting rooms provide food service for 10 to 100 people. In addition, the ballroom can accommodate up to 500 people for a meal, dance, lecture, or meeting.

WCBU FM 90

Serving all of central Illinois from the Bradley campus, WCBU provides a high quality arts and information service. Licensed to Bradley, WCBU also provides opportunities for students to participate as announcers, newscasters, operations assistants and producers.

Center for Wellness and Counseling

Licensed professional counselors and supportive staff are trained to help Bradley students with a variety of issues. Balancing classwork along with careers and family, alcohol and substance abuse, anxiety and stress management, communications skills, and assertiveness are some of the issues addressed by the counselors. Often, students can see a counselor the same day that they call for an appointment. Visits are confidential and free for Bradley students.

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 Cocurricular Development, Educational Development, Housing, Residential Life and Student Judicial System, and the Smith Career Center. The Division of Student Affairs is also responsible for the Office of Parent Relations.

Center for Cocurricular Development

- Intramural and Recreational Sports
- 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.

Multicultural Student Services and the Romeo B. Garrett Cultural Center foster a greater awareness of the minority and international experience by responding to social, cultural, educational, and philosophical Bradley University

concerns. The Center serves as a meeting place for students and community groups as well as a place for social and cultural events.

Intramural and Recreational Sports 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.

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 yearbook *Anaga*, 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 Educational Development

- Academic Exploration Program
- Advisement
- Counseling
- Health Services
- Learning Assistance
- Testing and Guidance
- Orientation
- Parents' Board
- Retention
- Wellness
- Division Research

The Center for Educational Development is designed to provide opportunities and assistance to students for the realization of their personal and educational goals. Beginning with an appropriate introduction to the University environment, students are subsequently provided with advisement; counseling and wellness services; health services; and opportunities to investigate and explore new academic areas and challenges.

The Academic Exploration Program and other advisement services are offered through the Center for Orientation, Testing and Advisement. In addition, orientation programs assist new students' and their parents' adjustment to the University and the parents' adjustment to being the parent of a college student. During orientation, academic, career, and personal skills are assessed and enhanced, which ensures a foundation of support that helps students realize their educational goals.

Retention strategies allow students to maintain the sometimes precarious balance between their strengths

and personal resources and the demands and expectations placed upon them by the academic environment, their families, and their peer group.

The Center for Wellness and Counseling provides personal counseling services to aid in the total development of students and to enhance the success of their academic achievement. Services are provided by professional counselors and are confidential and free for Bradley students.

The Health Center provides primary care for Bradley students, free of charge. The Center offers care for injuries and short-term illnesses, and advises students on medical matters. The physicians may also refer students needing more intensive physical or medical care.

Center for Housing, Residential Life and Student Judicial System

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

The Office of Residential Life 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 judicial system is to protect the rights of the University and the individual student.

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. The center provides individual career advisement, job search workshops, a career information library, a one-credit course in job search strategy, several job fairs, a graduate/professional school fair, and campus interviews with prospective employers.

Additionally, extensive web-based resources are available to help students learn more about career information, job availability, employer information, and networking. Specific resources such as CareerSearch (directory of over 1.5 million employers nationwide), "What can I do with this major/degree," and e-Career Network of Parents are available through the site.

Registration: All students must register with the Smith Career Center to obtain a CareerConnections web account, submit resumes for the Web Resume Book, review Web job listings, and participate in campus interviews.

Career-related Work Experience: Students are encouraged to gain career-related work experience prior to graduation through internships, cooperative education, and summer or part-time employment. Internships or cooperative education experiences provide opportunities for professional development,

which integrates classroom theory with supervised work experience. Students have a choice of several 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. The full-time alternating option is based upon alternating periods of full-time study and full-time work. All the above options correspond with the academic calendar.

While on a full-time internship or cooperative education work 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. Also, while on a full-time assignment, students may register for additional hours of classroom study upon departmental approval.

In order to be referred to an employer or participate in an internship or cooperative education work assignment, students must be attending Bradley University. They also must either be registered for a minimum of three hours of non-cooperative education/internship credit or be on a full-time cooperative education or internship assignment. A work assignment will not be approved retroactively.

Campus Interview Policy: The Smith Career Center works with employers to schedule dates to interview Bradley candidates on campus. The following policy applies to all campus interviews. Campus interviews must be canceled at least 24 hours prior to the interview. If a student cancels an interview with less than 24 hours notice he or she will be considered a "no show." A "no-show" is a serious violation of the policies of the Center. Students who "no-show," regardless of the reason, will be required to meet with a professional staff member within five working days subsequent to the missed interview and submit a ready-to-mail letter of apology to the employer explaining the reason for canceling without sufficient notice. The Smith Career Center reserves the right to revoke campus interviewing privileges to any student who "no-shows" twice.

Teacher Evaluation Credentials: Credential files are compiled at the request of students in Teacher Education. The file includes the candidate's resume, Student Teaching Evaluation, and references. Students retain the right to inspect their credential file, but written request must be made on a form available at the Center. Students may waive their inspection right to individual letters or evaluations in the file by signing a waiver form (also available in the Center) but are strongly encouraged to discuss this option with their career advisor before doing so. A fee is charged for each photocopied credential file sent to a prospective employer. However, the fee is waived for the first four credentials requests through one semester after graduation or when the employer has requested the file.



FOSTER COLLEGE OF BUSINESS ADMINISTRATION

Robert Baer,
Dean

Edward Sattler,
Director of Graduate Programs

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

The Department of Accounting offers a graduate program leading to the Master of Science in Accounting (M.S.A.) 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 accounting degree or the equivalent.
- b. AACSB admission requirements as follows:

Admission—M.S.A.

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 which 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 \$40.00 for U.S. students or \$50 for international students, payable to Bradley University, must accompany the application.

2. **Transcript(s).** Official transcripts (two copies) 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 Office or visiting the GMAT website 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.

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 (BS or BA) and Master of Science in Accounting degree (MSA) (commonly referred to as a 3:2), 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—B.A./B.S. and M.S.A.

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): The student must be admitted in good standing into the Foster College of Business Administration with an acceptable ACT score and a class standing usu-

ally in the top 25% of their high school class. In addition to the material in their application for admittance to Bradley, the student must indicate a desire to be in the 3:2 program and may be asked for two letters of recommendation. Under early admission, the student must maintain at least a 3.00 GPA at Bradley and complete at least 90 credit hours (including ATG 302) before the student 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 (15 hrs.)

12 of 15 hours are required from this list:
ATG 601 Financial Accounting Theory
ATG 614 Seminar in Management Accounting
ATG 657 Advanced Auditing
ATG 667 Accounting Information Systems
ATG 677 Federal Taxes II

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

ATG 501 Advanced Accounting II
ATG 585 Contemporary Issues in Accounting
ATG 590 Professional Accounting Problems
ATG 604 Controllership
ATG 687 Seminar in Tax Research

Note:

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

Elective (9 hrs.) Foster College of Business Administration

For choices, see the listing of 600-level courses (with the exception of ATG 660) in the Foster College of Business Administration M.B.A. program, and obtain accounting graduate advisor approval.

Other Electives (6 hrs.)

May be taken in accounting (see above course lists) with approval from an accounting graduate advisor. See "Note" above. May be taken outside of the college with approval from an accounting graduate advisor.

See "Note" above. For choices, see the listing of 600-level courses (with the exception of ATG 660) in the Foster College of Business Administration M.B.A. program, and obtain accounting graduate advisor 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

A written comprehensive examination must be taken by each student. This examination covers the graduate work that the student is presenting for the degree. The time, place, and nature of the examination are determined by the director of the Master of Science in Accounting program together with the individual.

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 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 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, management accounting, mathematics, and behavioral science. Prerequisites: ATG 157 or 505; ATG 158 or 506; BMA 352; or equivalents.

ATG 614 Seminar in Management Accounting **3 hrs.**

Research managerial accounting tools and procedures and develop management control systems in the business environment. Prerequisites: ATG 204 and BMA 352.

ATG 657 Advanced Auditing **3 hrs.**

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

ATG 667 Accounting Information Systems **3 hrs.**

Design and implementation of accounting information systems using current and emerging technologies. Prerequisite: ATG 204 or ATG 604; ATG 383 or BMA 672; or equivalents.

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 377.

ATG 687 Seminar in Tax Research **3 hrs.**

Using the case-study approach, students will develop and use tax research skills to evaluate tax consequences of proposed business decisions. Students will prepare oral and written reports communicating alternative courses of action and recommendations. Prerequisite: ATG 677 or consent of instructor.

Executive Master of Business Administration

Begins November 2001

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. 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 last year 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 Leadership Development Center (LDC). One of the five business assistance centers in FCBA, LDC 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 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 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

Program Costs

The fee for the 2001-2003 EMBA degree program is \$39,000. Instructional materials and all housing and food costs are included in the fee.

Payment Schedule for Program Beginning in 2001

| | |
|---|----------|
| First Payment..... | \$500 |
| <i>Due immediately upon acceptance into the program</i> | |
| Second Payment..... | \$19,000 |
| <i>Due October 1, 2001</i> | |
| Final Payment | \$19,500 |
| <i>Due June 1, 2002</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 and \$50 for international applicants.
2. **Transcript(s).** Official transcripts from each college and university attended must be sent directly from the registrar to: Dean, Graduate School, 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 write to: EMBA Director, Foster College of Business Administration, Bradley University, 1501 W. Bradley, Peoria, IL 61625. E-mail: emba@bradley.edu. Phone: (309) 677-3821.

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 hr. |
| BUS 627 Managing Technology | 2 hrs. |
| BUS 629 Cost Management | 1 1/2 hrs. |
| BUS 631 Competition and Pricing | 1 hr. |
| BUS 633 Creating and Maintaining Customer Satisfaction | 3 hrs. |
| BUS 635 Communication Workshop | 1 1/2 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 | 1 1/2 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 hrs.

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 1 1/2 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 1 1/2 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
1½ 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
½-2 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—The International Association for Management Education.

The M.B.A. 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 has 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 M.B.A. program is open to full-time and part-time students, who take classes together. Students may enter the program in August, January, or during the summer. All of the required courses are offered in the evening and on weekends. 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 M.B.A. 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 M.B.A. 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 (two copies) from each college and university attended must be sent directly from the registrar to: Dean, 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 beginning the program. 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 writing to: Graduate Management Admission Test, Educational Testing Service, P.O. Box 6103, Princeton, New Jersey 08541-6103, or by telephone at 609-771-7330.
5. **A current resume.** Since our 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 M.B.A. 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

M.B.A. students will be allowed to take a one-semester leave of absence during the program without being dropped from the program or changing graduation requirements. If an M.B.A. student must take a second semester off during the program, he or she will have to 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. For purposes of this policy, only the fall and spring semesters are considered. Students are not required to enroll during summer or interim sessions.

Degree Requirements

The M.B.A. program is 32-35 semester hours. Twenty-three of these hours satisfy a set of required common body courses. The program begins with an introduction to key issues in business decision making drawing on experienced practitioners and graduate faculty teams. A capstone strategy course, taken in conjunction with a computerized business simulation, integrates the business cross-functional approach to organizational issues. A professional development requirement provides application opportunities through short-term business application projects with a project team, advanced research projects in the chosen area of concentration, or summer study abroad projects with site visits to several multinational for-profit and not-for-profit organizations.

There are 9-12 hours of elective coursework, which may be chosen within one of six areas of concentration (managerial accounting, finance, health care administration, information technology, management, marketing) or across concentrations as a customized elective selection. The required and elective courses are as follows:

M.B.A. Courses

Required (25 hrs.)

BUS 600 Key Issues in Business
 ATG 604 Controllership
 ECO 606 Microeconomics for Managers
 ECO 608 U.S. Business Cycles in the International Economy
 BMA 620 Management Theory
 FIN 622 Financial Management
 MTG 624 Marketing Decision Making
 BMA 672 Information Technology Management
 BMA 628 Business Policy and Strategy Formulation
 BUS 681 Professional Development
 BUS 690 Business Simulation

Concentration Electives

Managerial Accounting

ATG 614 Seminar in Management Accounting
 ATG 667 Accounting Information Systems
 FIN 625 Financial Analysis
 ATG 658 Topics in Accounting

Finance

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

Information Technology

BMA 671 Productivity Software for Managers
 BMA 673 Data Communications for Managers
 BMA 675 Managing Systems Development
 BMA 676 Electronic Commerce
 ATG 667 Accounting Information Systems
 CIS 571 Computer Law
 CIS 572 Computing Services Management
 MFE 565 Computer Integrated Manufacturing

Management

BMA 602 Organizational Behavior
 BMA 657 Executive Development
 IB 656 International Business Administration
 BMA 658 Topics in Business Administration
 BMA 659 Topics in Management

Marketing

MTG 630 Building and Maintaining Marketing Relationships (required)
 MTG 640 Obtaining, Analyzing, and Applying Marketing Information (required)
 MTG 654 Managing Services Marketing
 IB 656 International Business Administration
 MTG 658 Topics in Marketing

Health Care Administration

BUS 615 Health Care Administration Concepts
 ECO 605/FIN 605 Health Care Economics and Finance
 MTG 650 Health Care Marketing
 BMA 625 Legal Issues in Health Care Management
 BMA 635 Human Resource Management and Employment Law for Health Care
 BMA 645 Quality Management and Operations in Health Care
 BMA 655 Organizational Change

Other Electives

QM 652 Advanced Data Analysis
 BMA 653 Production Management
 ECO 658 Topics in Economics
 IB 658 Topics in International Business
 QM 658 Topics in Quantitative Methods
 ATG 660 Readings in Accounting
 BMA 660 Readings in Business Administration
 ECO 660 Readings in Economics
 FIN 660 Readings in Finance
 IB 660 Readings in International Business
 MTG 660 Readings in Marketing
 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 M.B.A. 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.

The common body of knowledge is satisfied through core prerequisite and graduate coursework. The 500-level core courses are compressed and offered on seven-week schedules. The prerequisite portion of the requirement may be satisfied if an applicant's transcript contains undergraduate courses equivalent to the prerequisite courses listed below. An admitted student who has not had a particular prerequisite course may take it at Bradley University or, with prior permission, at another institution.

Core Prerequisite Courses

ATG 505 Accounting Principles-Financial **and**
 ATG 506 Accounting Principles-Managerial
 ECO 506 Elements of Microeconomics **and**
 ECO 508 Elements of Macroeconomics
 QM 501 Quantitative Analysis I **and**
 QM 502 Quantitative Analysis II
 BMA 542 Legal Environment of Business
 BMA 552 Management and Organizations
 BMA 553 Operations Management
 MTG 515 Fundamentals of Marketing
 FIN 522 Introduction to Finance

Students should try to complete all their prerequisite courses prior to enrolling in M.B.A. courses, but students may be permitted to take graduate courses for which all prerequisites have been satisfied, in order to avoid scheduling and course sequencing difficulties.

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 MBA Business Practicum
0 hrs.

Solving challenging business problems with a near-term economic benefit. Prerequisite: MBA student in good standing; Center for Business and Economic Research approval.

IE M.B.A. Program

Undergraduate students in the industrial engineering department may combine their studies and earn an M.B.A. degree in five and one-half years or fewer. Students may include all of the prerequisites for the M.B.A. 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.

M.B.A. 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 students should join the association.

Course Descriptions Prerequisite MBA Core Courses

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 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.

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.

ECO 508 Elements of Macroeconomics 2 hrs.

Development of basic analytical framework to understand nature and causes of business cycles in a capitalistic, market-oriented, global economy; role of countercyclical policies; nature and role of various institutions in macro economy. Cannot be used to satisfy MBA elective or concentration requirements. Prerequisite: consent of director of graduate programs.

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.

ATG 506 Accounting Principles-Managerial 2 hrs.

Use of accounting data for internal management decision making. Budgeting and variance analysis, capital budgeting decisions, responsibility centers, cost-volume-profit analysis, standard costs, cost behavior, and performance evaluation. (Does not count as elective.) Prerequisite: ATG 505 or equivalent; consent of director of graduate programs.

MTG 515 Fundamentals of Marketing 2 hrs.

Introduction to the marketing function: customer behavior, segmentation, product development, pricing decisions, promotional activity, management of the sales force, and distribution. Cannot be used to satisfy MBA elective or concentration requirements. Prerequisite: ECO 221 or 506.

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 506; ECO 506, 508; QM 501.

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 552 Management and Organizations 2 hrs.

The analysis of effective management in organizations. Emphasis on the functions of management and the behavioral processes of change, conflict, leadership, motivation, communication, innovation, and group dynamics. Diversity, ethics, social responsibility, and international management. 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.

Required Common Body Courses

BUS 600 Key Issues in Business Decision Making 2 hrs.

Introduction to a range of business-related topics which will be covered in more depth within the common body and integrated throughout the MBA curriculum. Prerequisite: admission to the MBA program.

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; ATG 158 or 506; BMA 352; or equivalents.

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; ECO 222 or 508; MTH 115; QM 262, 263 (or QM 501, 502); familiarity with computer systems; 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 506, ECO 222 or 508, or consent of MBA director; MTH 115; QM 262, 263 (or QM 501, 502); FCBA proficiency exam or BMA 172 or equivalent.

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: BMA 352; or IE 306 and IE 313; or IE 502, IE 513, and IE 564.

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. Prerequisite: MTG 315 or 515.

BMA 628 Business Policy and Strategy Formulation 3 hrs.

Strategies in response to conditions such as competition and future development. Must be taken in last semester of program.

BMA 672 Information Technology 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.

BUS 681 Professional Development 1 hr.

Apply professional knowledge and skills in a team environment on not-for-profit, international, or research project. Prerequisites: last semester of program; consent of graduate program director.

BUS 690 Business Simulation 1 hr.

Students gain an understanding of the interrelationships between the various functional areas of business by making decisions for a company in a computer-based simulation. Prerequisite: concurrent enrollment in BMA 628.

MBA Concentrations

(One course in each area is required as part of the Common Body. For a concentration, choose 9-12 hours in one area from this list.)

Managerial Accounting

Choose 9 hours:

ATG 614 Seminar in Management Accounting 3 hrs.

Research managerial accounting tools and procedures and develop management control systems in the business environment. Prerequisites: ATG 204 and BMA 352.

ATG 667 Accounting Information Systems 3 hrs.

Uses of information systems in tax, managerial/cost, auditing, and financial reporting processes. Evaluation of implementation alternatives. Prerequisite: ATG 383.

FIN 625 Financial Analysis *(see description under Finance)*

Any approved 600-level accounting course.

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.

Information Technology

*Choose 9 hours:***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.

ATG 667 Accounting Information Systems*(see description under Managerial Accounting)***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 302 or 310.

MFE 565 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: IE 306.

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, decision-making, and organizational theory, demonstrated through classroom experiences. Prerequisite: BMA 352.

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.

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 552 (or BMA 352); MTG 515 (or MTG 315); and consent of director of graduate programs.

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.

Marketing

Required:

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.

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. Prerequisite: MTG 315 or MTG 515.

Choose one course from the following:

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. Prerequisite: MTG 315 or MTG 515.

IB 656 International Business Administration

(see description under Management)

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.

Health Care Administration

All courses required

BUS 615 Health Care Administration Concepts

2 hrs.

Critical issues facing managers of health care service organizations. Relationships between health care providers and related industries, medical and health care terminology, community needs assessment as related to a variety of health care service providers, career planning and partnering issues, unique assessment tools such as fund accounting, and emerging internal and external trends impacting the health care industry. Prerequisite: Admission to the MBA program.

ECO 605/FIN 605 Health Care Economics and Finance

2 hrs.

Examines the economic and financial aspects of the health care system. Organizational and institutional structures through which an economy makes choices regarding the production, consumption, and distribution of health care services. Fundamental processes for the management of liquidity, major capital investments, debt, and funding. Examines both for-profit and not-for-profit health care organizations. Prerequisites: ECO 506, ECO 508, FIN 522.

MTG 650 Health Care Marketing

2 hrs.

Applies marketing concepts to health care and related social service organizations. Issues arising from the unique aspects of health care are analyzed, including relationships between the internal and external markets, consumer behavior and satisfaction, managing demand, capacity use, and enhancing value.

Application projects and reports. Prerequisite: MTG 624 or approval of Department Chair.

BMA 625 Legal Issues in Health Care Management

1 hr.

Institutional licensure, granting of admitting privileges, liability for health care employees, patient records and confidentiality, informed consent, and duty to notify authorities. Prerequisite: BMA 542 or equivalent.

BMA 635 Human Resource Management and Employment Law for Health Care

2 hrs.

Acquiring, developing and maintaining human resources from managerial and legal perspectives. Ensuring equal opportunity, employee health and safety, management succession planning, and company-union relations. Prerequisites: BMA 542, BMA 552; or equivalent

BMA 645 Quality Management and Operations in Health Care

2 hrs.

Quality management systems and operations management topics in the health care industry. Personnel scheduling, inventory management, project management, facility layout, and resource scheduling. Prerequisites: BMA 553 or equivalent

BMA 655 Organizational Change

1 hr.

The need for change and building a readiness for organizational change. Models for implementing change that build employee support and commitment. Practical approaches and unique health care related situations of seminar participants are discussed.

Other Electives

QM 652 Advanced Data Analysis

3 hrs.

Multivariate methods used in economics, marketing, finance, and operations: multivariate analysis of variance; factor, discriminant, and cluster analysis; multi-dimensional scaling; multiple regression; canonical correlation. Prerequisites: QM 263 (or QM 501, 502); consent of director of graduate programs.

BMA 653 Production Management**3 hrs.**

Modern practices in production management: computer-based planning and control systems and management of human resources. Prerequisite: BMA 553 or consent of instructor.

ECO 658 Topics in Economics**3 hrs.**

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

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.

QM 658 Topics in Quantitative Methods**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.

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.

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.

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.

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 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.

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.

Economic Education

ECO 690, 691 Economic Education**1-3 hrs. each**

For persons studying economics through Bradley's Center for Economic Education. Specific contents arranged to meet the needs of the participants: elementary, secondary, and college teachers, clergy, public administrators, and other professionals. May be repeated up to 12 hours each. (Not an M.B.A. elective.) Prerequisite: undergraduate degree.



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 the Departments of Music, Communication, and Theatre Arts.

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

Art

Harold Linton,
Chair, Department of Art

Ken Hoffman,
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: an initial graduate degree (M.A.) and a terminal graduate degree (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 for ceramics, painting, printmaking, sculpture; 15-20 original matted prints for photography).
3. Two letters of recommendation.
4. A statement of one's interests, abilities, and direction in the Fine Arts (250 words).
5. Personal interview (recommended).
6. Application deadlines are November 1 (for spring entrance) and April 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. The student is 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. The graduate faculty will make a decision regarding the student's continuation in the program.
2. Each student must participate in the biennial graduate exhibition.
3. Students entering these degree programs with an undergraduate degree in art from Bradley are encouraged to take from 6 to 12 semester hours of work in the major studio concentration from another institution; these courses must be approved in advance by the graduate advisor.
4. 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 advisor.
5. The following studio major concentrations are offered: ceramics, painting, photography, printmaking, sculpture. Drawing is available as a special emphasis.
6. 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 advisor to plan his or her program of study.
7. Each full-time graduate student must take one seminar each semester until the requirement is completed. Twelve credits or four seminars are required.
8. A residency of 48 semester hours is required for the M.F.A. degree and 24 semester hours for the M.A. degree.
9. A written comprehensive examination must be passed before graduation.
10. A record of the student's thesis exhibition on colored slides and video tape shall be the responsibility of the student and will become the property of the University.

Bradley 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 590 20th Century Art Seminar 3-6 hrs.

Research, presentations, and group discussions on topics of current concern in the visual arts. Limited to a total of 6 hours. Prerequisites: ART 142.

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.

ART 610 Drawing Studio 3-12 hrs.

Analytical and conceptual evaluation of individual style and content, emphasizing technical and creative competency on a professional level. 3-6 hours per semester.

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 Intermedia Studio**3-12 hrs.**

Advanced work in a combination of media of the student's choice. May include two- or three-dimensional media; may incorporate motion, light, sound, film, television, and live performances. Emphasis on experimental possibilities of related media. 3-6 hours per semester.

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 699 Thesis**3-6 hrs.**

Supportive Courses

CFA 500 Research Methods in Speech & 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 division director.

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 advisor. Prerequisite: consent of division director.

Communication

COM 678 Seminar in Communication**3-6 hrs.**

Varying topics examining the role of discourse in business, political, or social settings.

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.

Music

MUS 540 Basic Concepts in Music Education**3 hrs.**

Fundamental concepts for design of education and training in music; critical examination of historical and current trends. Emphasis on development of philosophical consistency in formation of objectives and standards for music education in public schools.

MUS 605 Applied Music**1-12 hrs.**

Private lessons in any band instrument, piano, violin, voice, organ, or conducting. May be taken for no more than 3 hours per semester. Prerequisite: graduate standing and consent of instructor following an audition.



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 professionals who are uniquely qualified for useful and productive service that promotes the intelligent use of human resources and fosters individual development over the life span. 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: Jenny Tripses.
2. Teacher Education, offering programs in curriculum and instruction and learning disabilities. Chair: Kevin D. Finson.
3. Nursing, offering a Master of Science in Nursing (M.S.N.) in nursing administration and in nurse administered anesthesia and supportive courses in nursing. Chair: Francesca Armmer.
4. Physical Therapy, offering a Master of Physical Therapy (M.P.T.). Chair: Mary Jo Mays.

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 learning disabilities; 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 1997, and this change affected the graduate admissions requirements for the departments in the College of Education and Health Sciences. Applicants now have the option of taking the package of general test measures containing **either** the mathematical reasoning **or** quantitative reasoning test. Questions about 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. Contact the Center for Orientation, Testing and Advisement, 133 Bradley Hall, 677-2409, to make arrangements to take the GRE. This will expedite the application process.

An applicant must possess a Miller Analogies raw score of 37 (50 percentile) or a GRE combined score of 1440 (50 percentile) to be accepted **unconditionally**.

For **conditional** admission a candidate must possess a minimal MAT score of 27 (25 percentile) or a GRE combined score of 1200 (25 percentile). The MAT may be retaken one time.

In addition to the MAT requirements the candidate must have a bachelor's degree overall grade point average of 2.50 and a 2.75 grade point average in the major field of concentration for **unconditional** admission.

For **conditional** admission into a graduate program the candidate must have a bachelor's degree

overall grade point average of 2.25 and a 2.40 grade point average in the major field of concentration. The conditional student must maintain a 3.0 grade point average during the first 9 to 18 semester 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.

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.

ELH 604 is strongly recommended as the first course taken by all degree candidates. Other core courses that are mandated in all professional education and counseling programs within the College of Education and Health Sciences are ELH 605 and ELH 606. It is recommended that the three 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.

All professional education programs requiring certification at Bradley University have been approved by the Illinois State Board of Education and accredited by the National Council for the Accreditation of Teacher Education.

Master of Science in Nursing (M.S.N.)

**Accredited by National League for Nursing
Accrediting Commission, 61 Broadway, New York,
New York 10006, (212) 363-5555 ext. 153.**

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.

Admission to the M.S.N. program 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 cumulative grade point average of 3.0 or higher 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. have completed the Graduate Record Examination Aptitude Test (GRE) or Miller Analogies Test (MAT) within five years prior to admission.
 - a. for unconditional admission, an applicant must possess a GRE combined score (verbal & quantitative) of 1000 or a MAT score of 37.
 - b. for conditional admission, an applicant must possess a GRE combined score (verbal & quantitative) of 850 or a MAT score of 27.
11. have completed the Test of English as a Foreign Language (TOEFL) with a minimum score of 500 (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.

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.

Educational Leadership and Human Development

Jenny Tripses,
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).

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.

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.

Graduate Core9 hrs.
ELH 604 Research Methodology & Applications..3 hrs.
ELH 605 Legal and Social Change3 hrs.
ELH 606 Interpersonal & Organizational
Behavior3 hrs.

Departmental Required Courses24 hrs.
ELH 673 Leadership Perspectives.....3 hrs.
ELH 611 Principles and Problems
of Curriculum Planning.....3 hrs.
ELH 669 Special Education Law1 hr.
ELH 670 Supervision & Evaluation of Instruction.3 hrs.
ELH 662 Community Relations2 hrs.
ELH 677 Educational Finance2 hrs.
ELH 678 Educational Law3 hrs.

ELH 676 The School Principalship.....3 hrs.
ELH 686 Field Experiences in Administration.....4 hrs.

Suggested Electives.....3 hrs.
ELH 510 Statistical Procedures.....3 hrs.
ELH 550 Independent Study3 hrs.
ELH 586 Counseling Diverse Populations.....3 hrs.
ELH 612 Institutional Planning and Evaluation ...3 hrs.
ELH 620 Human Development Counseling3 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.....3-6 hrs.

Total Program Semester Hours 36 hrs.

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.

College Core Required Courses.....9 hrs.
ELH 604 Research Methodology & Applications..3 hrs.
ELH 605 Legal and Social Change3 hrs.
ELH 606 Interpersonal & Organizational Behavior.3 hrs.

Departmental Required Courses19 hrs.
ELH 610 Survey in Human Service
Administration3 hrs.
ELH 612 Institutional Planning & Evaluation.....3 hrs.
ELH 662 Community Relations2 hrs.
ELH 673 Leadership Perspectives.....3 hrs.
ELH 682 Seminar in Human Service
Administration2 hrs.
ELH 686 Field Experience in Administration.....3-6 hrs.
ELH 580 Financial Leadership in Human
Service Administration3 hrs.

Elective Courses8 hours
ATG 505 Accounting Principles Financial.....2 hrs.
ATG 506 Accounting Principles Managerial.....2 hrs.
BMA 542 Legal Environment of Business2 hrs.
ELH 540 Human Growth and Development3 hrs.
ELH 582 Grant Writing in Human
Service Administration2 hrs.
ELH 586 Counseling Diverse Populations.....3 hrs.
ELH 620 Human Development Counseling3 hrs.
ELH 641 Appraisal of the Individual3 hrs.
ELH 651 Community Counseling.....3 hrs.
ELH 670 Supervision and Evaluation of Instruction.3 hrs.
ELH 678 Educational Law3 hrs.
ELH 681 Seminar in Educational
Administration1-6 hrs.
ELH 699 Thesis.....3-6 hrs.

Course Descriptions

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 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 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 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 Principles and Problems of Curriculum Planning

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 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 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 Supervision and Evaluation of Instruction

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 Educational 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 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.

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. Continuation 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 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 27 semester hours of study required of all candidates. In addition, students take an additional 15 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 and Applications .3 hrs.
 ELH 605 Legal and Social Change3 hrs.
 ELH 606 Interpersonal & Organizational Behavior .3 hrs.

Program Core27 hrs.
 ELH 540 Human Growth and Development3 hrs.
 ELH 620 Human Development Counseling3 hrs.
 ELH 621 Career and Life Planning Across
 the Life Span3 hrs.
 ELH 623 Pre-Practicum in Counseling3 hrs.
 ELH 624 Theories and Techniques of Counseling .3 hrs.
 ELH 625 Principles of Group Counseling3 hrs.
 ELH 641 Appraisal of the Individual3 hrs.
 ELH 690 Practicum (appropriate to specialty)3 hrs.
 ELH 691 Internship (appropriate to specialty)3 hrs.

Specialty Area15 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.....15 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.

Required.....9 hrs.
 ELH 586 Counseling Diverse Populations3 hrs.
 ELH 652 Foundations of School Guidance3 hrs.
 ELH 654 Consultation in the Helping Professions .3 hrs.

Electives6 hrs.
 For students seeking certification as Guidance Specialists in Illinois public schools, the State Board of Education requires the following:

1. Guidance specialists must hold or be qualified for a standard teaching certificate.
2. Guidance specialists must hold a master's degree.
3. Guidance specialists must have completed an approved program in guidance from a recognized college or university consisting of 32 semester hours of coursework. An approved program shall include a supervised practicum experience. Coursework should be from the eight areas of competency listed below. Appropriate courses in areas a, b, c, d, e, f, and h are a minimum requirement. Not more than 6 semester hours shall be acceptable at the undergraduate level (for certification only).
 - a. Principles and techniques of guidance.
 - b. Appraisal techniques.
 - c. Human growth and development.
 - d. Principles and practices in counseling.
 - e. Occupational, educational, personal, and social information.
 - f. Mental hygiene and/or personality dynamics.
 - g. Organization of guidance services.
 - h. Research.

II. Community and Agency Counseling15 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.

Required.....12 hrs.
 ELH 586 Counseling Diverse Populations
 ELH 651 Community Counseling
 ELH 661 Couples & Family Counseling
 ELH 663 Counseling and Dynamics of Aging

Electives3 hrs.

Course Descriptions

**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 551 Substance Abuse Counseling
3 hrs.

Basic counseling interventions for prevention, remediation, and treatment of substance abuse.

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 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 and 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 handicapped 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 623 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 Foundations of School Guidance
3 hrs.

Elementary and secondary school guidance programs; cognitive and experiential skills. History and development of school guidance; elementary and secondary school guidance 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 and foundational concentration course (ELH 651 or 652); 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 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 684 Seminar in Personnel Services
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 690 Practicum
3 hrs.

Supervised counseling experience with individuals and groups in student's area of interest. (Area d) Prerequisite: ELH 625; consent of instructor.

ELH 691, 692 Internship
3 hrs. each

Supervised post-practicum work experience appropriate to student's career goals. Prerequisite: ELH 690; consent of instructor.

ELH 699 Thesis
3-6 hrs.

Annual Institutional Title II Report: Program Year 1999-2000

Recently, Congress asked the U.S. Department of Education to require all colleges with a teacher education program to release the certification test pass rate of their program completers. The following report was prepared in compliance with the Title II requirement.

Teacher Education Mission

The preparation of excellent teachers is the primary mission of the department of teacher education. Students are expected to become human resource specialists, and the College believes that the productive educator must be an educational leader and informed decision maker.

Undergraduate Teacher Preparation

Teacher Preparation Programs: Bradley University offers 23 baccalaureate programs leading to state teacher certification and one graduate-level certification program leading to teaching.

Student Characteristics: Most undergraduates (67%) are of traditional college age, 84% attend full-time, and 81.4% are Illinois residents. Minority students comprise 7.8% of the student body. The average ACT score for fall 1999 freshmen was 25.

Admission Requirements: Formal Admission to Teacher Education: Students must have earned a minimum grade point average of 2.5 overall, 2.5 in education courses and for secondary education majors a 2.5 in their major. Students 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, passed the Illinois Certification Test of Basic Skills; demonstrated appropriate preprofessional behaviors; and received a satisfactory vote of the faculty.

Continuance in Teacher Education: Students must maintain all the 2.5 GPAs (overall, in education courses and in their major), and demonstrate appropriate preprofessional behaviors.

Best Practices:

- Practicum experiences in the schools begin the freshman year and continue each year of the program, increasing in responsibility.
- Each student completes clinical experiences in the full range of their certification and in a culturally 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 nearly 100% in recent years.
- Alumnus named "First-Year Teacher of the Year" in the state of Georgia in 1997.
- In 4 of the last 5 years a student teacher has been named one of ten "PDK Outstanding Student Teachers" in the nation.
- A teacher education professor received the NBPTS (National Board for Professional Teaching Standards) certificate.

Illinois Certification Testing System—Annual Institutional Report: Bradley University Number of Program Completers: 123

| Test Field/Category | Institution | | | State-wide |
|--|---------------|---------------|------------|------------|
| | Number Tested | Number Passed | Pass Rate | Pass Rate |
| Basic Skills | | | | |
| Basic Skills Test | 122 | 121 | 99% | 99% |
| Aggregate | 122 | 121 | 99% | 99% |
| Academic Content Areas | | | | |
| 02 Early Childhood | 9 | — | — | 97% |
| 03 Elementary | 68 | 67 | 99% | 99% |
| 23 History | 6 | — | — | 92% |
| 25 English | 6 | — | — | 98% |
| 26 Spanish | 1 | — | — | 97% |
| 34 Speech | 1 | — | — | 97% |
| 35 Biological Science | 2 | — | — | 96% |
| 36 Mathematics | 6 | — | — | 100% |
| 37 Chemistry | 1 | — | — | 100% |
| 48 Art (K-12) | 1 | — | — | 97% |
| 49 Music (K-12) | 3 | — | — | 94% |
| 51 Art (6-12) | 1 | — | — | 91% |
| Aggregate | 105 | 102 | 97% | 98% |
| Other Content Areas | | | | |
| 44 Family & Consumer Sciences | 1 | — | — | 100% |
| Aggregate | 1 | — | — | 98% |
| Teaching to Special Populations | | | | |
| 04 Educable Mentally Handicapped | 6 | — | — | 97% |
| 06 Learning Disabilities | 15 | 15 | 100% | 93% |
| 07 Social/Emotional Disorders | 8 | — | — | 98% |
| Aggregate | 29 | 29 | 100% | 96% |
| Summary Totals and Pass Rate | 122 | 119 | 98% | 97% |

Note: Institutional information is not released for tests taken by fewer than ten students.

Program Profile

Total number of students enrolled in teacher preparation, all specializations, in academic year 1999-2000: **599**

Number of students in supervised student teaching in academic year 1999-2000: **147**

Number of faculty members who supervised student teachers:

- Full-time faculty in professional education: **8**
- 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: **6**

Total faculty student teaching supervisors: **15**

Student teacher/faculty ratio: **4.9:1**

The average number of student teaching hours per week required: **35**

The total number of weeks of supervised student teaching required: **14.1**

Average total number of hours required: **493.5**

Student teaching varies by program, with a range from one semester to a full academic year.

Curriculum and Instruction

Kevin D. Finson,
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 prekindergarten through twelfth-grade teachers as educational leaders and informed decision makers. 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 informed decision makers 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), educational research (ELH 604), legal and social issues (ELH 605), interpersonal and organizational behavior (ELH 606), curriculum theory (ETE 651), instructional design (ETE 653), and assessment strategies (ETE 552, ETE 654). 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 reading, early childhood education, and gifted education within the program of study.

The goal of the curriculum and instruction master's program is to prepare prekindergarten through twelfth-grade teachers to accept greater responsibility in their roles as educational leaders and informed decision makers 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 educational leaders and informed decision makers.
3. Assist teachers in remaining current with regard to educational issues 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 decision makers, who are capable of informing their instructional practices through appropriate application of research results.

College/Department Admissions Requirements

An applicant must earn a Miller Analogies raw score of 37 (50th percentile) or a GRE combined general test score of 1440 (50th percentile) to be accepted unconditionally.

For conditional admission a candidate must earn a minimal MAT score of 27 (25th percentile) or GRE combined general test score of 1200 (25th percentile). The MAT may be retaken one time.

In addition to the MAT requirements, for unconditional admission the candidate must have a bachelor's degree overall grade point average of 2.5 and a 2.75 grade point average in the major field of concentration.

For conditional admission into a graduate program, the candidate must have a bachelor's degree overall grade point average of 2.25 and 2.4 grade point average in the major field of concentration. The conditional student must maintain a 3.0 grade point average during the first 9 to 18 semester 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.

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 for the thesis and non-thesis options have in common the following components: a nine-hour professional core (ELH 604, ELH 605, ELH 606), a three-hour educational technology course (ETE 551), a six-hour curriculum and instruction core (ETE 651, ETE 653), a three-hour assessment course (ETE 552 or ETE 654), and six hours of approved graduate level electives which may be taken within or outside the department.

Those graduate students electing the non-thesis option also must complete six additional hours of curriculum and instruction electives. They will be encouraged to build research opportunities into their curriculum and instruction elective hours with the Creative/Research Contribution (ETE 698) option. In addition, those electing the non-thesis option will complete a written comprehensive examination which is tailored to their programs of study.

In addition to the requirements already outlined, those graduate students electing the thesis option must complete six hours of thesis (ETE 699), in which they 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

Professional Core: 9 hours

- ELH 604 Research Methodology and Applications (3)
ELH 605 Legal and Social Change (3)
ELH 606 Interpersonal and Organizational Behavior (3)

Educational Technology Component: 3 hours

- ETE 551 Technology Applications and Integration (3)

Curriculum and Instruction: 6 hours

- ETE 651 Curriculum Theory and Development (3)
ETE 653 Instructional Strategies and Designs (3)

Assessment: 3 hours

A minimum of 3 semester hours taken from the following selections.

- ETE 552 Assessment Alternatives (3)
ETE 654 Program Evaluation (3)

Curriculum and Instruction Electives: 6 hours

A minimum of 6 semester hours must be taken from the following selections.

- ETE 506 Reading in the Content Fields (3)
ETE 544 Remedial Reading (3)
ETE 553 Cultural Diversity and Schooling (3)
ETE 560 Testing in Reading (3)
ETE 570 Practicum in Reading (1-5)
ETE 616 Analysis & Evaluation of Children's Literature (3)
ETE 644 Practicum in Remedial Reading (3)
ETE 650 Topics in Curriculum, Instruction, and Technology (1-3)
ETE 652 Instructional Leadership in PreK-12 Education (3)
ETE 659 Curriculum and Instruction Practicum (1-5)
ETE 661 Child Growth and Development (3)
ETE 662 Family Intervention (3)
ETE 668 PreKindergarten Practicum (1-5)
ETE 669 Primary Practicum (1-5)
ETE 698 Creative/Research Contribution (1-5)
ETE 699 Thesis (1-3)
ELH 670 Supervision and Evaluation of Instruction (3)

Approved Electives: Minimum of 6 hours

At least six hours must be acquired from any graduate level ETE, ELH, or other graduate courses which have been approved by the student's advisor and the Graduate School.

Total Program: Minimum of 33 hours

Reading Endorsement (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 Reading3 hrs.
ETE 506 Reading in the Content Fields3 hrs.
B. ETE 544 Remedial Reading3 hrs.
C. ETE 560 Testing in Reading.....3 hrs.
D. ETE 570 Practicum in Reading.....1-5 hrs.
ETE 644 Practicum in Remedial Reading3 hrs.
E. ETE 260 Children's Literature3 hrs.
ETE 616 Analysis and Evaluation of
Children's Literature.....3 hrs.

Please note that these requirements may be fulfilled by a combination of undergraduate and graduate courses.

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 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 and 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 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 616 Analysis and 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 644 Practicum in Remedial Reading

3 hrs.

Practicum in diagnosing and treating reading difficulties. Prerequisite: ETE 544; consent of instructor.

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 652 Instructional Leadership in PreK-12 Education

3 hrs.

Instructional leadership styles and behaviors. Teacher's role as decision-maker, instructional innovator, and change agent.

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 659 Curriculum and 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 668 PreKindergarten Practicum

1-5 hrs.

Supervised field experience in prekindergarten setting. Provides opportunities to synthesize knowledge and skills and to demonstrate competencies as an early childhood professional. May be repeated for a maximum of 6 hours credit. Prerequisite: curriculum and instruction course or consent of instructor.

ETE 669 Primary Practicum

1-5 hrs.

Supervised field experience in primary setting. Provides opportunities to synthesize knowledge and skills and to demonstrate professional competencies as an early childhood professional. May be repeated for a maximum of 6 hours credit. Prerequisite: curriculum and instruction course or consent of instructor.

ETE 698 Creative/Research Contribution

1-3 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 or journal article. 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

1-3 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.

Learning Disabilities

Kevin D. Finson,
Chair, Department of Teacher Education

The professional education unit is accredited by the National Council for the Accreditation of Teacher Education (NCATE).

The learning disabilities master's degree program allows teachers to continue development as educational leaders and informed decision-makers. This program meets the needs of teachers who wish to improve skills in individualizing instruction for all children, including the exceptional child in their classrooms, as well as teachers who wish to teach in special educational settings, such as self-contained learning disabilities classes and resource programs.

The program is designed to prepare educational personnel to meet Illinois State Certification requirements in the area of learning disabilities (Type 10 certificate, K-12). It is structured to develop necessary competencies in the areas of identification, diagnosis, educational strategies, behavior management, and program management.

The learning disabilities program at Bradley University is designed to provide students with the following competencies:

1. To act as an advocate for exceptional children and youth programs designed to educate them.
2. To know the theoretical background and literature in the area of learning disabilities.
3. To know current issues and trends in special education and the laws and regulations.
4. To identify a child or adolescent with learning problems, educationally assess and evaluate skills, plan and implement an individual educational program (IEP), and evaluate the educational process.
5. To diagnostically teach children or adolescents individually, within small groups, and within large group settings.
6. To be able to analyze the child, task, setting, and appropriately teach the necessary academic and social skills.
7. To communicate effectively and consult with parents, other educators, administrators, and non-school personnel concerning education of exceptional students.

For admission to the learning disabilities program, the candidate must: (1) hold a standard elementary, secondary, or special certificate; (2) meet the requirements for admission to the Graduate School; (3) meet the requirements for admission to the department; (4) have an acceptable score on the Miller Analogies Test; and (5) have had ETE 324, The Exceptional Child, or its equivalent.

Master of Arts Degree in Learning Disabilities

Graduate Core9 hrs.
ELH 604 Research Methodology and Applications.3 hrs.
ELH 605 Legal and Social Change3 hrs.
ELH 606 Interpersonal & Organizational Behavior ..3 hrs.

Department Core18 hrs.
ETE 543 Assessment and Evaluation Procedures for Exceptional Learners3 hrs.
ETE 627 Characteristics of Children with Learning and Behavior Problems3 hrs.
ETE 628 Educational Procedures for Teaching Children with Learning Disabilities3 hrs.
ETE 643 Assessment and Evaluation Practicum with Exceptional Children3 hrs.
*ETE 694 Advanced Student Teaching in Special Education3 hrs.
**ETE 696 Practicum in Special Education.....3 hrs.
**ETE 697 Advanced Practicum with Handicapped Children3 hrs.

Electives6-7 hrs.

(Must have approval of advisor)

ETE 695 Field Study in Special Education3 hrs.
(Enrollment is required for those students who have had no previous teaching experience with children identified as "learning disabled.")
ETE 550 Independent Study1-3 hrs.
ETE 650 Topics in Education1-3 hrs.
ELH 669 Special Education Law1 hr.
and other appropriate coursework closely related to Special Education in the College of Education and Health Sciences or the Department of Psychology.

*Total Semester Hours in Program33 or 34 hrs.

Course Descriptions

**ETE 525 Including Exceptional Learners
3 hrs.**

Legal, psychological, and social impact of various disabilities, including learning disabilities, for education and life planning of included exceptional learners. Psychological and educational characteristics, needs, services, regulations, and laws discussed. Includes needs of intellectually gifted and talented learners.

**ETE 543 Assessment and Evaluation Procedures for Exceptional Learners
3 hrs.**

Diagnostic processes for exceptional learners, preprimary through high school. Screening; formal and informal assessment and evaluation techniques. Administration, scoring, interpretation, individualized educational programs (IEPs). Prerequisite:

*34 semester hours are required for students without previous teaching experience. These students must enroll for ETE 694 rather than ETE 696 and ETE 697.

** 33 semester hours are required for students with previous teaching experience (three months minimum), and these students must enroll for ETE 696 and ETE 697, rather than ETE 694.

Advancement to degree candidacy in department.

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 627 Characteristics of Children with Learning and Behavior Problems

3 hrs.

Interdisciplinary study of literature and research in learning disabilities and behavior disorders. Social, educational, psychological, and legal implications.

ETE 628 Educational Procedures for Teaching Children with Learning Disabilities

3 hrs.

Educational strategies and behavior management techniques; practical applications. Developing diagnostic teaching skills and exploring methodologies related to cognitive and effective variables. Prerequisite: ETE 627.

ETE 643 Assessment and Evaluation Practicum with Exceptional Children

3 hrs.

Practicum: Use of psycho-educational tests and diagnostic teaching techniques. Preparation of a complete formal and informal educational assessment of a child including a professional report written in a specified format. Prerequisite: ETE 543.

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 694 Advanced Student Teaching in Special Education

6 hrs.

For students who have never been employed as a teacher for three or more months in a single setting. Supervised experience with exceptional children and youth. Assessment, planning, teaching, evaluation, materials selection and use, behavior and classroom management. Appropriate sites determined individually. Includes a required seminar. Prerequisite: consent of instructor.

ETE 695 Field Study in Special Education

1-3 hrs.

Provides appropriate experience with learning disability programs and students in the public schools. Ranges from directed observation to supervised participation, tailored to each individual's needs. May fulfill clock hour requirements for Illinois state teacher certification (25-75 clock hours or more, depending on need).

ETE 696 Practicum in Special Education

3 hrs.

For students with teacher certification and prior teaching experience. Supervised experiences with exceptional children. Advanced experiences in assessment program design and implementation, instructional strategies and materials, behavior and classroom management. Appropriate site determined individually.

Prerequisite: consent of instructor.

ETE 697 Advanced Practicum with Handicapped Children

3 hrs.

Supervised experience with exceptional children and youth for further professional growth. Tailored to meet the needs of the individual student. Prerequisite: ETE 696.

Supportive Courses

Education

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 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, research and write research proposals. Prerequisite: graduate standing.

ELH 605 Legal and Social Change

3 hrs.

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

ELH 606 Interpersonal and Organizational Behavior

3 hrs.

Skills related to interpersonal communication, organizational behavior, and educational leadership. Principles for building effective relationships. Extensive opportunities for practicing and evaluating personal communication skills. Prerequisite: graduate standing.

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 and 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

Nursing

Francesca A. Ammer,
Chair, Department of Nursing

Bradley University offers a Master of Science in Nursing (M.S.N.). Students may choose one of two majors: nursing administration or nurse administered anesthesia. 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 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 Examinations

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.

Master of Science in Nursing

Core Component.....8 hrs.

NUR 600 Nursing Theories: Analysis and Development3 hrs.

NUR 605 Leadership in the Health Care System3 hrs.

NUR 610 Legal Issues in Nursing2 hrs.

Research Component.....7-9 hrs.

NUR 620 Research Methods in Nursing3 hrs.

NUR 625 Nursing Research Seminar2 hrs.

NUR 699 Thesis.....4 hrs.

or

NUR 698 Directed Research in Nursing2 hrs.

Nursing Administration Major19-21 hrs.

NUR 630 Nursing Administration I,Theory3 hrs.

NUR 631 Nursing Administration I,Practicum4 hrs.

NUR 632 Nursing Administration II,Theory3 hrs.

NUR 633 Nursing Administration II,Practicum4 hrs.

Electives.....5-7 hrs.

Total Program Semester Hours36 hrs.

Nurse Administered Anesthesia Major.....31-33 hrs.

PHY 541 Physics Basics2 hrs.

CHM 500 Chemical Topics2 hrs.

BIO 570 Seminar: Contemporary Physiology3 hrs.

BIO 525 Advanced Physiology3 hrs.

NUR 500 Health Assessment4 hrs.

Electives.....3-5 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 Hours48 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 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 555; 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 555; 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 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**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**1-4 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 in Nursing

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 533 Seminar in International Nursing**3 hrs.**

Study of nursing in a foreign country; selected hospitals and universities. Establishing nursing administration and research networks.

Physical Therapy

Mary Jo Mays,
Chair, Department of Physical Therapy

Mission

The mission of the Department of Physical Therapy is to provide students with relevant and appropriate learning experiences, which are guided and facilitated by high-quality instruction. The department's faculty are committed to preparing: (1) undergraduate students to meet the challenges inherent to the health care industry, and (2) graduate students to serve as physical therapist general practitioners.

The Department of Physical Therapy offers a Master of Physical Therapy degree. The purpose of the program is to prepare graduates for entry into the general practice of physical therapy.

Admission Requirements

In addition to meeting admission requirements for the Graduate School, students must meet the following requirements:

1. A baccalaureate degree.
2. Completion of the following courses or equivalents*

| | |
|--|--------|
| BUS 100 Contemporary Business | 3 hrs. |
| BIO 123, 124 Principles of Biology I, II | 8 hrs. |
| BIO 200, 203 Human Anatomy and Physiology (with lab) | 5 hrs. |
| BIO 205 Pathophysiology | 3 hrs. |
| CHM 161, 166 General Chemistry I, II | 9 hrs. |
| MTH 115 or 121 Calculus I | 4 hrs. |
| PHY 107, 108 General Physics I, II | 8 hrs. |
| ELH 510 Statistical Procedures OR PSY 205 Quantitative Methods | 3 hrs. |
| FCS 303 Nutrition | 3 hrs. |
| ELH 370, 375 Human Relations Development (with lab) | 3 hrs. |
| HS 110 Introduction to Health Science | 1 hr. |
| HS 320 Integration of Science and Physical Therapy | 3 hrs. |
| HS/ETE 402 Educational Methods, Strategies, and Evaluation Techniques | 3 hrs. |
| HS 410 Motion Analysis | 3 hrs. |
| HS 460 Basic Science of Human Movement | 3 hrs. |
| Plus two of the following: | |
| HS/FCS 220 Consumer Issues in Health Care | 3 hrs. |
| NUR 217 Men's Health Issues | 2 hrs. |
| NUR 219 Women and Health | 3 hrs. |

Total 67-68 hrs.

*Similar courses taken at other institutions and documented formal experience will be judged for relevance by the physical therapy faculty. Please refer to the Bradley University Undergraduate Catalog for course descriptions.

3. Minimum 3.1 gradepoint average in mathematics and science courses, with no grade lower than a C. Courses required include the following: two years of college biology/zoology/physiology (the first year at the level required for a major in that area); one year of college physics; one year of college chemistry (at the level required for a major in chemistry). Science courses more than 10 years old will not be accepted.

4. Minimum 3.1 gradepoint average in the last 60 hours of undergraduate education.
5. GRE
6. TOEFL score 600 or higher (for international students only)
7. Application with an essay to articulate nature of profession of physical therapy, including practice, settings, service, and advantages and disadvantages of the profession.
8. Skills in computer literacy (word processing), statistics, kinesiology, communication (written and oral), medical terminology.
9. Portfolio reflecting undergraduate activities in leadership, humanitarian/community service; copies of major papers; resume which includes work and volunteer experiences; awards and scholarships; samples to indicate computer literacy; and a paper that explains the make-up and value of an interdisciplinary health care team.

Additional Requirements

In addition to the University's student health form requirement, and prior to enrollment in the first physical therapy course that includes a clinical experience, each student must verify:

1. liability insurance (renewable annually).
2. immunity to rubeola (measles) by one of the following:
 - a. a rubeola (measles) immunization received in 1990 or later, or
 - b. written verification from a physician of having had the disease, or
 - c. a birth date prior to 1957.
3. immunity to rubella (German measles) by one of the following:
 - a. written verification of having had the immunization, or
 - b. written verification of rubella titer greater than 1:10.
4. immunity to hepatitis B virus.
5. written verification of tuberculin test results (renewable annually).
6. CPR certification (renewable annually).

Student membership in the American Physical Therapy Association is recommended.

Contact the department for the most current additional requirements.

Curriculum

Students in the physical therapy curriculum pursue the following coursework. Full-time enrollment is required, including interim and summer sessions as indicated.

First Year

May 8-Week Interim

| | |
|---------------------------------|--------|
| PT 506 Functional Anatomy | 3 hrs. |
| PT 508 Gross Anatomy | 3 hrs. |

Semester Hours 6 hrs.

Fall Semester

| | |
|---|--------|
| PT 512 Patient Problems and Procedures I (Physical Therapy Techniques) | 4 hrs. |
| PT 520 Patient Problems and Procedures II (Functional Neuroanatomy and Neurophysiology) | 4 hrs. |
| PT 516 Research in Physical Therapy | 3 hrs. |

Semester Hours 11 hrs.

January Interim

| | |
|-----------------------------------|--------|
| PT 530 Clinical Education I | 2 hrs. |
|-----------------------------------|--------|

Spring Semester

| | |
|---|--------|
| PT 542 Patient Problems and Procedures III (Neurorehabilitation) | 4 hrs. |
| PT 546 Administration/Health Care Policies and Resources | 4 hrs. |
| PT 554 Research Projects I | 2 hrs. |
| PT 558 Professional Issues | 2 hrs. |

Semester Hours 12 hrs.

Second Year

Summer

| | |
|---|--------|
| PT 600 Research Project II | 2 hrs. |
| PT 602 Patient Problems and Procedures IV (Orthopaedics) | 4 hrs. |
| PT 604 Patient Problems and Procedures V (Cardiopulmonary) | 4 hrs. |

Semester Hours 10 hrs.

Fall Semester

| | |
|---|----------|
| PT 610 Clinical Education II (8 weeks) | 4 hrs. |
| PT 620 Clinical Education III (8 weeks) | 4 hrs. |
| Elective | 2-3 hrs. |

Semester Hours 10-11 hrs.

Spring Semester

| | |
|---|------------|
| PT 644 Physical Therapy Differential Diagnosis (8 weeks) | 4 hrs. |
| PT 648 Clinical Education IV (8 weeks) | 4 hrs. |
| Elective | 2-3 hrs. |
| Semester Hours | 10-11 hrs. |

Summer

| | |
|---|--------|
| PT 660 Clinical Education V (8 weeks) | 4 hrs. |
|---|--------|

Total Semester Hours 65-67 hrs.

Course Descriptions

PT 506 Functional Anatomy

3 hrs.

Applied human anatomy along with basic skills of musculoskeletal evaluations and therapeutic interventions will be presented. Prerequisite: consent of department chair.

PT 508 Gross Anatomy

3 hrs.

Gross structures of the upper extremities, head, neck, and back, and spinal cord, with an emphasis on musculoskeletal and neuromuscular structures and their relationship to human movement. Dissection of human cadaver. Prerequisite: consent of department chair.

PT 512 Patient Problems and Procedures I (Physical Therapy Techniques)

4 hrs.

Introduction to clinical applications of the following areas: basic physical therapy evaluation procedures including posture, range of motion, joint play, flexibility, muscle strength, gait; electrotherapy theory and techniques; and soft tissue techniques and thermal agents. Prerequisite: consent of department chair.

PT 516 Research in Physical Therapy

3 hrs.

Application of research principles, methods, design, and statistical analysis of data. Prerequisite: consent of department chair.

PT 520 Patient Problems and Procedures II (Functional Neuroanatomy and Neurophysiology)

4 hrs.

Peripheral and central nervous system anatomy and physiology with an emphasis on the sensory and motor systems as they relate to human movement. The scientific basis of sensory/motor evaluation and treatment will be discussed as well as the basic skills of sensory/motor evaluation and treatment as they relate to persons with neurological involvement. Prerequisite: consent of department chair.

PT 530 Clinical Education I

2 hrs.

The introductory full-time, supervised clinical experience requiring utilization of communication, interpersonal, and evaluation skills, and offering an opportunity to apply basic physical therapy procedures and begin professional socialization. Pass/Fail. Prerequisite: consent of department chair.

PT 542 Patient Problems and Procedures III (Neurorehabilitation)

4 hrs.

Evaluation, treatment planning, and treatment of persons with neurological involvement. Prerequisite: consent of department chair.

PT 546 Physical Therapy Administration/Health Care Policies and Resources

4 hrs.

Utilization of health care policies, community resources, and administrative principles to provide health care. Opportunity to design and use community programs for wellness, prevention, maintenance, and rehabilitation of persons in need of health care. Prerequisite: consent of department chair.

PT 554 Research Projects I**2 hrs.**

Beginning of the project designed in PT 516. Recruit subjects, collect data, and add to the review of literature. Write up any revisions in methodology and results. Prerequisite: consent of department chair.

PT 558 Professional Issues**2 hrs.**

Current issues affecting composition and design of the health care industry, environmental factors, recruitment and hiring practices, delivery of health care, and education and practice of physical therapists and related health care professionals. Reimbursement, legislation, manpower, and other factors will be addressed. Prerequisite: consent of department chair.

PT 600 Research Project II**2 hrs.**

Continuation of data collection and analysis and completion of research paper. Prerequisite: consent of department chair.

PT 602 Patient Problems and Procedures IV (Orthopaedics)**4 hrs.**

Acute and long-term diagnoses will be presented, with the student applying appropriate evaluation and treatment applications. Prerequisite: consent of department chair.

PT 604 Patient Problems and Procedures V (Cardiopulmonary)**4 hrs.**

Acute and long-term diagnoses will be presented, with the student applying appropriate evaluation and treatment applications. Prerequisite: consent of department chair.

PT 610 Clinical Education II**4 hrs.**

The second of five full-time, supervised clinical experiences. Application of advanced physical therapy procedures. Pass/Fail. Prerequisites: consent of department chair, PT 530.

PT 615 Independent Study**1-6 hrs.**

Individual study and investigations through selected readings, discussions, and/or written assignments. Prerequisites: Physical Therapy major and/or permission of Department of Physical Therapy chair.

PT 620 Clinical Education III**4 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. Pass/Fail. Prerequisites: consent of department chair, PT 610.

PT 635 Sports Physical Therapy: Applications Throughout the Life Span**3 hrs.**

Issues and experiences related to the physical therapy examination, evaluation, and management of conditions unique to the individual actively engaged in sport and exercise. Prerequisites: second-year MPT student and consent of instructor.

PT 637 New Ventures in Physical Therapy: Aquatic Therapy and Women's Health Care**3 hrs.**

Issues and experiences related to the physical therapy examination, evaluation, and management of conditions unique to the female client, along with aquatic therapy interventions designed for a variety of conditions affecting both the female and male client.

Prerequisites: second-year MPT student and consent of instructor.

PT 644 Physical Therapy Differential Diagnosis**4 hrs.**

Physical therapy diagnosis and treatment for given patient cases. Prerequisite: consent of department chair.

PT 648 Clinical Education IV**4 hrs.**

The fourth of five full-time, supervised clinical experiences in a different clinical setting. Pass/Fail. Prerequisites: consent of department chair, PT 620.

PT 660 Clinical Education V**4 hrs.**

The fifth of five full-time, supervised clinical experiences in a different clinical setting. Continued professional socialization and growth. Pass/Fail.

Prerequisites: consent of department chair, PT 648.



COLLEGE OF ENGINEERING AND TECHNOLOGY

Richard T. Johnson,
Dean

Robert Podlasek,
Assistant Dean

The College of Engineering and Technology offers programs leading to: the Master of Science in Civil Engineering, Master of Science in Electrical Engineering, Master of Science in Industrial Engineering, Master of Science in Mechanical Engineering, and the Master of Science in Manufacturing 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 advisor for a plan of study prior to registration.

For international graduates of a non-ABET-accredited program (unless from an English speaking country), a minimum TOEFL score of 525 is required for unconditional admission. The GRE is required by some departments and suggested for others.

A cumulative GPA of 3.0 for the entire undergraduate career or 3.0 for the last 60 credit hours is normally 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 525 may be admitted conditionally. TOEFL and GRE scores are taken into consideration for admission and when making assistantship award decisions.

Special Academic Programs

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. This internship is equivalent in work-time to a full-time cooperative education assignment, and interns will be monitored in the same way as EGT cooperative education students. 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 & 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

Robert Fuessle,
Graduate Advisor

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 companies 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 computer 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. Both options require a minimum of 3 semester hours of mathematics and 18 semester hours in CE courses. The MSCE program requires a minimum of 30 semester hours beyond the bachelor's degree.

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 510 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 advisor 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

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 308.

CE 510 Advanced Numerical Methods with Engineering Applications 3 hrs.

Selected numerical methods and applications chosen to meet current needs for solving problems in civil engineering. Prerequisite: CE 202 or equivalent.

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 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. Prerequisite: CE 244 or CON 224 or consent of department chair.

CE 524 Multimedia Applications in Civil Engineering and Construction 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. Prerequisite: senior or graduate standing in the College of Engineering and Technology.

Bradley University

CE 526 Advanced Cost Estimating for Construction Projects 3 hrs.

Advanced techniques in taking-off quantities, pricing techniques, computer estimating, and bidding strategy models. Prerequisite: CON 396.

CE 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. Prerequisite: CON 392.

CE 529 Construction Contract Administration 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.

CE 536 TQM Principles in Construction 3 hrs.

Theory and analysis of the Total Quality Management system as applied within the construction industry. Case studies. Prerequisite: QM 262 or IME 311.

CE 537 Simulation in Construction 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: senior or graduate standing; consent of instructor.

CE 541 Transport Phenomena in Environmental Systems 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 Physiochemical Processes Design 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 Biological Processes Design**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 544 Advanced Hydraulics**3 hrs.**

Steady state closed conduit flow; flow in pipe networks. Hydraulic transients in pipelines. Open channel flow; gradually varied, spatially varied, rapidly varied flow in open channels; open channel transients. Water and wastewater treatment plant hydraulics. Sedimentation mechanics, sediment transport, design of unlined channels, bridge scour, reservoir sedimentation. Design and computer applications. Prerequisite: CE 430.

CE 546 Groundwater Hydrology and Hydraulics**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. Cross listed as GES 546. Prerequisites: CE 202, 304, or consent of instructor.

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 308, CE 360.

CE 555 Environmental Regulations and Policy**3 hrs.**

Description and analyses of environmental regulations and policies for air, water, groundwater, and solid wastes. Conventional and hazardous wastes. Toxicological, risk assessment, and regulatory aspects of solid and hazardous waste management; characterization of hazardous wastes and materials; waste reduction strategies; collection, storage, and transportation methods. Environmental impact statements. Prerequisite: CE 360.

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 202, 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 Reinforced Concrete**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**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 573 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. Prerequisites: CE 301; senior or graduate standing.

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. Prerequisites: CE 202, CE 359.

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 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; principles 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 510, CE 573.

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.

Electrical Engineering

Prasad Shastry,
Graduate Advisor

The Department of Electrical and Computer Engineering offers a graduate program leading to the degree Master of Science in Electrical Engineering. The curriculum is structured to give the graduate of the program a balanced technical background in core areas of modern electrical and computer engineering and a significant experience in advanced design via a thesis or a project.

Students work closely with a faculty advisor 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, electronics and microprocessor applications, signal processing, and wireless components and systems. The ECE department has excellent computer and/or laboratory facilities to support advanced studies in these areas. Applicants are required to take the general test of the GRE.

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

Approved technical electives are chosen from graduate courses offered by departments other than electrical engineering, such as computer science, math, physics, or mechanical engineering. The one-semester EE 501 Principles of Electrical Engineering Design introduces the student to design techniques via several projects in key areas of electrical engineering, and supplies an excellent foundation for thesis or project work.

Students receiving a grade of less than "B" in EE 501 may have to take remedial work including courses for which graduate credit cannot be earned. Students, though, with considerable design experience in their background may seek to waive EE 501. To do so, a stu-

dent must send a letter requesting the waiver and documentation of design experience to the graduate advisor. If the waiver is granted, the student must then satisfy the requirements under either the Thesis Option or Design Option except for EE 501, yielding a total of 30 hours to complete the MSEE program. Finally, all students must pass a comprehensive exam in their last semester as required by Graduate School regulations.

Typically, an undergraduate electrical engineering degree is required for admission. However, 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. Further information can be obtained by contacting the ECE graduate advisor.

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 530 Random Variables and Signals 3 hrs.

Correlation functions; power-density spectra; transmission of random signals through linear and non-linear systems; linear mean square estimation. Prerequisite: EE 302 or graduate standing.

EE 531 Communication Theory 3 hrs.

Optimum filtering; analogue and digital communication; detection theory. Prerequisite: EE 530.

EE 532 Information Theory 3 hrs.

Coding theory; memory and memoryless systems. Prerequisite: EE 530.

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, radi-

al-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; plane waves in conducting and dielectric media; transmission lines; wave guides; antennas. Prerequisite: EE 381.

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 575, 576 Power Systems I, II
3 hrs. each

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 575 is prerequisite for EE 576.

EE 631 Advanced Communication Theory
3 hrs.

Continuation of Electrical Engineering 531. Prerequisites: EE 531, 540.

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 & Manufacturing Engineering & Technology

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 advisor. The admission requirements for each are stated in the following program statements.

Industrial Engineering

Fariborz Tayyari,
Graduate Advisor

The Industrial & Manufacturing Engineering & Technology Department 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 of a non-ABET accredited program 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 IE 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 IE 500, Engineering Economy and Costs, and IE 503, Engineering Quantitative Analysis. Neither will count towards graduate credit. 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.

Course Descriptions

IE 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.

IE 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.

IE 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: IE 503 or consent of instructor.

IE 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.

IE 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: IE 503 or consent of instructor.

IE 515 Linear Programming 3 hrs.

Theoretical and computational aspects of linear programming; application to practical problems. Prerequisite: MTH 202 or IME 117; consent of instructor.

IE 516 Simulation of Man/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 311.

IE 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.

IE 527 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.

IE 528 Occupational Ergonomics 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: one semester statistics, statics, human motion study.

IE 530 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: IE 511 or consent of instructor.

IE 564 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 312 and IME 314.

IE 582 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: IE 522 or consent of instructor.

IE 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: IE 564 or consent of instructor.

IE 588 Introduction to Expert Systems 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.

IE 590 Topics in Industrial 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.

IE 605 Advanced Industrial Engineering Problems
3 hrs.

Critical investigation and analysis in management systems design, facilities design, or industrial economics. Prerequisites: previous courses in the area of concentration; consent of instructor.

IE 681 Research
0-6 hrs.

Research on a project selected by student and advisor; to maintain progress, student must register for zero hours. Prerequisite: unconditional graduate status.

IE 699 Thesis
0-6 hrs.

Required of students choosing thesis option. Total of six hours to be taken; any semester after six hours requires student to register for zero hours to maintain progress. Prerequisites: unconditional status, consent of graduate advisor.

Manufacturing Engineering

Saeed Saboury,
Graduate Advisor

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 advisor.
- E. All students must enroll in MFE 690 Manufacturing Seminar course (for zero credit) for at least two terms that they are enrolled at the University. A student must receive at least two satisfactory grades in MFE 690.

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 thesis 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

MFE 520 Geometric Modeling
MFE 525 Design for Manufacturability
MFE 527 Tribology

Materials

MFE 531 Nonmetallic Materials
MFE 533 Composite Materials

Processes

MFE 541 Forming Processes
MFE 543 Materials Removal Processes
MFE 545 Joining and Fabrication

Systems

MFE 550 Just-in-Time Manufacturing
MFE 551 Process Engineering
MFE 555 Artificial Intelligence in Manufacturing

Automation and Integration

MFE 563 Advanced Computer Aided Manufacturing
MFE 565 Computer Integrated Manufacturing

Course Descriptions

MFE 520 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.

MFE 525 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.

MFE 527 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.

MFE 531 Nonmetallic 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.

MFE 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.

MFE 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.

MFE 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.

MFE 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.

MFE 550 Just-In-Time Manufacturing

3 hrs.

Just-in-Time production (stockless production, zero inventories) for improving manufacturing productivity. Implementation techniques and results in Western and Japanese manufacturing environments; an integrated implementation plan. Prerequisite: IME 386.

MFE 551 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. Computer aided process design and interactive accessing of machining data and tooling element of group technology and expert systems. Prerequisites: IME 395; IME 443.

MFE 555 Artificial Intelligence in Manufacturing

3 hrs.

Concept of intelligent manufacturing. Manufacturing communication and information systems. Voice and vision systems. Knowledge-based expert system. Knowledge representation. Inference engineering, knowledge data base and manufacturing applications. Prerequisites: IME 117 or equivalent.

MFE 563 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.

MFE 565 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.

MFE 581 Selected Topics in Manufacturing Engineering
1-3 hrs.

Topics of special interest which may vary each time course is offered. Topic stated in current Schedule of Classes: advances in manufacturing processes, materials, design, computer applications, manufacturing productivity, etc. Course may be repeated to a maximum of 6 hours credit. Prerequisite: senior or graduate standing.

MFE 681, 682 Professional Projects
1-3 (each)

Research project or professional problem to be selected by student and advisor. May be repeated to a maximum of 3 hours credit each. Prerequisite: consent of instructor.

MFE 690 Manufacturing Seminar
0 hrs.

Reports on current research by visiting scholars and departmental faculty and students. All graduate students are required to register and attend each semester. Prerequisite: consent of graduate advisor.

MFE 699 Thesis
3-6 hrs.

A maximum of 6 hours may be applied toward the master's degree. Prerequisite: consent of Dept. Chair.

MFG 601 Advanced Industrial Safety
3 hrs.

Properties of a safe working environment. Federal regulation: the National Health and Safety Act. Prerequisite: MFG 412.

MFG 603 Supervision of Industrial Operations II
3 hrs.

The interfaces between manufacturing operations and their supporting functions: techniques for formulating, installing, and maintaining company operations plans.

MFG 615 Plant Design
3 hrs.

Design factors in facility layout: processing and materials handling equipment; offices and other service facilities. Prerequisite: MFG 415.

MFG 672 Organization and Supervision of Industrial Training
3 hrs.

Philosophy and responsibilities of the training department. Methods of organizing, operating, and evaluating training programs for manufacturing distribution, field services, and related functions.

Mechanical Engineering

D. Paul Mehta,
Graduate Program Director

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 an overall grade point average of 3.0/4.0. 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 525 is required for unconditional admission. All applicants must submit GRE general test scores by the end of their first regular semester in attendance.

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.

Of the minimum requirement of 30 semester hours, three semester hours must be taken in advanced mathematics topics as appropriate to the student's program (plan of study). Courses in statistics, numerical

methods, and engineering analysis are applicable to this requirement.

To achieve breadth, students concentrating in the area of mechanical systems will be required to take at least one of the following courses: ME 501, ME 515, ME 521. Similarly, students concentrating in energy systems/thermosciences will be required to take at least one course from the following: ME 502, ME 540, ME 544, CE 511. Other courses not in the area of concentration may be substituted with approval of the graduate program director.

Students opting not to do a thesis will be required to register for three to 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 during the last semester.

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 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 multidimensional 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; CE 304.

ME 533 Propulsion Systems 3 hrs.

Gas turbine analysis; stationary power plants; turbo-prop, 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 542 Kinematic Synthesis of Linkages**3 hrs.**

Design of planar and spatial linkage mechanisms to satisfy input-output motion requirements: rigid-body motion of the coupler for finitely-separated positions; coordination of shaft rotations; coupler-point path problems. Prerequisite: ME 344; MTH 202, 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. Prerequisites: ME 301; CE 304.

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 301.

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 301.

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 and 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, 304, 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; MTH 202, 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 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 621 Boundary Layer Theory**3 hrs.**

Fundamentals of vector and tensor notation; derivation of Navier-Stokes equations; exact solutions; laminar boundary layer flow; similarity solutions; numerical solutions; integral solutions; fundamental transformations; thermal boundary layers; introduction to turbulent boundary layers. Prerequisite: ME 521.

ME 631 Air Pollution and Engine Emissions**3 hrs.**

Internal combustion engine as related to air pollution and smog formation; emission monitoring methods; formation, release, and atmospheric reaction of spark and compression ignition engine pollutants; effect of engine parameters on emission control methods; effect of emission control strategies on performance and economy. Prerequisites: ME 501, 503; 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**1-6 hrs. each**

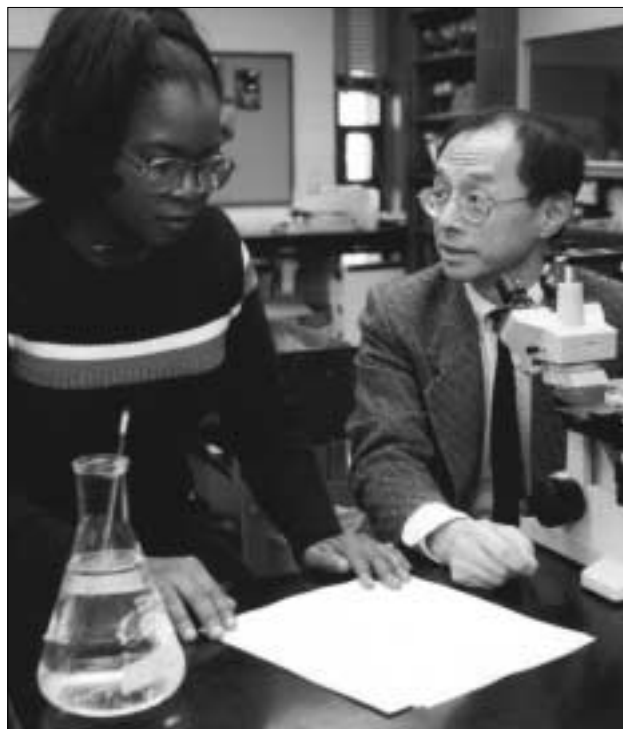
Research on a project selected by student and advisor.

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**3-6 hrs.**

Maximum of 6 semester hours total of research and/or thesis may be applied toward the master's degree. Prerequisite: consent of department.



COLLEGE OF LIBERAL ARTS AND SCIENCES

Claire Etaugh,
Dean

Jerome Hahn,
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.

Biology

Janet L. Gehring,
Graduate Advisor

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 advisor. 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 advisor 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 advisor. A majority of committee members must be from the faculty of the department of Biology at Bradley. 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 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 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

Kurt W. Field,
Graduate Advisor

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 553 Qualitative Organic Analysis 4 hrs.

Laboratory: systematic identification of pure organic compounds; analysis of mixtures. Prerequisites: CHM 320, 351, 392.

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, Young Park, and Arnold Patton,
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.
4. The Department of Computer Science and Information Systems has instituted a programming examination which all its graduate students must pass as part of their degree requirements. It is to be administered before the student has completed nine hours of graduate work. The students who fail are advised to take appropriate undergraduate courses before attempting the exam again. Students are to be given three opportunities to pass the examination. It is given early in the program in order to function as an effective diagnostic.

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 these:

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 advisor 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. 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 such as C/C++, 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 advisor.
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 615 and CS 643 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 such as C/C++, 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 **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 IE 588. 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 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. Co-requisite: 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. Prerequisites: 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 570 Systems Performance and Modeling**3 hrs.**

Techniques of modeling processes and the resources they share: intuitive, simulation, and analytical approaches. Performance prediction, bench marking, and synthetic loading. Prerequisites: a grade of C or better in CS 302 or CS 310; one semester of statistics.

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 recovery. 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

Robert Prescott,
Graduate Studies 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,
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

MLS 601 Physical Science Concepts and 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 harmo-

ny) 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 La Tissue Urbaine: The City as a Living Organism

3 hrs.

Physical structure or tissue of human settlements; urban emphasis. Their physical evolution, common universal characteristics, and unique differences; their value, importance, and integrity. The ideal or utopian human settlement. Global and local examples.

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 & 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 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 advisor and the chair of the department concerned.

Geological Sciences (Earth Science)

GES 505 Field Observation in Natural History 4 hrs.

For non-majors: field oriented investigation of diverse topographic forms, mountain structures, and materials composing the earth. Develops understanding of rapidly deteriorating environment through observation of geophysical, astronomical, and biological variations. One week of classes; three week bus trip to marine station, and return. Not open to undergraduate geological sciences majors.

GES 546 Groundwater Hydrology and Hydraulics 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. Cross listed as CE 546. Prerequisites: CE 202, 304, or consent of instructor.

GES 691 Directed Study in Geological Sciences 1-4 hrs.

Projects designed to supplement departmental offerings in geological sciences. Prerequisite: consent of instructor.

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 503 Complex Variables II 3 hrs.

Continuation of MTH 403. Advanced topics in complex analysis. Prerequisite: MTH 403 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.

MTH 515 Finite Element Analysis 3 hrs.

Mathematics of finite elements, variational and residual methods, error analysis, element analysis, ordinary and partial differential equations, various boundary conditions, and selected applications. Prerequisite: MTH 224 or 345.

MTH 590 Special Topics 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.

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. Applications to simple models of physical systems. Prerequisites: PHY 202, 301, 306; consent of instructor. MTH 207 recommended.

PHY 502 Quantum Mechanics II**3 hrs.**

Mathematical formalism of quantum mechanics. Applications to problems of electron spin and many-particle systems. 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; or 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.**

Individual 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 condensed matter physics for students of physics, materials science, and engineering. Structure of crystals; binding energy of solids; thermal properties; semiconductors; superconductivity. Prerequisites: MTH 224, PHY 501; consent of instructor.

PHY 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.

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.

Psychology

PSY 681, 682 Readings I, II**1-3 hrs. each**

Readings in area selected by student. Prerequisites: graduate standing and prearrangement with instructor.

PSY 691, 692 Research I, II**1-3 hrs. each**

Research in area selected by student. Prerequisites: graduate standing and prearrangement with instructor.

Sociology

Undergraduate registration in any 500-numbered course requires the permission of the chair of the sociology department.

SOC 571 Field Studies**1-3 hrs.**

Individual research. Prerequisite: senior or graduate standing and consent of department chair.

ADMINISTRATION AND FACULTY

Administration

David C. Broski, Ph.D., President of the University
Stanley R. Liberty, Ph.D., Provost and Vice President for Academic Affairs
William D. Engelbrecht, B.S., M.S., Vice President for Advancement
Gary Anna, B.S., C.P.A., Vice President for Business Affairs
Conley I. Stutz, Ph.D., Interim Dean of the Graduate School
Janet M. Lange, B.A. M.A., Executive Director Graduate Enrollment Management
Lynne Franks, Coordinator, International Graduate Enrollment and Student Services
Sheryl Kristensen, M.A., Director of Graduate Admissions and Financial Aid

Staff

Kristina Gleichman, Records Coordinator
Joyce Hislope, Admissions Secretary
Susan Tanner, Records Coordinator

Executive Committee of the Graduate Faculty

Permanent Member
Dean of the Graduate School

Elected Members

Winifred Anakwa Ph.D., *College of Engineering and Technology*
Lori Russell-Chapin, Ph.D., *College of Education and Health Sciences*
Ahmad Fakheri, Ph.D., *College of Engineering and Technology*
Jean Marie Grant, Ph.D., *College of Education and Health Sciences*

Ken Hoffman, M.F.A., *The Henry Pindell Slane College of Communications and Fine Arts*
James Miller, D.Ed., *College of Liberal Arts and Sciences*
Robert Prescott, Ph.D., *College of Liberal Arts and Sciences*
Edward Sattler, Ph.D., *Foster College of Business Administration*
Robert Scott, Ph.D., *Foster College of Business Administration*
Nancy Sherman, Ph.D., *College of Education and Health Sciences*

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In Soo Ahn, 1986, Associate Professor of Electrical and Computer Engineering and Technology. Seoul National University, Seoul, South Korea, B.S.; Korea Advanced Institute of Science and Technology, Seoul, M.S.; Iowa State University, Ph.D.
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- Oscar J. Gillespie**, 1986, Associate Professor of Art. Northern Arizona University, B.F.A.; Arizona State University, M.F.A.
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- Bernard J. Goitein**, 1981, Professor of Business Management and Administration. Hebrew University, B.A., M.A., University of Michigan, Ph.D.
- Kalman Goldberg**, 1952, Distinguished Professor of Economics. University of Wisconsin, B.S.; University of Pennsylvania, M.A.; Cornell University, Ph.D.
- James D. Goodnow**, 1987, Professor of International Business. Albion College, B.A.; Indiana University, M.B.A., D.B.A.
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- Jerome E. Hahn**, 1969, Associate Dean, College of Liberal Arts and Sciences, Associate Professor of Mathematics. Rose-Hulman Institute, B.S.E.E., M.S.; University of Denver, Ph.D.
- James A. Hansen**, 1964, Associate Professor of Art. Layton School of Art, B.F.A.; Cranbrook Academy of Art, M.F.A.
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- Bradley S. Kurtz**, 1998, Assistant Professor of Biology. Illinois Wesleyan University, B.A.; The University of Chicago, Ph.D.
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- Arnold Reuben Ness**, 1974, Associate Professor of Manufacturing. University of Illinois, B.S., M.S., Ph.D.
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- Barbara S. Penelton**, 1969, Associate Professor of Education. University of Illinois, B.S., M.Ed.; Indiana University, Ed.D.
- Simon Petravick**, 1994, Associate Professor of Accounting. Loyola University, B.S.; DePaul University, M.S.A.; University of Illinois at Chicago, Ph.D.; C.P.A.
- Robert J. Podlasek**, 1982, Assistant Dean, College of Engineering and Technology, Director Bradley/Fraunhofer Partnership, Associate Professor of Mechanical Engineering. University of Illinois at Urbana-Champaign, B.S., A.B., M.S., Ph.D., P.E.
- Vinod B. Prasad**, 1984, Associate Professor of Electrical and Computer Engineering and Technology. University of London, D.I.C., Ph.D.; Virginia Polytechnic Institute and State University, M.S.
- Mitchell H. Raiborn**, 1981, Professor of Accounting. University of Texas at Austin, B.B.A., M.P.A.; University of Missouri at Columbia, Ph.D.; C.P.A., C.M.A.
- F. Eugene Rebholz**, 1969, Associate Professor of Civil Engineering and Construction. Iowa State University, B.Arch.E.; Pennsylvania State University, M.Eng.; Bradley University, M.B.A., P.E.
- Dawn C. Roberts**, 1993, Associate Professor of Psychology. Augustana College, B.A.; University of Iowa, M.S., Ph.D.
- Stacey M. Robertson**, 1994, Associate Professor of History. Whittier College, B.S.; University of California, M.A., Ph.D.
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