Home ⯈ Academics ⯈ Graduate Catalog ⯈ 2023-2024 ⯈

2023-2024 GRADUATE CATALOG

General Information

- Bradley University
- Our Vision and Mission
- Founding of Bradley
- Academic Calendar
- Accreditation
- Facilities and Services
- Safety and Security
- Student Services

Graduate Education

- Graduate Education
- Degrees and Certificates Offered
- Admissions
- Registration
- Graduate Certificate Programs
- GRD Courses
- Fees and Expenses
- Financial Assistance
- Academic Regulations
- Faculty
- Graduate Education Policies

Student Affairs

- Student Affairs
- Center for Student Involvement
- Office of Residential Living and Student Conduct
- Center for Student Support Services
- Smith Career Center

Foster College of Business

- Foster College of Business
- Accounting
- Accounting Courses
- Data Science and Analytics
- Theresa S. Falcon Executive Master of Business Administration
- EMBA Courses
- Master of Business Administration
- Graduate Certificate in Management
- MBA Courses

Slane College Of Communications And Fine Arts

- Art
- Art Courses
- CFA Courses
- Game Design and Development

College Of Education And Health Sciences

- College of Education and Health Sciences
- Education, Counseling, and Leadership
- Education, Counseling, and Leadership Courses
- Annual Title II Report Card
- Doctorate of Education
- Master of Arts in Nonprofit Leadership
- Master of Arts in Nonprofit Leadership Courses
- Master of Science in Nutrition and Dietetics
- Family and Consumer Sciences and Nonprofit Leadership Courses Courses
- Nursing
- Nursing Courses
- Occupational Therapy
- Occupational Therapy Courses

Physical Therapy
- Physical Therapy Courses

College Of Engineering And Technology

- College of Engineering and Technology
- EGT Courses
- Civil Engineering
- Civil Engineering and Construction Courses
- Data Science and Analytics
- Electrical and Computer Engineering
- Electrical Engineering Courses
- Industrial Engineering
- Manufacturing Engineering
- Industrial and Manufacturing Engineering Courses
- Mechanical Engineering
- Mechanical Engineering Courses

College Of Liberal Arts And Sciences

- College of Liberal Arts and Sciences
- SCI Courses
- Biology
- Biology Courses
- Chemistry and Biochemistry
- Chemistry and Biochemistry Courses
- Computer Science and Information Systems
- Computer Science and Information System Courses
- Data Science and Analytics
- English
- English Courses
- LAS Supportive Courses
- Professional Master of Arts in Elementary Math, Science, and Technology Education
- Professional Master of Arts in Environmental Science Education
- MST Courses

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BRADLEY UNIVERSITY

Bradley University is a top-ranked, private university 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 offering bachelor's degrees in 1920 and a full university offering graduate programs in 1946, at which time its name was changed to Bradley University. Bradley is accredited by The Higher Learning Commission. With approximately 5,400 undergraduate and graduate students, Bradley offers the opportunities, choices and resources of a larger university and the personal attention and exceptional learning experience of a smaller university.

Through the five colleges — College of Liberal Arts and Sciences, College of Education and Health Sciences, Caterpillar College of Engineering and Technology, Foster College of Business and Slane College of Communications and Fine Arts — and Graduate Education, there are more than 185 majors and academic programs, including programs in entrepreneurship, game design, animation, nursing, hospitality leadership, internal auditing, music and entertainment industry, sports communication and physical therapy. Graduate Education offers 38 graduate, doctorate and certificate programs, including eight online advanced-degree programs in nursing, two in counseling, and one in education.

The average class size is 21 students, and the student-to-faculty ratio is 12:1. Bradley has nearly 350 full-time faculty members, who are both active researchers and committed teachers, providing personalized attention in learning and academic advising. All courses are taught by professors, not graduate assistants, and team projects and collaboration are emphasized in every area of university life. In fact, the Wall Street Journal/Times Higher Education continues to recognize Bradley among the top 15 schools in the U.S. for student engagement. In 2017, Bradley was ranked eighth in the nation.

There are abundant opportunities outside of the classroom. Students can develop leadership skills in more than 240 student organizations, including more than 60 dedicated to leadership and community service. Bradley is home to the nation's most successful speech program, as well as multiple fraternities and sororities, NCAA Division I athletics, club and intramural sports, study abroad opportunities and the Lewis J. Burger Center for Student Leadership and Public Service.

The new $100M-plus Business and Engineering Convergence Complex opened in 2019. The 270,000 square-foot facility unites the Caterpillar College of Engineering and Technology and the Foster College of Business under one roof in a visionary facility. This complex encourages innovative ways of thinking, teaching and learning to create opportunities for students and faculty to work across curricula and participate in project-based learning activities. The complex created a new front door to the campus, which has spurred more partnerships and community involvement, while enhancing the Main Street corridor and surrounding neighborhood.

Bradley's second-oldest building, Westlake Hall, was transformed into a modern, LEED Gold certified learning facility, equipped with the latest technologies. The renovation expanded the building to six times its former size, from 13,500 to 85,000 square feet. The Markin Family Student Recreation Center offers a swimming pool, exercise facilities and practice space for intramural sports. The Renaissance Coliseum is a 165,200-square foot, multi-use athletic facility. It is the primary sporting venue for women's basketball and volleyball, as well as select men's basketball events. The Coliseum includes the Mitchell "J.J." Anderson Court practice facility, an athletics museum, the university's athletics hall of fame, strength and conditioning and athletic training facilities, two student-athlete academic centers, 12 locker rooms for student-athletes and athletic department offices. Dingeldine Music Hall has been home to Bradley concerts since 1983. It houses the 440-seat Peters Recital Hall.

Built as an architectural companion to iconic Bradley Hall, the Hayden-Clark Alumni Center is a nod to Bradley's history. Visitors can explore the university's past through displays and interactive presentations in the first floor Shaheen Halll of Pride. Residence Halls come to life in miniature models of rooms from past decades, while digital galleries highlight campus life and artifacts honor university founder Lydia Moss Bradley. The third floor is home to the Peplow Pavilion, which provides a 300 seat upscale setting for alumni reunions, wedding receptions and other special events. It looks westward over the Alumni Quad and the Harden Circle of Pride.

Bradley University provides a comfortable setting for living and learning. A beautiful 85-acre campus contains both historic buildings and state-of-the-art learning centers, and is just one mile from downtown Peoria. Surrounded by a historic residential district, the campus has restaurants and shops within walking distance as well as a wide range of campus dining options.

Graduates of Bradley do exceptionally well in their chosen careers and advanced studies. The five-year average for graduates who started a career, graduate school, or other postgraduate experience within six months of graduation is 93 percent.

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OUR VISION AND MISSION

Vision

We deliver an engaging education that transcends traditional boundaries through scholarly and practical experiences in a diverse, caring, and inclusive environment to prepare purpose-driven leaders who achieve success and build a better world. Bradley University: An investment in the life you want.

Mission

Bradley University empowers students for immediate and sustained success in their personal and professional endeavors by combining professional preparation, liberal arts and sciences, and co-curricular experiences. Alongside our dedication to students, we embrace the generation, application, and interpretation of knowledge.

Core Values

At the heart of Bradley University is a community built upon the valued relationships we find in each other as students, staff, faculty, administrators and alumni. At the core of these relationships are the values of student success, knowledge and discovery, inclusiveness and connectivity, and excellence.

- **Student Success**: We are a community that ensures student access to an individualized learning experience. This is characterized by broad opportunities for students to marry their passions and skills, by innovative academic programming, and by an exceptional level of engagement between students, staff and faculty, such that all students acquire the skills and dispositions essential to purposeful and productive living.
- **Knowledge and Discovery**:We are a community that prioritizes academic excellence by nurturing critical inquiry, research, creativity and technical skills development. We work collaboratively to engage learners in high-impact practices, in scholarship, and in leadership development opportunities in order to foster lives of purpose and advance a better world.
- **Inclusiveness and Connectivity**: We are a community that strives to contribute meaningfully to understanding and resolving the problems around us. By embracing servant leadership, purposeful civil discourse, and an inclusive identity whereby we understand that our differences are our strengths, we lend our passions and knowledge to build valued relationships with local, regional and global partners.
- **Excellence**: We are a dynamic community committed to the continuous pursuit of excellence. As individuals, as units and across campus, we welcome mutual accountability and are strengthened by our shared, collaborative efforts to ensure that we are each exceptional and passionate stewards of Bradley University.

Department concerned, the Registrar's Office, u.Achieve degree audit system, and the Schedule of Classes. It is the responsibility of each student to be aware of the current program and graduation requirements for particular degree programs.

FOUNDING OF BRADLEY

What had once been a large stretch of prairie-land became a seat of higher learning because of the remarkable courage, strength and determination of one woman - Lydia Moss Bradley.

After all her hopes, ambitions and dreams for her six children ended in their untimely deaths, Lydia and her husband, Tobias, discussed how they might use their wealth as a fitting memorial to their children. Their first idea was to establish an orphanage.

Sadly, Tobias died in May 1867 before the couple could realize their dream. Alone, Lydia devoted herself unreservedly to achieving their goal. After traveling to various institutions, she decided instead of an orphanage 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, Lydia purchased a controlling interest in Parsons Horological School in LaPorte, Ind., the first school for watchmakers in America, and moved it to Peoria. She specified in her will how the school should expand 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."

Four years later, Dr. William Rainey Harper, president of the University of Chicago, convinced Lydia to move ahead with her plans and establish the school during her lifetime. Bradley Polytechnic Institute received its charter Nov. 13, 1896, at which time Lydia provided 17 1/2 acres of land, funds for two campus buildings, laboratory equipment, library books and annual operating expenses.

Construction moved quickly on Bradley Hall and Horology Hall (later renamed Westlake). Fourteen faculty and 150 students began classes Oct. 4, 1897 — with 500 workers still hammering away. (The Horological Department added another eight faculty and 70 students.) The formal dedication of Bradley Polytechnic Institute took place Oct. 8, 1897. Less than a year later, the institute graduated its first student, Corinne Unland.

By 1899, there were 350 pupils in the School of Arts and Sciences at Bradley, almost equally divided between men and women. Classes included biology, chemistry, food work, sewing, English, German, French, Latin, Greek, history, manual arts, drawing, mathematics and physics. Pleased with its progress, Lydia transferred the rest of her estate to the school, including nearly 1,000 different pieces of property, while reserving their 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.

Lydia died Jan. 16, 1908, at the age of 91. Her original vision continued to grow 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 70,000 worldwide. Prominent alumni include:

- **Ray LaHood '71**, former U.S. Secretary of Transportation, senior policy advisor for DLA Piper
- **General John Shalikashvili '58***, retired chairman of the Joint Chiefs of Staff
- **Congressman Robert H. Michel '48***, retired congressman and longest-serving Republican leader of the U.S. House of Representatives
- **Lillian Glass '74**, noted speech pathologist and speech communication author and speaker
- **René C. Byer '80**, winner of the Pulitzer Prize, senior photographer for the *Sacramento Bee*
- **David Horowitz '59**, consumer advocate
- **Tana Utley ' 86**, vice president of large power systems, Caterpillar Inc.
- **Kary McIlwain '81,** chief marketing officer, Ann and Robert H. Lurie Children's Hospital of Chicago
- **Calvin Butler '91**, chief executive officer, Baltimore Gas & Electric
- **Tami Lane '96,** Academy Award-winning prosthetic make-up artist
- The Honorable **Joe Billy McDade, '59, '60**, United States District Court Federal Judge
- **Richard Teerlink '61**, retired chairman of Harley-Davidson, Inc.
- **James Weinstein '72**, president and CEO of Dartmouth Hitchcock Hospital
- **Neil Flynn '82**, actor best known for his roles on "Scrubs" and "The Middle."
- **Major Robert H Lawrence '56**, the first African American astronaut

* deceased

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BRADLEY University

ACADEMIC CALENDAR

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

2023–2024

Fall Semester 2023

August 14, Monday Reporting date for faculty

August 19, Saturday Residence halls open

August 23, Wednesday Fall Semester & Fall Session 1 (1st half) classes begin

October 6, Friday Fall Session 1 (1st half) classes end

October 7, Saturday Fall Recess begins

October 11, Wednesday Fall Classes resume

October 11, Wednesday Fall Session (1st half) grades due by 3 PM

October 13, Friday Fall Session 1 (1st half) grades posted

October 16, Monday Fall Session 2 (2nd half) classes begin

November 22, Wednesday Thanksgiving Recess begins (no classes)

November 27, Monday Fall Semester and Fall Session 2 (2nd half) classes resume

December 5, Tuesday Fall Semester and Fall Session 2 (2nd half) classes end

December 6, Wednesday Study Day

December 7, Thursday Final Examinations begin

December 13, Wednesday Final Examinations end

December 16, Saturday Commencement (grades due by 10 am)

January Interim 2024

January 2, Tuesday First day of classes

Classes meet Monday – Saturday

January 15, Monday Final Examinations; January Interim ends

Spring Semester 2024

January 8, Monday Reporting date for new faculty

January 14, Sunday Residence halls open

January 17, Wednesday Spring Semester & Spring Session 1 (1st half) classes begin

March 5, Tuesday Spring Session 1 (1st half) classes end

March 8, Friday Spring Session 1 (1st half) grades due by 3 PM

March 9, Saturday Spring Recess begins

March 17, Tuesday Spring Session 1 (1st half) grades posted

March 18, Monday Spring Semester classes resume & Spring Session 2 (2nd half) begins

April 30, Tuesday Spring Semester and Spring Session 2 (2nd half) classes end

May 1, Wednesday Study Day

May 2, Thursday Final Examinations begin

May 8, Wednesday Final Examinations end

May 11, Saturday Commencement (grades due by 10 AM)

Summer Semester 2024

May 13, Monday May Interim (3 weeks) begins

May 15, Wednesday Summer Semester & Summer Session 1 (1st half) begin

May 27, Monday No classes on Memorial Day Holiday

May 31, Friday May Interim (3 weeks) ends

June 26, Wednesday Summer Session 1 (1st half) classes end

June 28, Friday Summer Session 1 (1st half) grades due by 3 PM

July 1, Monday Summer Session 1 (1st half) grades posted

July 3, Wednesday Summer Session 2 (2nd half) begins Tuesday Summer Session 1 (1st half) grades posted

July 4, Thursday No classes on Fourth of July Holiday

August 14, Wednesday Summer Semester & Summer Session 2 (2nd half) classes end

August 16, Friday Summer Semester & Summer Session 2 (2nd half) grades due 3 PM

August 20, Tuesday Summer Semester & Summer Session 2 (2nd half) grades posted

2024–2025

Fall Semester 2024

August 12, Monday Reporting date for faculty

August 17, Saturday Residence halls open

August 21, Wednesday Fall Semester & Fall Session 1 (1st half) classes begin

October 4, Friday Fall Session 1 (1st half) classes end

October 5, Saturday Fall Recess begins

October 9, Wednesday Fall Classes resume

October 9, Wednesday Fall Session (1st half) grades due by 3 PM

October 11, Friday Fall Session 1 (1st half) grades posted

October 14, Monday Fall Session 2 (2nd half) classes begin

November 27, Wednesday Thanksgiving Recess begins (no classes)

December 2, Monday Fall Semester and Fall Session 2 (2nd half) classes resume

December 3, Tuesday Fall Semester and Fall Session 2 (2nd half) classes end

December 4, Wednesday Study Day

December 5, Thursday Final Examinations begin

December 11, Wednesday Final Examinations end

December 14, Saturday Commencement (grades due by 10 am)

January Interim 2025

January 2, Thursday First day of classes

Classes meet Monday – Saturday

January 20, Monday Final Examinations; January Interim ends

January 21, Tuesday Grades due by 3 PM

Spring Semester 2025

January 13, Monday Reporting date for new faculty

January 19, Sunday Residence halls open

January 22, Wednesday Spring Semester & Spring Session 1 (1st half) classes begin

March 11, Tuesday Spring Session 1 (1st half) classes end

March 14, Friday Spring Session 1 (1st half) grades due by 3 PM

March 15, Saturday Spring Recess begins

March 18, Tuesday Spring Session 1 (1st half) grades posted

March 24, Monday Spring Semester classes resume & Spring Session 2 (2nd half) begins

May 6, Tuesday Spring Semester and Spring Session 2 (2nd half) classes end

May 7, Wednesday Study Day

May 8, Thursday Final Examinations begin

May 14, Wednesday Final Examinations end

May 17, Saturday Commencement (grades due by 10 AM)

Summer Semester 2025

May 19, Monday May Interim (3 weeks) begins

May 21, Wednesday Summer Semester & Summer Session 1 (1st half) begin

May 26, Monday No classes on Memorial Day Holiday

June 6, Friday May Interim (3 weeks) ends

June 9, Monday May Interim (3 weeks) grades due by 3 PM

July 2, Wednesday Summer Session 1 (1st half) classes end

July 3, Thursday Summer Session 1 (1st half) grades due by 3 PM

July 4, Friday No classes on Fourth of July Holiday

July 8, Tuesday Summer Session 1 (1st half) grades posted

July 9, Wednesday Summer Session 2 (2nd half) begins

August 20, Wednesday Summer Semester & Summer Session 2 (2nd half) classes end

August 22, Friday Summer Semester & Summer Session 2 (2nd half) grades due 3 PM

August 26, Tuesday Summer Semester & Summer Session 2 (2nd half) grades posted

2025–2026

Fall Semester 2025

August 18, Monday Reporting date for faculty

August 23, Saturday Residence halls open

August 27, Wednesday Fall Semester & Fall Session 1 (1st half) classes begin

October 10, Friday Fall Session 1 (1st half) classes end

October 11, Saturday Fall Recess begins

October 15, Wednesday Fall Classes resume

October 15, Wednesday Fall Session (1st half) grades due by 3 PM

October 17, Friday Fall Session 1 (1st half) grades posted

October 20, Monday Fall Session 2 (2nd half) classes begin

November 26, Wednesday Thanksgiving Recess begins (no classes)

December 1, Monday Fall Semester and Fall Session 2 (2nd half) classes resume

December 9, Tuesday Fall Semester and Fall Session 2 (2nd half) classes end

December 10, Wednesday Study Day

December 11, Thursday Final Examinations begin

December 17, Wednesday Final Examinations end

December 20, Saturday Commencement (grades due by 10 am)

January Interim 2026

January 2, Friday First day of classes

Classes meet Monday – Saturday

January 19, Monday January Interim ends

January 20, Tuesday Grades due by 3 PM

Spring Semester 2026

January 12, Monday Reporting date for new faculty

January 18, Sunday Residence halls open

January 21, Wednesday Spring Semester & Spring Session 1 (1st half) classes begin

March 10, Tuesday Spring Session 1 (1st half) classes end

March 13, Friday Spring Session 1 (1st half) grades due by 3 PM

March 14, Saturday Spring Recess begins

March 17, Tuesday Spring Session 1 (1st half) grades posted

March 23, Monday Spring Semester classes resume & Spring Session 2 (2nd half) begins

May 5, Tuesday Spring Semester and Spring Session 2 (2nd half) classes end

May 6, Wednesday Study Day

May 7, Thursday Final Examinations begin

May 13, Wednesday Final Examinations end

May 16, Saturday Commencement (grades due by 10 AM)

Summer Semester 2026

May 18, Monday May Interim (3 weeks) begins

May 20, Wednesday Summer Semester & Summer Session 1 (1st half) begin

May 25, Monday No classes on Memorial Day Holiday

June 5, Friday May Interim (3 weeks) ends

June 8, Monday May Interim (3 weeks) grades due by 3 PM

July 1, Wednesday Summer Session 1 (1st half) classes end

July 2, Thursday Summer Session 1 (1st half) grades due by 3 PM

July 3, Friday No classes on Fourth of July Holiday (observed)

July 7, Tuesday Summer Session 1 (1st half) grades posted

July 8, Wednesday Summer Session 2 (2nd half) begins

August 19, Wednesday Summer Semester & Summer Session 2 (2nd half) classes end

August 21, Friday Summer Semester & Summer Session 2 (2nd half) grades due 3 PM

August 25, Tuesday Summer Semester & Summer Session 2 (2nd half) grades posted

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BRADLEY University

ACCREDITATION

Bradley University is accredited by the Higher Learning Commission: 230 S. LaSalle St., Ste. 7-500, Chicago, Illinois, 60604-1411; (312) 263-0456; www.ncahlc.org.

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

- AACSB International – The Association to Advance Collegiate Schools of Business
- Accreditation Council for Education in Nutrition and Dietetics (ACEND)
- American Chemical Society
- American Council for Construction Education
- Association for Childhood Education International (ACEI)
- Commission on Accreditation in Physical Therapy Education (CAPTE)
- Council for Accreditation of Counseling and Related Educational Programs (CACREP)
- Commission on Collegiate Nursing Education (CCNE), http://www.ccneaccreditation.org/
- Council for Exceptional Children (CEC)
- Council on Social Work Education (CSWE)
- Educational Leadership Constituent Council (ELCC)
- Engineering Accreditation Commission of ABET, http://www.abet.org
- Technology Accreditation Commission of ABET, http://www.abet.org
- National Association for the Education of Young Children (NAEYC)
- National Association of Schools of Art and Design (NASAD)
- National Association of Schools of Music (NASM)
- National Association of Schools of Theatre (NAST)
- National Council for the Social Studies (NCSS)
- National Council for Accreditation of Teacher Education (NCATE)
- National Council of Teachers of English (NCTE)
- National Council of Teachers of Mathematics (NCTM)
- National Science Teachers Association (NSTA)

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FACILITIES AND SERVICES

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

Bradley continuously updates facilities to keep pace with new methods of teaching and learning. Bradley's second-oldest building, Westlake Hall, has recently been transformed into a state-of-the-art learning facility, equipped with the latest technologies. The renovation has expanded the building to six times its former size, growing from 13,500 to 85,000 square feet.

Bradley's newest building, the $100 million-plus Business and Engineering Convergence Center, is home to the Foster College of Business and the Caterpillar College of Engineering and Technology. The facility provides 270,000 square feet of academic space, featuring 200 offices, 28 classrooms, eight computer labs, 46 specialized labs and 30 collaboration and meeting spaces.

The Renaissance Coliseum opened in August 2010. The Coliseum is the home court for women's basketball and volleyball and provides a spacious venue for concerts and other performances. In fall 2008, the state-of-the art Markin Family Student Recreation Center opened, offering a swimming pool, exercise facilities, and practice space for intramural sports. It serves as the social hub for student life on campus, houses Health Services, Counseling Center and labs to support the Department of Nursing. A 600-space parking deck also opened in 2008.

St. James Apartment Complex

St. James Apartments at Bradley University is university owned, off-campus housing. Aside from being a Bradley University student, qualified individuals must be 20 years of age by September 1 of the current school year for the lease year the individual is applying. The 17-building complex offers spacious one to four-bedroom apartments. Just a short distance (.3 miles) off campus, all units come fully furnished, including dishwasher, full-sized refrigerator and electric stove. Laundry facilities are located in each building. Most utilities are provided, including internet service connected to the university's network. St. James Apartments also includes 24-hour emergency maintenance and roommate placement services.

Bradley University Bookstore

The Bradley Bookstore provides the books and supplies necessary for coursework at the university. The bookstore offers new, used, rental, and digital textbooks. A large selection of emblematic clothing and gifts, as well as medical, reference, and general reading books are available. Any book not carried in stock can be special ordered. All students, faculty, and staff with a valid school ID may purchase academically priced software online at www.thinkedu.com/bn. Greeting cards, snacks, and soda are also stocked.

The bookstore accepts Discover, Visa, Mastercard, or American Express cards or Quick Cash. Barnes and Noble gift cards are also accepted and available for purchase and can be used at any Barnes and Noble college bookstore or superstore.

Enterprise Services

Enterprise Services supports both the academic and administrative aspects of university computing. Enterprise Services supports campus-wide computer networks, the Campus Printing Service (CPS), connections to the Internet, and electronic mail.

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

Student e-mail accounts

E-mail and network access accounts are automatically established for every student at Bradley University. Bradley uses e-mail as an official means of communication with students, so students should check their account on a regular basis.

Inclusive Excellence

Located in the Romeo B. Garrett Cultural Center (824 North Duryea Place across from Williams Hall), houses the Office of Inclusive Excellence. Inclusive Excellence functions to meet the various needs of students from historically underrepresented backgrounds—including students who are racially diverse, first generation, and/or are a part of the LGBTQ+ community. The Center serves as a meeting place for students and community groups as well as a place for social and cultural events. It also has access to computers for students to use, as well as an auditorium on the first level for programming. Named in honor of the late professor emeritus of sociology, Dr. Romeo B. Garrett, the Center is open every day during the regular academic year.

Markin Center

The Markin Family Student Recreation Center is one of the main hubs for student traffic on Bradley's campus, averaging over 1,100 students on a daily basis. At 130,000 square feet, the Markin Center boasts three levels that include a 46-foot rock-climbing wall, an indoor pool, four full-size basketball courts, 1/8 mile indoor track and three multi-purpose rooms. Located in the main lobby of Markin, Jerry's Juice Bar is a nutritional pre- or post-workout dining option that offers smoothies, protein shakes, bagel sandwiches and an assortment of fresh snacks and salads. The Markin Center is also home to the offices of Campus Recreation and Athletic Facilities, Bradley Health Services, and Counseling Services. In addition, Markin serves as the monthly host to Late Night BU, a campus wide late-night entertainment event that averages over 1,100 attendees (over 20 percent of the student body).

Health Services/Counseling Center

Student Health Services is an outpatient clinic that provides service to enrolled Bradley students who experience health problems. Students are assisted through advisement, treatment, consultations with health providers, and referral for extended treatment if necessary. While there is no charge for most on-site treatment, services provided through referral to outside agencies are charged by that care provider and are the student's financial responsibility. The Center's qualified staff of physicians, psychiatrist, counselors, and nurses is located in modern treatment offices in the Markin Center. They provide a point-of-entry for all university students to receive health care both at the Center and in the Peoria community. Professional counselors and supportive staff are trained to work with Bradley students in their growth and total development—social, emotional, intellectual, physical, spiritual, and occupational—as well as the environment in which they live.

Personal growth and development issues of adjustment to college, relationship concerns, alcohol and substance abuse, anxiety and stress management, communication skills, eating disorders, assertiveness, and lifestyle choices are some of the issues addressed by the counselors. Visits are confidential and free for Bradley students. The Center is open during the school year 8:00 a.m.-12:30 p.m. and 1:30-4:30 p.m., Monday-Friday. The Center is open limited hours during breaks and regular summer school sessions. Students are seen on an appointment basis. At times when the Health Center is closed, patients are referred to the afterhours number, 677-3200, which connects to OSF St. Francis Phone Nurses Triage.

In addition to regular medical services, Health Services also offers special men's and women's clinics during the regular academic year. All students are required to have a student health form on file at Health Services before registering. To avoid penalties and delays in registering, return the completed health form and then verify through Health Services that it has been received and is complete.

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

Counseling Center

Counseling is located in the lower level of Markin Recreation Center, Room 52. Students may bring their student ID with them to access the lower level. Counseling is staffed by a psychiatrist and professional counselors. Students may receive an assessment and therapy for disorders such as depression, anxiety, eating disorders, addictions, and relationship concerns. Visits are confidential and free for Bradley students who have paid the health fee. Contact Health Services at 677-2700 to make a counseling appointment. A nurse will speak directly with the student to gain information about the needed services & acuity of the problem. The student will be scheduled with a counselor or with the psychiatrist or physician based upon the presenting concerns.

Learning Design & Technology (LDT)

Learning Design & Technology provides a diverse range of instructional media and production services in support of the academic and administrative needs of faculty, students, and staff. Primary services include: classroom and event support; classroom technology training and design; AV equipment and staff assistance; course capture; IP video and web conferencing; digital graphic, video, and copy services; video library; and a variety of general media services.

Cullom-Davis Library

The Bradley University Library primarily serves the needs of the University's students and faculty. Its collection encompasses more than 1,304,000 items—including approximately 518,000 books, periodicals, and government documents, electronic resources (journals, books, etc.), and a variety of audiovisual resources, manuscripts, and archival materials. The Library is a depository for both U.S. and Illinois government documents.

The Library's resources and services are housed in the Cullom-Davis Library, which was renovated and enlarged to 107,000 square feet in 1990. The facility provides seating for 1,000 students and offers a coffee shop where students can take a study break, read, and socialize.

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

About 13,800 music scores, 10,000 recordings, and selected music reference materials are in the Music Resource Collection, which is located on the third floor. The Sports Communication Resource Center is also located on the third floor and contains books, clippings, and guides, all of which require special management.

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

Communications And Engineering Services (CES)

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

WCBU FM 89.9

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

WCBU's primary channel provides a full 24-hour schedule of NPR news and information, local news, and public affairs programming on WCBU 89.9. Classical WCBUHD2 offers a 24-hour schedule of classical music. WCBUHD2 can be received using new HD Radio receivers and online atPeoriaPublicRadio.org.

Radio Information Service: The station also offers a special subcarrier channel for those who are blind or unable to read for themselves. Special receivers are provided free to qualified users. RIS offers volunteer opportunities for students and community members to read local publications on the air. Information is available on the website or by calling 309-677-3585.

SAFETY AND SECURITY

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

The Bradley University Police Department

The Bradley University Police Department (BUPD) is committed to working in partnership with Bradley University's students, faculty, staff, and community members utilizing a community-oriented policing approach focusing on proactive patrols and innovative outreach. The BUPD will promote public safety and crime prevention through education and enforcement. The BUPD will safeguard life and property, preserve the peace, prevent and detect crime, and enforce the law, while protecting the rights of all citizens in order to promote a safe living environment, a positive learning experience, and an enhanced quality of life.

Its officers are commissioned by the State of Illinois, have full law enforcement powers on and off University property, and are trained to respond to crimes in progress as well as medical-related emergencies. Bradley University Police are on duty 24 hours a day, 365 days a year; conduct foot, bike, and vehicular patrols of the campus, residence halls, and near off-campus areas; and make crime prevention presentations to student groups and others. Bradley University Police also coordinate patrol and call responses with City of Peoria and Peoria County law enforcement agencies. Bradley University Police also monitor and oversee the University's security cameras and security systems.

The Bradley University Police Department is located at 1200 W. Main Street in the Campustown shopping center at the intersection of St. James and University. The patrol boundaries are east to Sheridan, south to Moss Avenue, west to Western, and north to Columbia Terrace; however, the BUPD does have full jurisdiction and arrest powers in both the City of Peoria and Peoria County.

The Bradley University Police Department has a Student Safety Advisory Committee composed of student volunteers who will assist with reviewing and making recommendations on a wide variety of safety-related issues.

Emergency Blue Light Telephones

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

Campus Security

Students, faculty, and staff should remain aware of their surroundings and immediately report suspicious activity, people, or vehicles to the Bradley University Police Department by activating an emergency blue light phone, dialing 309-677-2000, or dialing 9-1-1. Vehicles should be secured and valuables left out of sight.

Residence Hall rooms, classrooms, labs, and offices should be locked when not in use. Do NOT allow people you do not know to access secured buildings, especially residence halls.

All residence halls have limited access, with some halls having all outside doors locked on a 24-hour basis and others having main doors unlocked during daytime hours. Card access is required to enter any residential portions of the buildings. Residence hall student security staff make rounds during the night.

Security-related concerns and campus crime information are reported to the campus community through the Bradley University's Police Web site, university email, and other media.

Students may borrow from the University Police Department engraving equipment to mark valuables such as electronic equipment and bicycles. Officers can assist with jump starting vehicles and unlocking vehicles. Literature on safety and security is also available. The Bradley University Police Department offers many crime prevention programs including a Vacant House Watch Program during class recess periods and safety demonstrations such as R.A.D. (Rape Aggression Defense).

Safety Alerts

The "safety alert," otherwise known as a "timely warning," serves to notify students, faculty and staff about incidents that have already occurred but represent a serious or continuing threat to the campus community. The decision to issue a safety alert is determined by the BUPD Chief of Police or designee based upon assessment of all known facts surrounding the crime including, but not limited to, the nature and location of the crime, the degree of continuing danger to the campus community, and the possible risk of compromising law enforcement efforts. A safety alert is informative in nature and provides general safety tips. Safety alerts are distributed via email to all university students and employees and posted on the Bradley University Police Department homepage.

The "foreWarn alert," otherwise known as an "emergency notification" whose use is also determined by the BUPD Chief of Police or designee, is based upon confirmation of a significant emergency or dangerous situation involving an immediate threat to the health or safety of students or employees occurring on campus. A foreWarn message provides instructions for specific emergency action to take place, such as evacuate, take shelter, shelter-in-place, or lock down. The notification system includes one or more of following modes of communication: text messaging, a telephone hotline (677-4000), email messaging, audix messaging, public address announcements and the University's homepage. The use of the text message portion of the foreWarn system is restricted to life-threatening events or severe weather.

For more information, see bradley.edu/police and bradley.edu/emergency.

Safety is a *SHARED* responsibility. A safe campus can be achieved only with the cooperation of the entire University community—students, faculty, staff, and visitors. For more information about crime prevention and crime statistics for the campus and local neighborhood, see bradley.edu/police/crime/.

Student Patrol and Safety Escorts

Bradley University Police Department offers two services in which students, faculty, and staff may be escorted within the Bradley Patrol Area:

Student Patrol

The Student Patrol, operated by trained student employees outfitted in reflective vests and equipped with flashlights and two-way radios, provides walking escorts for students, faculty and staff to travel safely from place to place on and within close proximity to campus. The Student Patrol currently operates on Thursdays, Fridays, and Saturdays between 7 p.m. and 3 a.m. when school is in session during fall and spring semesters. A valid Bradley ID card must be presented at the time of service. To request the service, call (309) 677-2800. When not providing escorts, the Student Patrol conducts foot patrols of the campus and immediate area.

Safety Cruiser

The Safety Cruiser, operated by trained student employees driving a uniquely marked Bradley van, provides shuttle transports for students, faculty and staff to travel safely from place to place between the areas of Moss Avenue to Columbia Terrace and Western Avenue to Sheridan Road. The Safety Cruiser operates daily between 7 p.m. and 3 a.m. when school is in session during fall and spring semesters. A valid Bradley ID card is required to utilize the service. To request the service, call (309) 677-2800 or just flag down the van. Safety escorts provided by Bradley Police Department officers are available 24 hours a day and can be obtained by calling (309) 677-2000.

STUDENT SERVICES

Student Activities Office and Student Organizations

The Student Activities Office provides support and oversight for student organizations including but not limited to: annual registration, creation of new organizations, student organization event approval, advertisement approval, student organization conduct, Student Organization Handbook, Student Activities Budget Review Committee policies and procedures, assists with purchasing and signs contracts on behalf of funded organizations. The Student Activities Office maintains the student organization directory and management portal, BInvolved, which can be found online at bradley.presence.io.

Student Involvement Office

Student Involvement 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 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.

Student Support Services Office

Student Support Services is designed to offer guidance to students in times of need. Our mission is to provide personal attention and resources to students as they work to achieve their academic and personal goals. Student Support Services serves as a major link between academic and student affairs striving to improve student retention through positive communication and relationships with students, faculty, staff, and families. We will help students find the necessary information or resources so they may have a personally rewarding education at Bradley.

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BRADLEY University

GRADUATE EDUCATION

About Us

Since 1946, Bradley University has promoted professional development by engaging its students in graduate level research, creative production, workplace-oriented experiences and theoretical studies to help them become industry leaders. With the flexibility your busy lifestyle demands and myriad degree options from which to choose, the University will help you take the next step in your education and career:

- **Over forty on-campus graduate**, doctorate and certificate programs across five colleges.
- **Over twenty online nursing, counseling, and education degree/certificate** options in the College of Education and Health Sciences that will allow you to continue your studies from anywhere in the country.

The strength of Bradley's graduate programs lies in the outstanding quality of its faculty, who mentor students in an engaged academic community. With a strong commitment to facilitating student learning, the faculty strive 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. Our graduate programs rapidly adapt to external forces that call for students to synthesize information and integrate knowledge as they prepare for careers in a world that promises continued technological change.

Each semester, graduate students from a wide variety of institutions study in our on-site or online programs. The various post-baccalaureate programs consist of masters' and doctoral degrees as well as a variety of graduate certificate programs. Emphasis is placed on developing leadership, technology, research, and teamwork skills through collaborations with our nearly two hundred graduate faculty members, the University's strategic partners, and other students.

Role of the Office of Graduate Education

The Office of Graduate Education serves to provide guidance and leadership for initiating and maintaining post-baccalaureate programs of the highest quality. Its administrative roles include assisting colleges offering these programs in the following ways:

- supporting Graduate Program Coordinators and Directors
- approving membership to the Graduate Faculty
- assuring uniformly high quality by establishing standards for all programs
- acting as the administrator for non-degree programs

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

graduate programs.

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

Campus Visits

If you are considering graduate study and would like to tour the Bradley University campus, please visit this website https://www.bradley.edu/admissions/

Contact the Office of Graduate Education

Visit 200 Bradley Hall

Call (309) 677-2375

E-mail bugrad@bradley.edu

Visit Online www.bradley.edu/grad

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DEGREES AND CERTIFICATES OFFERED

Degrees Offered

- D.N.P.—Doctor of Nursing Practice
- D.O.T – Doctor of Occupational Therapy
- D.P.T.—Doctor of Physical Therapy
- Ed.D — Doctor of Education
- M.A.—Master of Arts
- M.B.A.—Master of Business Administration
- M.F.A.—Master of Fine Arts
- M.S.—Master of Science
- M.S.A.—Master of Science in Accounting
- M.S.C.E.—Master of Science in Civil Engineering
- M.S.E.E.—Master of Science in Electrical Engineering
- M.S.I.E.—Master of Science in Industrial Engineering
- M.S.M.E.—Master of Science in Mechanical Engineering
- M.S.MF.E.—Master of Science in Manufacturing Engineering
- M.S.N.—Master of Science in Nursing
- P.B.C.—Post-Baccalaureate Certificate
- P.M.A.—Professional Master of Arts
- P.M.C.—Post Master's Certificate

Graduate Education Interdisciplinary Degrees

- Data Science and Analytics M.S.
  - Business Analytics
  - Computational Data Science
  - Engineering Analytics

Foster College of Business

- Accounting M.S.A.
- Business Administration M.B.A.
  - Finance
  - Management
  - Managerial Accounting
  - Marketing
  - Custom Concentration
- Executive Master of Business Administration M.B.A.
- Management P.B.C.

Slane College of Communications And Fine Arts

Art

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

Interactive Media

- Game Design and Development M.S.

College of Education And Health Sciences

- Adult Gerontology Acute Care M.S.N., D.N.P., P.M.C.
- Adult Gerontology Primary Care M.S.N., D.N.P., P.M.C.
- Counseling M.A., P.M.C.
    - Clinical Mental Health Counseling
    - Professional School Counseling
- Educational Leadership Ed.D.
    - Higher Education Administration and Leadership (H.E.A.L.)
    - Pre K-12 Education Administration and Leadership (P.E.A.L)
    - Educational Technology
- Family Nurse Practitioner M.S.N., D.N.P., P.M.C.
- Neurocounseling P.M.C.
- Nonprofit Leadership M.A., P.M.C.
- Nursing Administration M.S.N.
- Nursing Education M.S.N.
- Nursing Leadership D.N.P.
- Nutrition and Dietetics M.S.
- Occupational Therapy D.O.T.
- Physical Therapy D.P.T.
- Psychiatric Nurse Practitioner M.S.N., P.M.C.

Caterpillar 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.MF.E.
- Mechanical Engineering M.S.M.E.

College of Liberal Arts And Sciences

- Biochemistry M.S.
- Biology M.S.
- Chemistry M.A. or M.S.
- Computational Data Science P.M.C.
- Computer Information Systems M.S.
    - Computing Management
    - Cybersecurity
    - Data Science
    - Emerging Topics in CIS
    - Computer Game Technology
    - Intelligent Systems/Databases
    - Mobile Computing
    - Software Engineering
    - Theoretical Computer Science
    - Web Technologies & Systems
- Computer Science M.S.
    - Computing Management
    - Cybersecurity
    - Data Science
    - Emerging Topics in CS
    - Computer Game Technology
    - Intelligent Systems/Databases
    - Mobile Computing
    - Software Engineering
    - Theoretical Computer Science
    - Web Technologies & Systems
- Elementary Math, Science, and Technology Education P.M.A.
- English M.A.
- Environmental Science Education P.M.A.

BRADLEY University

GENERAL ADMISSION INFORMATION

Eligibility

Applicants must hold a bachelor's degree from a regionally accredited college or university, or the international equivalent, prior to beginning graduate study.

Admission Status

1. **Unconditional.** Applicants must have a grade point average (GPA) of 3.0 on a 4.0 scale in the last 60 hours of undergraduate coursework to be eligible for unconditional admission. Applicants who have completed a minimum of nine (9) graduate credit hours will have their graduate coursework evaluated and must meet the same minimum GPA requirement. All GPA and transcript evaluations are completed in-house by Bradley University admission staff.
2. **Conditional.** Applicants with a minimum 2.5 GPA may be considered on the basis of a combination of other factors including, but not limited to, standardized tests scores, preparation at the undergraduate level, recommendation letters, and other relevant factors. A student may also be awarded conditional admission if admission requirements other than GPA are not fully met. Students admitted on a conditional basis are not eligible for scholarships awarded at admission. Students admitted conditionally will be informed in their admission letter of the conditions they must satisfy in order to continue their enrollment in the program and to become eligible for scholarships.
3. **Non-degree-seeking Graduate Student.** This admission status is for a student who holds a bachelor's degree from an accredited institution, wishes to register for graduate or undergraduate courses, and is not currently seeking a graduate degree from Bradley University. The student must have met the GPA requirements as listed for unconditional or conditional admission. Exceptions for non-degree-seeking students who do not meet the minimum GPA requirement may be made at the discretion of Graduate Admission.
   - Non-degree-seeking graduate students must submit an application for graduate admission, application fee, and official transcripts. Admission as a non-degree-seeking student does not guarantee enrollment in a course. Students who do not meet specific course prerequisites may be dropped from courses.
   - Students studying on a visa who wish to enroll as a non-degree-seeking graduate student must also meet the additional requirements for international students, including English language proficiency.
   - Admission as a non-degree-seeking graduate student does not constitute admission to a degree program. A non-degree-seeking graduate student who wishes to apply to a degree program must meet all requirements for admission to that program. A maximum of nine (9) semester hours with grades of B or better earned as a non-degree-seeking graduate student may be applied toward a degree or certificate program, with approval of the program's graduate coordinator.

Former Students

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

Admission Requirements

Requirements for admission to graduate education are listed below. Individual programs may require additional application materials or have more selective admission requirements than those of graduate admission. Please refer to the program pages for specific information. Copies of all official documents may be used for admission. Note: official documents are required at a later date if not originally provided.

Before being considered for admission, degree-seeking students must submit the following materials. Some departments have additional requirements. Please refer to the program pages for additional admission requirements.

1. **Application Form.** All applicants must submit an application at gradschool.bradley.edu/apply/
2. **Application Fee.** A non-refundable application fee of $40 must be submitted. Applications will not be processed until the fee has been received. Bradley University does not offer application fee waivers.
3. **Transcripts.**
    1. Official transcripts from all post-secondary institutions attended are required. To be considered official, transcripts must be sent directly from the institution electronically or by mail:

       Office of Admission

       Bradley University

       1501 W. Bradley Ave.

       Peoria, IL 61625

       Documents submitted by mail cannot be returned to the applicant.

    2. International Applications:
        a. In the U.S., a transcript is the name given to the official university report listing the subjects, grades, dates of attendance, and other information reflecting a student's academic performance at a specific institution. A transcript is considered official only when prepared by the registrar's office and submitted in a sealed, unopened envelope directly to Bradley University from the issuing university.
        b. One set of official copies of transcripts, academic records, or university mark sheets should be sent directly from the academic institution (normally the registrar's office) to Bradley's Office of Admission. Transcripts should reflect subjects and examination results on a year-by-year or semester-by-semester basis. Transcripts in a language other than English must be accompanied by an official translation. An explanation of the grading system should be included, if not noted on the document. Certification of the degree and the date the degree was awarded is required.
        c. Applicants from countries using statements of marks, memorandum of marks, mark sheets, etc., are required to submit official (attested) copies of their annual and semester mark sheets from every examination session for all subjects passed, failed, and repeated. Consolidated mark sheets alone are not accepted.
4. **Admission Essay.** Applicants must provide a short essay addressing the following topics:
    a. Explain achievements and work experience that you consider relevant to your interest in and capacity for graduate study.
    b. Briefly state your career objectives and how the graduate program you have selected will assist you in attaining these goals.
    c. Some programs use a separate essay prompt. This information is included in the application. Applicants applying to a program with a specific essay requirement only need to submit the program-specific essay.
5. **Recommendations.** A minimum of two recommendations must be submitted as part of the application. Some programs require additional recommendations and this information will be included in the application. The recommendation requests are sent electronically after completing the application.

6. **Resume/CV.** The resume is not required by all programs. Programs that require a resume/CV will be identified in the application. However, it can be very useful in making admissions decisions, so we recommend all applicants submit one.
7. **Standardized Test Scores.**
   - If a program requires a standardized test score, the official score must be sent directly to the Office of Admission by the testing agency. Bradley's institutional code for score reporting is 1070.
8. **Language Proficiency.**
   a. Applicants who are not U.S. citizens, with the exception of Legal Permanent Residents, are required to provide proof of English language proficiency. Acceptable exams and minimum scores are listed below:

   TOEFL iBT minimum 79 (paper-based minimum 550)

   IELTS minimum 6.5 overall band

   PTE Academic minimum 56

   E3PT minimum 68

   Bradley's institutional code for score reporting is 1070. All scores should be sent directly to Bradley University. Graduate and International Admission does not accept language certificates; letters from counselors, advisors, or professors; or other assessments not listed above as proof of English language proficiency.

   b. Applicants eligible for a waiver of English language proficiency must meet one of the following requirements:
      a. graduated from a high school where the primary mode of instruction was English. Transcripts from the secondary institution must be provided for verification.
      b. One year of full-time study or more at post-secondary institution located in the U.S. within the last 4 years. Transcript and proof that academic courses were taught in English must be provided for verification.
      c. Two years or more of continuous full-time work experience in the U.S. within the last 4 years. A current resume and an employment letter on company letterhead stating the dates of employment for verification.

Applicants Studying on an F-1 Visa

Applicants who plan to apply for an F-1 student visa or are already in F-1 student status and will transfer their SEVIS record to Bradley University, must submit the following:

- Copy of passport photo page
- Bradley University F-1 International Student Affidavit of Support
- Proof of funds dated within six (6) months
  - Students studying on an F-1 visa are required to show proof of available funds to cover at least one year of study at Bradley University before an I-20 will be created. This includes the estimated full cost of living. All proof of funds must be dated within six (6) months of submission.

Permanent Residents

Applicants who are permanent residents must submit proof of status along with their application if applying for an online program.

Application or Admission Deferral

Applicants or admitted students wishing to defer their application or admission to a subsequent semester must email Graduate Admission at gradadmission@bradley.edu prior to the start of the semester for which they intend to apply or are admitted.

Applicants may defer their application or admitted students may defer their admission to the next available semester (excluding summer and interim sessions) without reapplying. If the applicant wishes to defer to a semester further into the future or defers a second time, a new application, application fee, and enrollment fee (if admitted) must be submitted. Additional application materials may be required at the discretion of the Graduate Admission and the department.

Application Deadlines

Applications are processed on a rolling, or continuous, basis for most programs, although not all programs enroll students each term. Applicants are responsible for knowing and abiding by the university and program application deadlines. Application deadlines can be found at https://bradley.edu/admissions/graduate/requirements/.

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REGISTRATION

Academic Calendar

Bradley University's academic calendar lists current and future semester, session, and interim dates and is available on the Bradley University website here.

Schedule of Classes

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

Registration

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

Students enrolled in online programs will be automatically registered by the academic department. Students enrolled in on-campus programs should contact their academic advisor before registering for classes.

Schedule Change After Registration

- Once a student has registered, changes to that schedule (additions and deletions) may be made by using the online system. Instructions are outlined in the Schedule of Classes.
- For all schedule changes after the deadlines for online registration, students must obtain the Late Add Request from the Registrar's Office and follow the procedures outlined below.
  - To add a class(es), the signatures of the graduate coordinator, the instructor of the added class, and the department chair for the added class must be obtained.
  - Courses may be dropped online up until the last day for dropping classes given in the Schedule of Classes.
  - Graduate students who wish to withdraw from their program are encouraged to contact Student Support Services.

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BRADLEY University

GRADUATE CERTIFICATE PROGRAMS

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

Student Eligibility and Admission Criteria

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

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GRD COURSES

GRD 610 - Graduate Internship *(0 hours)*

Special projects under Smith Career Center supervision on student's professional practicum in corporate/business environment, with near-term economic benefit. Minimum of 5-10 hours per week required. Part-time or full-time student options available. Graded as Satisfactory or Unsatisfactory. Prerequisite: Graduate student in good standing (minimum 3.0/4.0 Bradley overall GPA); consent of students department graduate coordinator and consent of internship coordinator in Smith Career Center.

GRD 650 - Program Completion *(0 hours)*

This course is required for graduate students who have no other required courses left, except the completion of the graduation requirements for their program, such as comprehensive exam, research course assigned with an In-Progress (IP), thesis, or coursework in which students received an Incomplete (IN). Satisfactory/Unsatisfactory. Prerequisite: Completion of all degree required coursework

GRD 699 - Continuous Registration *(0 hours)*

This course fulfills the continuous registration requirement of The Graduate School. Satisfactory/Unsatisfactory.

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FEES AND EXPENSES

Tuition

Graduate Student Enrollment Fee

All students admitted to a residential degree or certificate program are required to pay a non-refundable $100 enrollment fee. Students studying on an F-1 visa must pay the enrollment fee before their I-20 will be issued. Students are responsible for knowing and abiding by the university deadlines for submitting their enrollment fee. Enrollment fee deadlines can be found at https://bradley.edu/admissions/graduate/requirements/.

Interim and Summer Sessions

See Student Financial Services (Tuition and Fees) for specific details concerning payment.

Deferred Payment Plan

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

A late fee of $50 per month is assessed for each payment not received by the date stipulated on the deferred payment agreement. For further information contact Student Fees, Financial Services, 100 Swords Hall, Bradley University, Peoria, IL 61625; (309) 677-3120; or Student Financial Services (Payment Options).

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

Refunds

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

Students should check deadlines and procedures for requesting refunds at Student Financial Services (Billing Information).

Wisconsin Online Students only: Tuition Withdrawal Policy

- If a student withdraws prior to the start of the term, a full refund of tuition will be given.
- If a student withdraws from a class that meets for less than 15 weeks, a 50% refund of tuition will be made for the first 7 calendar days of that class and beginning on the 8[th]day, the student is charged 100%.
- If the class is meeting for the entire semester, a 50% refund of tuition will be made for the first 14 calendar days of that class and then the student is charged 100% beginning on the 15th day.

For Wisconsin and Oregon Residents only:

- Under the provisions of the Educational Approval Board, EAB 8.05, students who withdraw prior to attending 60% of the term will have charges prorated based on the number of weeks completed divided by the number of weeks in the enrollment period

Fees

Activity Fee - Graduate students pay a $25.00 activity fee per semester (spring and fall only).

Health Fee - All students registering for 7 or more hours will be assessed a $125.00 health fee per semester at the time of registration

Parking Registration - Fees for automobile registration for the academic year range from $50.00 for returning part-time students to $200.00 for new full-time students. See Parking Regulations and scroll down to Permit Charges for more information.

Thesis Processing Fee - Graduate Students writing a thesis must pay a processing fee of $30.00. This fee, which is subject to change, can be paid online using a credit card. See complete Thesis information.

Cap, Gown, and Hood Rental - Graduate students electing to participate in commencement and hooding ceremonies must pay the bookstore for cap, gown, and hood rental. Information for students to order their cap and gown is sent them during the semester they are graduating once they have filed the Graduate Application for Graduation form with Graduate Education. There is a $15.00 late fee assessed for orders made after the indicated deadline.

Veterans Benefits and Transition Act of 2018 Section 103

In accordance with the Veterans Benefits and Transition Act of 2018 Section 103, effective August 1, 2019, Bradley University will not impose any penalty, including the assessment of late fees, the denial of access to classes, libraries, or other institutional facilities, or the requirement that a covered individual borrow additional funds, on any covered individual because of the individual's inability to meet his or her financial obligations to the university due to the delayed disbursement of a payment to be provided by the Secretary of Veterans Affairs under chapter 31 or 33 of this title.

For purposes of this policy, a covered individual is any individual who is entitled to educational assistance under chapter 31 or 33 funding through the federal government. The covered individual must notify the institution via submission of a certificate of eligibility for entitlement to educational assistance not later than the first day of a course

of education for which the individual has indicated the individual wishes to use the individual's entitlement to educational assistance, submit a written request to use such entitlement, or provide additional information necessary to the proper certification of enrollment by the educational institution.

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BRADLEY University

FINANCIAL ASSISTANCE

Through scholarships, assistantships, stipends, and loans, Bradley helps students realize their educational goals. Scholarships and assistantships provide from 10% to 100% tuition reduction on courses numbered 500 – 899 up to a maximum of 18 to 24 graduate semester hours per academic year, depending upon the program.

Graduate students who are U.S. citizens, permanent residents or asylees may apply for U.S. federal student aid. U.S. federal student aid is **not** applicable for international students or those on temporary visas, however international students are often eligible for many other sources of financial aid, including the opportunities listed below.

Complete the Free Application for US Federal Student Aid online

Graduate Tuition Scholarships

Bradley rewards exceptional performance as an undergraduate through the award of Graduate Tuition Scholarships. Approved students receive a tuition reduction based on their qualifying GPA.

Qualifying GPA	Scholarship	Tuition Reduction
3.25 – 3.74	Graduate Merit Scholarship	10%
3.75 – 4.00	Graduate Excellence Scholarship	25%

Only those students admitted to residential degree programs are eligible for these awards. All applicants for admission are automatically considered for these scholarships.

Graduate Assistantships

Graduate assistantships provide an opportunity for students to work with faculty or staff, generally in their chosen field. Assistantships are very competitive, but for students who excel in their field of study, they can be an excellent way to gain experience while financing an education. Assistants are paid a stipend and receive a tuition scholarship. A full-time assistant receives a 100% tuition reduction on qualifying courses. A half-time assistant receives a 50% tuition reduction on qualifying courses. Graduate assistants are also paid a stipend. The amount of the stipend varies by department and program.

Tuition aid from a graduate assistantship cannot be used in conjunction with any other university-supported financial assistance award.

A graduate assistant must be admitted to a degree program and must intend to study full-time. Apply for a graduate assistantship using the hyperlink below. The recommended deadline for applying for a Graduate Assistantship for the fall semester is April 1.

Graduate Assistantship Application

Caterpillar Masters Fellowships

Caterpillar Master's Fellowships are awarded to outstanding students who have demonstrated superior academic achievement and are committed to research and creative production. Students must be full-time and are expected to complete a research project in their area of interest within two years. Students who are awarded Fellowships will work on a student-selected project under the guidance of a faculty mentor.

The Fellowship qualifies students for 100% of tuition aid up to 21 semester hours for the academic year and a stipend. To be considered, students must complete the Caterpillar Masters Fellowship Application form and submit the required materials to bugrad@bradley.edu by **April 15** for the following fall semester or by **November 15** for the following spring semester. Caterpillar Masters Fellowship applications are only accepted for those students who are enrolled in a master's program in Bradley University or who are undergraduate students in the last semester of their senior year at Bradley University who will be continuing in a master's program. Please see the Caterpillar Masters Fellowship application for a complete list of requirements.

Any student who is awarded a Fellowship must apply for renewal of the Fellowship in their second year of study. Students who want to renew their CAT Fellowship must have a letter of support from their faculty sponsor to be considered for a second CAT Fellowship. In addition, the student also needs to write a letter explaining what they did the previous year and what they will be doing in the future year if they are awarded a second CAT Fellowship. These two items will be considered with the rest of the CAT applications. Students also need to present at the Graduate Student Expo as part of the requirements of the CAT Fellowship. This is a competitive process and just because a student previously received a CAT Fellowship does not mean they will automatically receive funding for a second year.

Download the Caterpillar Masters Fellowship Application (pdf)

Download the Caterpillar Masters Fellowship Criteria & Eligibility Information

Professional Educators Scholarships

These scholarships are available to full-time school district employees who have been unconditionally admitted to any of the following Bradley University degree or certificate programs:

- Art (M.A. only)
- Biology
- Biochemistry
- Chemistry
- Clinical Mental Health Counseling
- Educational Administration
- Elementary Math, Science, and Technology Education
- English
- Environmental Science Education
- School Counseling

In addition, the PES is available to full-time employees of a nonprofit organization who have been unconditionally admitted to the Non-Profit Leadership degree program.

The PES is valued at up to 50% of the prevailing tuition rate for up to 18 semester hours per academic year, and cannot be used in conjunction with any other university-supported financial assistance programs. Eligibility for the scholarship is determined by Bradley at the point of admission. Scholarships will renew at the same level as long as the student maintains a minimum cumulative graduate GPA of 3.0/4.0, remains in good academic standing (i.e. not on academic probation or academically dismissed), and maintains eligible full-time employment. Applicants seeking admission to a graduate program should complete the employer information in the Financial Assistance section of the Application for Graduate Admission. Applicants are required to submit an approved Employer Verification Form.

Download the Employer Verification Form (pdf)

Employee Development Scholarships

These scholarships are available to full-time employees of participating companies who have been unconditionally admitted to the MBA or MSA program at Bradley University. The scholarships may cover up to 35% of the prevailing tuition rate for up to 30 semester hours per academic year. Students must be admitted unconditionally to the MBA or MSA program to qualify and have a minimum 3.0/4.0 GPA. Eligibility for the scholarships is determined by Bradley at the point of admission. Scholarships will renew at the same level as long as the student maintains a minimum cumulative GPA of 3.0/4.0, remains in good academic standing (i.e. not on academic probation or academically dismissed), and maintains full-time employment at a participating company.

Applicants seeking admission to a graduate program should complete the employer information in the Financial Assistance section of the Application for Graduate Admission. To be assured consideration, applicants are required to submit an Employer Verification Form. The MBA/MSA Employee Development Scholarships cannot be used in conjunction with any other university-supported financial assistance programs.

Current Participating Employers Include:

- A. G. Edwards
- ADM
- Automotive Robotics
- Caterpillar Inc.
- CEFCU
- CGN & Associates, Inc.
- Illinois Central College
- Illinois Department of Transportation
- Illinois Mutual
- Komatsu
- OSF Healthcare System
- RLI
- RSM McGladrey

Download the Employer Verification Form (pdf)

Federal Stafford Loan

The Stafford Loan program is made available by the US federal government. Additional information can be found at Student Financial Services Federal Stafford Loan site.

PLUS Loans for Graduate Students

The PLUS Loan program is made available by the US federal government. Additional information can be found at Student Financial Services PLUS Loans for Graduate Students site.

Request for Review of Graduate Financial Assistance

Students who do not receive financial assistance upon their admission may apply for reconsideration after completing 6 hours of graduate level coursework at Bradley University with a minimum 3.25/4.0 cumulative GPA. Any additional financial assistance will not be distributed until the semester following the semester in which the student completes 6 graduate semester hours at Bradley. To continue to receive any scholarship in subsequent semesters, the student must maintain the required minimum cumulative GPA of 3.0/4.0, and remain in good academic standing (i.e. not on academic probation or academically dismissed). Scholarship awards will be suspended for students who are placed on scholastic probation or dismissed.

Students who are requesting reconsideration must email a Request for Review of Graduate Financial Assistance form to bugrad@bradley.edu. Requests will not be processed until after grades are posted for the semester in which the student completed 6 graduate credit hours. Requests will be accepted on a continuous basis, but applicants are encouraged to make their request by the following dates for expedited processing:

- Fall Semester - August 1
- Spring Semester - January 1
- Summer Sessions - May 1

Students who are admitted conditionally to a degree program are not eligible for reconsideration until the conditional status has been removed. Students who have been awarded a graduate assistantship may submit a Request for Review in order to apply for a graduate tuition scholarship to take effect in the term after their assistantship ends. The student's cumulative graduate GPA will be evaluated for determining the scholarship.

Download the Request for Review of Graduate Financial Assistance (pdf)

If you have additional questions regarding financial assistance please email bugrad@bradley.edu or contact the Office of Financial Assistance (Room 100, Swords Hall) at (309) 677-3089.

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ACADEMIC REGULATIONS

Course Numbering System And Requirements

Courses numbered **500–599** primarily serve as graduate courses taught at the graduate level, and are open to graduate students and qualified undergraduate students. Qualified undergraduate students seeking graduate credit are seniors with at least a 3.00 overall GPA, or students who have obtained permission from the course instructor and the chair of the department offering the course, as well as the consent of the Dean of the respective college. (Refer to the graduate catalog section on Bradley Seniors Taking Courses for Graduate Credit for complete eligibility requirements.) Because these courses are not open to all undergraduates, no undergraduate program of study may require a student to enroll in a course numbered 500–599. Students who wish to use 500-level courses for undergraduate credit must meet the requirements imposed by the department and the college in which the course is offered. These college and departmental requirements are available in the appropriate college and department offices.

Courses numbered **600-699** are reserved for graduate students only. Courses numbered **700-899** are open only to students in doctoral programs.

Prerequisites

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

Grading System

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

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

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 Office of the Registrar. 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 on the Graduate Education website.

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 Office of the Registrar. 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 on the Graduate Education website.

Graduate Student Policy Violation Issues And Grievance Procedures

The policy violation issues of a graduate student may be academic or non-academic in nature. In the following sections the definitions, policies and grievance procedures to deal with the issues are delineated. The primary source of procedures for dealing with these issues is the Faculty Handbook. The Student Handbook also has a section dealing with policy violation issues. It also uses as its primary source the Faculty Handbook. The following is not intended and may not supersede any of the policies of the Faculty Handbook. It does in certain cases provide for input from individuals that are primarily associated with graduate programs and students. Students may also wish to refer to the National Council for State Authorization Reciprocity Agreement's (NC-SARA) website for information on grievance procedures.

Academic Issues

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

Definitions

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

Policies

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

University Student Grievance Policy

Student Grievance Committee Operating Procedures

A student grievance is either academic or non-academic in nature. A student academic grievance refers to a case in which the student claims unfair, prejudicial, or capricious evaluation or treatment of an academic nature by a University faculty member; an academic grievance shall not be filed against actions which would impair the exercise by a University faculty member of his/her academic freedom. A student non-academic grievance refers to a case when a student claims practices which deny or restrict his/her access to or participation in course offerings; sexual harassment, racial discrimination, or any other act by a University faculty member that is derogatory or discriminatory in nature.

A student grievance begins with informal procedures and may continue with subsequent formal procedures. A student may not pursue the formal procedures of a grievance before first exhausting all informal procedures.

The right of a University faculty member to appeal to the Faculty Grievance Committee is not limited by participation in a student grievance nor shall it be prejudiced by any actions or decisions of the Student Grievance Committee.

The grievance procedure is intended to deal with matters as expeditiously as possible. Although the times listed below are recommended guidelines for handling the steps of the procedure, it is expected that they will not be exceeded except under compelling circumstances.

In an academic grievance, if the University faculty member is no longer employed by Bradley University, the student shall meet with the chair of the former faculty member's department and the word "chair" shall take the place of the words "University faculty member" in what follows.

In a non-academic grievance, if the University faculty member is no longer employed by Bradley University or ceases employment before the case is resolved, the Vice President for Student Affairs shall offer the former faculty member the right to participate in the informal and formal grievance procedures. If the former faculty member agrees in writing to do so, the process shall move forward as it would for any other faculty member. If the former faculty member declines to do so, or removes himself or herself in writing at any point, the Vice President for Student Affairs shall prepare a written summary of events up to the time the former faculty member removes himself or herself and give copies to the student and the former faculty member. At that point, the internal University procedures shall come to a halt without having been resolved.

A student who claims academic grievance may consult with the Academic Ombudsman.

The grievance process is as follows:

Academic Grievance

a. Informal Procedures

1. In an academic grievance the student shall meet with the University faculty member in an attempt to resolve the issue within fifteen days of the beginning of the next semester. (The student may consult with the Academic Ombudsman).
   If the student is a graduate student, the student shall consult his or her Graduate Program Coordinator/Director to seek a course of action to resolve the issue. The Graduate Program Coordinator/Director shall advise the student on the procedures to be followed. If a conflict of interest exists between the student and the Graduate Program Coordinator/Director, the student may seek the advice of the Department Chairperson of the department offering the program in which he/she is enrolled.

2. Should the issue not be resolved to the student's and the University faculty member's mutual satisfaction, the student may, within five working days of the decision of the University faculty member, appeal to the chairperson/director of the University faculty member's department/division. The chairperson/director shall provide the student and faculty member with a written decision upholding or rejecting the appeal within five working days of the appeal. If the chairperson/director upholds the appeal and finds any unfair or unjustifiable injury or disadvantage to have occurred, his/her decision shall specify remedies to rectify the situation.
   If a conflict of interest exists with the chairperson/director, the student may appeal directly to the Dean of the University faculty member's college as discussed in 3) below.

3. Should the issue still not be resolved to the student's and the University faculty member's mutual satisfaction, the student or University faculty member may, within ten working days, appeal the decision of the chairperson/director to the Dean(s) of the College(s) in which the given academic concern resides. This appeal shall specify in writing the alleged grievance. The Dean(s) or Dean(s)' designee(s) shall meet with the relevant parties within five working days of the appeal. The Dean shall deliver a written decision within five working days after the conclusion of this meeting upholding or rejecting the appeal. If the Dean upholds the appeal and finds any unfair or unjustifiable injury or disadvantage to have occurred, his/her decision shall specify remedies to rectify the situation. In cases involving a conflict of interest with the Dean, the student shall initiate the formal procedures specified below.

4. If the student is enrolled in Graduate Education, and the issue still is not resolved to the student's and the University faculty member's mutual satisfaction, the student or University faculty member may, within ten working days, appeal to the Director of Graduate Education. This appeal shall specify in writing the alleged grievance. The Director or Director's designee(s) shall meet with the relevant parties within five working days of the appeal. The Dean shall deliver within five working days after the conclusion of this meeting a written decision upholding or rejecting the appeal. If the Director upholds the appeal and finds any unfair or unjustifiable injury or disadvantage to have occurred, his/her decision shall specify remedies to rectify the situation. In cases involving a conflict of interest with the Director, the student shall initiate the formal procedures specified below.

b. Formal Procedures

Should the issue not be resolved to the student's and the University faculty member's mutual satisfaction using the informal procedures, the student or University faculty member may, within five working days of the final written decision or summary described above, initiate the formal phase of the grievance procedure by appealing in writing to the Chairperson of the University Student Grievance Committee. This written appeal shall specify the alleged grievance and the result(s) of the appeals during the informal phase of the grievance procedure.

Legal counsel may be used by the parties, at the parties' cost, as part of the formal procedure. Legal counsel for either party shall act in an advisory capacity only and shall not be permitted to speak on behalf of any party. The Student Grievance Committee shall have access to the University attorney on procedural matters.

1. The Student Grievance Committee shall meet at the call of the Chairperson upon receipt of a written grievance.
    A. The Chairperson shall:
        a. Obtain written statements from all parties involved in the appeal.
        b. Call for a meeting of the Committee to be held within ten working days of submission of the appeal to review the statements from the parties involved, unless extraordinary circumstances require a delay.
        c. The Committee shall decide whether a grievance is in order. If the Committee finds a grievance is not in order, the complaint is dismissed and no further action will be taken by the Committee. If the grievance alleges discrimination, a copy of the minutes of the meeting shall be sent to the Affirmative Action Office.
    B. If the Committee finds a grievance is in order, the Committee shall
        a. Determine a date, time and place for a formal hearing. Determine the procedures for conducting the formal hearing. All parties concerned will be given at least five working days notice of the time, date and place of the hearing, and of the procedures.
        b. Call on other faculty, staff and students if it would serve the purposes of due process.
        c. Retain records of all written matters dealing with each case.
2. The Committee shall submit its written findings and decisions for review within forty-five working days after the matter has been formally submitted to the Committee. This time period shall not include either University holidays or times when the faculty are not under contract, such as during the summer. If the Committee finds that unfair or unjustifiable injury or disadvantage has occurred, its decision shall specify remedies to rectify the situation.

The Committee shall submit its findings and decision to the Provost or other appropriate academic officer. Within thirty days of the receipt of the findings and recommendations of the Committee, the Provost or other appropriate University officer shall notify all concerned parties of his/her agreement or disagreement with the Committee's decision, stating the reasons in writing.

Upon agreement of the parties, the grievance procedure can be concluded at any time before notification by the appropriate academic officer.

Non-Academic Grievance.

1. In a non-academic grievance the student shall meet with the Vice President for Student Affairs in an attempt to resolve the issue within fifteen days.
2. The Vice President for Student Affairs will attempt to resolve the matter within ten working days. Should the issue not be resolved, the Vice President for Student Affairs shall prepare a written summary of the events and discussions among the student, University faculty member, and any other individuals, and give a copy of the written summary to the student and University faculty member involved. In cases involving a conflict of interest with the Vice President for Student Affairs, the student shall meet with the Provost and Vice President for Academic Affairs. In cases involving a conflict of interest with the Provost, the student shall initiate the formal procedures specified above.

Dismissal For Non-Academic Reasons

Bradley graduate students must abide by all University regulations, including those established by the college, department, and program. Students who violate University regulations may be subject to disciplinary sanctions including dismissal or suspension as listed in the Bradley Student Handbook.

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 $7.00 fee per copy requested. For other methods of ordering transcripts, please see bradley.edu/registrar/transcripts.

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

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FACULTY

A

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Back to top

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Back to top

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Back to top

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Back to top

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Back to top

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Back to top

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Back to top

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Back to top

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Back to top

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Back to top

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Back to top

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Back to top

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Back to top

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Back to top

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Back to top

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Back to top

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Back to top

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Back to top

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This is the official catalog for the 2023-2024 academic year. This catalog serves as a contract between a student and Bradley University. Should changes in a program of study become necessary prior to the next academic year every effort will be made to keep students advised of any such changes via the Dean of the College or Chair of the Department concerned, the Registrar's Office, u.Achieve degree audit system, and the Schedule of Classes. It is the responsibility of each student to be aware of the current program and graduation requirements for particular degree programs.

GRADUATE EDUCATION POLICIES

Student Course Load

- Bradley requires that a minimum of 30 semester hours be successfully completed for a master's degree and a minimum of 12 hours for a graduate certificate. Specific programs may require additional hours.
- A full-time graduate student takes nine semester hours of coursework during a semester of the regular academic year; students are permitted to take more than nine hours with permission from their Program Coordinator and the Dean of the respective college. A course load of six semester hours in total is considered full time during the summer terms. A minimum of three semester hours is considered half-time enrollment during the summer terms.
  Recognizing that students often need time to catch up, get ahead, or update their knowledge, Bradley offers special terms for taking courses. In January Interim graduate students can earn up to four semester hours in classes that meet for approximately two weeks.
- Full-time graduate assistants may not enroll in more than nine semester hours nor work more than 20 hours each week without written permission of their Graduate Coordinator and the Director of Graduate Education. Students holding a graduate assistantship must register be full-time.

Attendance Policy

The academic integrity and excellence of our programs depends on students attending their classes. For all graduate students at Bradley University, there is an expectation of attendance in class for all scheduled class meetings. Graduate students at Bradley University are expected to be on campus the first day of classes, if not before. Students should not assume they can add a class late or be enrolled in a class after the start of the course. Graduate students are expected to stay on campus and attend classes throughout the semester, through finals week.

Each faculty member has the right to establish requirements for attendance and participation unique to each of their courses. Course requirements (e.g., homework assignments, examinations, oral presentations, laboratory experiments/reports, participation in discussion, etc.) are not waived due to absence from class. Instructors may establish the academic impacts, even course failure, of excessive absences. When student absence results from his or her involvement in other institutional business (e.g., presenting at a conference, short course attendance, field trip, off-campus research, etc.), the instructor should be given prior notification and reasonable accommodation for the absence should be negotiated between the instructor and student.

For Graduate Assistants (GAs), those with assistantships, the expectation is that these students must:

- Be on campus at least one week prior to the beginning of the semester in order to get their assigned duties and be prepared to begin their work at the start of the semester
- Continue to perform their assigned duties throughout the semester with no extended absences
- Be available to perform their duties through the end of finals week, or the date specified in the GA offer letter and contract

Graduate Assistants who do not comply with this attendance policy will lose their assistantship (tuition and stipend).

Graduate Education Dismissal Policy

- Students who have a GPA below 3.0 will be placed on academic probation and their tuition scholarships or graduate assistantships will be revoked. Students will then have two semesters in which to bring their GPA's back to 3.0 or higher. Whether a student will be required to re-take a particular class will be left to the department's discretion. If the student does not reach the minimum 3.0 GPA after two semesters they will be dismissed.
- In keeping with past precedent, a graduate assistant who has unique skills/special circumstances which are required by a particular position (i.e., a lab or assistance with an undergraduate course) may be allowed to continue an assistantship while on academic probabtion if the coordinator, department chair, college dean, and Director of Graduate Education all approve.
- Conditionally admitted students who do not meet the conditions of their admission will be dismissed immediately upon failure to meet the conditions. A graduate student who is on academic probation for two consecutive semesters (fall and spring) will be dismissed.
- Academic good standing does not automatically ensure continuation in a graduate program. A student may be dismissed for factors other than grades upon the recommendation of a committee of department faculty, the student's advisor, the program coordinator/director, the chair of the department/director of graduate program, the dean of the college, and the Director of Graduate Education.
- Dismissed students may petition for reinstatement into the program from which they have been dismissed by filing a Petition for Reinstatement to Graduate Study. Dismissed students are allowed to make only one petition for reinstatement to the program from which they have been dismissed. If the student is dismissed a second time after reinstatement, no additional petition for reinstatement will be considered. The Program coordinator/director, the department chairperson, the dean of the college, and the Director of Graduate Education must approve the petition for reinstatement. Petitions for reinstatement are available on the Graduate Education web site.
- Dismissed students lose all financial assistance issued by Bradley University. A Request for Review of Graduate Financial Assistance will have to be submitted to request financial assistance after a student is reinstated.

Time Limit For Degree/Certificate Completion

- Candidates for a degree or certificate should complete all requirements within five years following the recording of their first graduate grades, including graduate courses taken as a student-at-large, and courses transferred into their graduate program from Bradley University or any other accredited institution of higher learning.
- Students whose time limit for completion of degree/certificate has expired must submit a request to extend time with the readmission application. The request to extend time for completion of degree must be submitted in writing to the Director of Graduate Education.

Continuous Registration Requirement

Graduate students are required to maintain continuous registration unless approved by the Program Director and respective college dean for a temporary step-out of their program of study. Students may meet the continuous registration requirement by either enrolling, at stated tuition rates, for courses on the program of study approved by their advisor or by registering for 0 (zero) credit hour courses, at a cost of $100 per course, to complete a thesis, research, or project that is part of their program of study. Outstanding IN or IP grades from a previous semester do not meet the continuous registration requirement.

- The continuous registration requirement does apply during summer term if one of the following also applies: student is attempting the comprehensive assessment in summer, is graduating in August, or has an IN or IP from a previous semester. If a student is unable to fulfill the continuous registration requirement, the student must request a temporary step-out/leave of absence of their program to be approved by their advisor and respective college dean. Any student who wishes to re-enroll

after an absence of two major semesters (fall and spring) must reapply for admission to the program. Bradley offers courses (e.g. GRD 650 and 699) to assist students in meeting this requirement. Contact the Office of the Registrar for information about registering for these courses.

- The cost of registration in a zero (0) credit hour course is $100 per course.

Step-Out/Leave of Absence

The leave of absence opportunity is available for graduate students who must leave Bradley University for a period of time not to exceed 12 consecutive months. A leave of absence may be granted for various reasons, such as personal, medical, or financial. The leave of absence must be approved in advance of the semester in which the leave of absence is to begin and can not be granted to a student who is on probation or dismissed from the University. For the complete policy, consult the Registrar's Office or the dean of your college.

Change Of Program

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

Graduate Program Concentrations

- A concentration is a curricular subspecialty option associated with a graduate program which provides transcript recognition for students who fulfill a designated, specialized course of study. A concentration recognizes the student as having distinctive skills and training in one highly concentrated area within the program. The concentration course of study shall consist of at least 9 hours of graduate course work, selected from a university-approved list. A grade point of at least 3.00 must be earned in courses used toward fulfilling the concentration and only courses taken at Bradley University may be applied.
- Courses used to satisfy the requirements of the concentration may also be applied toward the requirements of the graduate degree. Up to two concentrations can be awarded; however, because concentrations are additional degree designations there can be no course overlap between the concentrations.
- Students must declare their intention to complete a concentration by completing the appropriate section on their Program of Study. A Student's Program of Study leading to a concentration shall be planned by the student in consultation with his/her graduate academic advisor. To receive a concentration upon graduation, the student must file, with the Office of the Registrar, the Graduate Concentration Completion Form prior to the beginning of their final semester.

Cross-Listed Graduate/Undergraduate Courses

- For cross-listed graduate/undergraduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course.

Repeated Courses

- Upon approval of the program diretor, a graduate student may repeat a maximum of two courses in which he or she received grades of C or below. The second grade received for the course replaces the first grade received. However, semester hours for the course shall count only once toward the degree requirement.
- Financial assistance funded by Bradley cannot be used towards repeated courses.

Audited Courses

- All Bradley students (undergraduate, graduate, full-time and part-time) in good academic standing registered for a given academic term, along with individuals admitted as a non-degree-seeking student for a given academic term may request permission to enroll as an "auditor." Permission to audit a course must be approved by both the instructor and the chairperson of the department offering the course. Enrollment is contingent on having available space in the class. Except in special circumstances to be determined by the instructor and department chairperson, courses involving laboratory or studio work cannot be audited. Regular class attendance by persons not on the class roster is not permitted.
- Forms for audit registration are available in the Registrar's Office or online. Audit registrations are accepted by the Registrar's Office only after the first day of classes of each academic term.
- The extent to which an auditor participates in a course and the requirements for satisfactory performance must be specified by the instructor when approval is granted. Instructors are not obligated to grade any course work performed by the auditor. Courses taken for audit do not earn academic credit, do not apply toward any academic degree, and do not count toward a student's full-time or part-time load for purposes of financial aid, loan deferments, or visa status. Courses taken for audit are recorded on the student's permanent academic record as completed satisfactorily ("X"), completed unsatisfactorily ("UX"), or withdrawn ("W").
- After the last day for adding classes with special permission, anyone who is registered as an auditor may not change the audit registration to a "for credit" status, i.e. a regular registration; likewise, a student registered for credit may not change to audit status. Deadlines associated with courses taken for credit and courses taken for audit are identical.
- All individuals will be charged a non-refundable fee for audited courses. The current fee is published at Student Financial Services (Tuition and Fees). Persons who have audited a course may petition to earn credit by proficiency examination; however, the charge for a proficiency examination for credit is based on the standard tuition structure determined by the Controller's Office with a credit granted for charges associated with auditing.

Transfer Of Credit

- For a coherent program, master's degree candidates should take all of their graduate coursework at one institution or consortium. Bradley will, however, accept six 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 program coordinator recommends its acceptance to the respective college dean. In rare instances, and upon written approval of the Director of Graduate Education, more than six semester hours may be transferred; but in no instances will Bradley accept more than 12 semester hours of transfer credit. Grades of the courses transferred are not included in the calculation of the graduate grade point average. Students applying to have course credits transferred must submit an official transcript from the other institution and a Request to Transfer Graduate Credit form at admission. Students who wish to transfer course credits after admission should submit the request to the Director of Graduate Education.
- Students enrolled in Distance Education programs may only transfer nine semester hours.
- No graduate course completed elsewhere can be transferred if five years pass between completion of the course and completion of the Bradley University graduate program.
    - In rare instances, courses beyond the five-year limit may be considered for transfer upon the recommendation of the graduate coordinator and approval by the respective college dean. Please see the Time Limit for Degree/Certificate Completion policy in this Catalog (above). Courses taken between the spring and fall semesters will be considered as being taken during "summer." This includes Bradley courses taken during May three-week, May eight-week, Summer I, and Summer II sessions. "Summer" will count as one semester in the determination of the age of the course.
- Course credit earned for a completed bachelor's or graduate degree will not be applied to a later graduate program or certificate.

Age Of Courses Eligible To Meet Prerequisite Requirements

- Courses that serve as prerequisites for a degree or certificate program and that do not count directly toward graduate degree or certificate completion may be accepted to meet a prerequisite requirement provided they have been completed no longer than five years prior to the time the student begins his or her graduate program at Bradley University.

Progression Toward Degree

1. **Graduate Program of Study**
   a. Within the first semester of a degree seeking student's graduate coursework, a completed Program of Study form must be approved by and filed with the Program Coordinator. 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 and filed with the Program Coordinator.
   b. The Office of the Registrar and the Program Coordinator will use the Program of Study form or degree audit to determine the student's qualifications for and progress toward completion of his or her graduate degree or certificate.
2. **Comprehensive Assessment**
   a. Each department offering a graduate program requires a comprehensive assessment of the student's total experience as it relates to fulfilling the objectives of the program of study. The department offering the program shall determine the form and content of the assessment. The type of comprehensive assessment should be specified in the student's Program of Study. The student is responsible for making arrangements with the program coordinator for completing the assessment. At least two weeks before the date on which the degree is to be conferred, the coordinator must report the quality of the assessment to the Office of the Registrar as Pass, Pass with Distinction, or Fail. The results of the assessment, as reported by the coordinator, will be posted on the student's transcript.
   b. Students who receive a Fail on the assessment will be given only one additional opportunity for reassessment. The time frame in which the reassessment will take place is determined by the program, but must be within the time limit prescribed for finishing the degree.
   c. Students are required to be registered during the term in which they attempt to fulfill the comprehensive assessment requirement. Students who attempt the comprehensive assessment during the summer must be registered for one of the summer terms.
   d. Comprehensive Assessment results are due two (2) weeks before the end of the semester in fall and spring and two (2) weeks before the end of the Summer 2 session. If results are not received by the Office of the Registrar by the deadline the student will not be approved for graduation.
3. **Thesis/Dissertation**
   a. Departments of the University govern the thesis/dissertation option. Those students selecting this option must obtain information about thesis/dissertation requirements from their graduate coordinator. The general format and procedures for thesis filing are available online at bradley.edu/grad
   b. The thesis/dissertation must be submitted two (2) weeks before the end of the semester in Fall and Spring and two (2) weeks before the end of the Summer 2 session before a student can be approved for graduation. If a student misses the deadline, they will have to apply for graduation in the next available graduation cycle and register for a zero (0) hour course.
4. **Application for Graduation**
   a. Students must apply for graduation online using My Bradley. The application must be submitted when the candidate is registering for his or her final semester of study. Students finishing during a summer session should apply at the beginning of the term in which they plan to complete their requirements. Students who do not apply by the published deadlines will be considered for the following graduation cycle. They will have to register for a zero (0) hour in the next available semester.

b. Applicants failing to complete all requirements for graduation in the semester for which they applied must reapply before they are considered for the next graduation cycle.

c. Students are required to be registered during the term in which they plan to graduate. Students who plan to graduate in August must be registered for one of the summer terms. Students can register for a zero (0) credit hour of research or thesis or register for either GRD 650 or GRD 699. Contact the Office of the Registrar for information on registering for GRD 650 or GRD 699.

5. **Removal of Conditional Status**

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

University Policy on Awarding of Posthumous Degrees

- Upon the request of the deceased student's family, a posthumous baccalaureate degree may be considered by the Academic Regulations and Degree Requirements Committee, if at the time of death, the student was enrolled in a degree program, was in good academic standing, and had entered his or her senior year.

- Upon the request of the deceased student's family, a posthumous graduate degree may be considered by the Academic Regulations and Degree Requirements Committee, if at the time of death, the student was enrolled in a degree program, was in good academic standing, and had completed two thirds of the credit hours required for graduation.

- The Academic Regulations and Degree Requirements Committee will consider the family's request, verify eligibility for a posthumous degree, and forward its recommendation on granting the degree to the Provost and Senior Vice President for Academic Affairs for approval.

- Upon the Provost's approval of granting the degree, the appropriate commencement program and the student's academic record will note that the degree was awarded posthumously. The diploma will be presented to the deceased student's family by the President of the University.

- Death that results from unlawful activity on the part of the deceased student may result in disqualification for a posthumous degree.

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STUDENT AFFAIRS

- Student Affairs
- Diversity and Inclusion
- Health Services/Counseling Center
- Off-Campus Properties
- Housing & Residential Living
- Smith Career Center
- Springer Center for Internships
- Student Involvement
- Student Support Services

Student Affairs

The Division of Student Affairs' mission is to connect and prepare students through co-curricular learning and extracurricular engagement to foster student success. Alongside our commitment to students, we embrace collaboration with our university and community partners.

We foster a commitment to the University's core values of student success, knowledge and discovery, inclusiveness and connectivity, and excellence. The environment shaped by Student Affairs provides opportunities for the intentional development of the whole student, encompassing experiences beyond the classroom and addressing the complexity of the myriad environments they may face. Our goal is to ensure an enriched environment for learning, personal growth, and positive outcomes for our students.

Diversity and Inclusion

Located in the Romeo B. Garrett Cultural Center (824 North Duryea Place across from Williams Hall), houses the Office of Diversity and Inclusion (ODI). Diversity and Inclusion functions to meet the various needs of students from historically underrepresented backgrounds—including students who are racially diverse, first generation, and/or are a part of the LGBTQ+ community. The Center serves as a meeting place for students and community groups as well as a place for social and cultural events. It also has access to computers for students to use, as well as an auditorium on the first level for programming. Named in honor of the late professor emeritus of sociology, Dr. Romeo B. Garrett, the Center is open every day during the regular academic year.

Health Services/Counseling Center

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

The Center's qualified staff of physicians, psychiatrist, counselors, and nurses is located in modern treatment offices in the Markin Center. They provide a point-of-entry for all university students to receive health care both at the Center and in the Peoria community. Professional counselors and supportive staff are trained to work with Bradley students in their growth and total development—social, emotional, intellectual, physical, spiritual, and occupational—as well as the environment in which they live.

Personal growth and development issues of adjustment to college, relationship concerns, alcohol and substance abuse, anxiety and stress management, communication skills, eating disorders, assertiveness, and lifestyle choices are some of the issues addressed by the counselors. Visits are confidential and free for Bradley students. The Center is open during the school year 8:00 a.m.-12:30 p.m. and 1:30-4:30 p.m., Monday-Friday. The Center is open limited hours during breaks and regular summer school sessions. Students are seen on an appointment basis. At times when the Health Center is closed, patients are referred to the afterhours number, 677-3200, which connects to OSF St. Francis Phone Nurses Triage.

In addition to regular medical services, Health Services also offers special men's and women's clinics during the regular academic year. All students are required to have a student health form on file at Health Services before registering. To avoid penalties and delays in registering, return the completed health form and then verify through Health Services that it has been received and is complete.

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

COUNSELING CENTER

Counseling is located in the lower level of Markin Recreation Center, Room 52. Students may bring their student ID with them to access the lower level. Counseling is staffed by a psychiatrist and professional counselors. Students may receive an assessment and therapy for disorders such as depression, anxiety, eating disorders, addictions, and relationship concerns. Visits are confidential and free for Bradley students who have paid the health fee. Contact Health Services at 677-2700 to make a counseling appointment. A nurse will speak directly with the student to gain information about the needed services & acuity of the problem. The student will be scheduled with a counselor or with the psychiatrist or physician based upon the presenting concerns.

Off-Campus Properties

St. James Apartment Complex

St. James Apartments at Bradley University is university owned, off-campus housing. Aside from being a Bradley University student, qualified individuals must be 20 years of age by September 1 of the current school year for the lease year the individual is applying. The 17-building complex offers spacious one to four-bedroom apartments. Just a short distance (.3 miles) off campus, all units come fully furnished, including dishwasher, full-sized refrigerator and

electric stove. Laundry facilities are located in each building. Most utilities are provided, including internet service connected to the university's network. St. James Apartments also includes 24-hour emergency maintenance and roommate placement services.

Inquiries can be made by contacting:

Off-Campus Properties

Bradley University

1103 W. Main Street

Peoria, IL 61606

(309) 677-2100

stjamesinfo@fsmail.bradley.edu

www.bradley.edu/stjames

Main Street Commons

Main Street Commons, is a five story, 184-bed, amenity-rich student housing development located just one block from campus. Independently-owned, this student housing development offers the following amenities for each unit: individual leases, fully furnished, private bathroom for each bedroom, fully-appliance kitchen with dishwasher, washer/dryer in each unit, 43" flat screen television, Wi-Fi, study/TV lounge, a multi-layered security system, elevator service, 24-hour fitness center, 24-hour emergency maintenance, tanning facilities, and enclosed parking available. The facility is open to Sophomores, Juniors and Seniors (co-ed living optional) with two and three bedroom units available. Submit your application to Live at Main today!

Inquiries can be made by contacting:

Main Street Commons

1109 W Main Street

Peoria, IL 61606

(309) 673-4585

info@liveatmain.com

www.liveatmain.com

Students living off campus may eat in any residence hall on the same program that residence hall student's use. Two meal plan options are available. Additional information can be found at https://www.bradley.edu/sites/quickcard/meal-plans/

Housing & Residential Living

The University owns and operates 12 residence halls with a total capacity of 2,140. The experience in group living that students who reside in these halls enjoy is a valuable part of their total educational experience. The University also owns the Student Apartment Complex (SAC) located behind the Caterpillar Global Communication Center. Each of the 100 units is unfurnished and has its own living room, bedroom, bath, and kitchenette. Additionally, Bradley University also operates an off-campus apartment complex, St. James Apartments. Located near Bourland Avenue, St. James Apartments can house 600+ students with multiple options.

Since the University takes no responsibility for personal property, each student should check to see if family insurance covers personal items while in residence on campus. If not, it is recommended that each student consider fire and/or theft insurance as a protection, regardless of living accommodation.

All full-time, first- and second-year students must live in the residence halls. The exceptions include:

- veterans
- students who are 21 years of age by September 1 of the current academic year
- students who live with nearby immediate relatives (sister or brother who are non-Bradley students, aunt, uncle, parents, grandparents) within a 40-mile radius of the campus,
- cases involving documented medical reasons for which accommodations cannot be made within the residence halls

To live in the residence halls, you must be a Bradley University student. Part-time undergraduate students may live in the residence halls. Requests for exceptions to these rules should be sent to the office of Residential Living and Student Conduct. Students can amend their residential choices to live in a sorority or fraternity house through a review process at the conclusion of each semester.

Housing Agreement and Housing Fee

To reserve a room in a residence hall, new freshman and transfer students must submit a non-refundable $100 housing fee and electronically signed Residential Hall Housing Agreement. This agreement will be made available at the student's admission page by the admissions office after the housing fee is paid.

This agreement is binding for the entire academic year and includes room and board charges for both semesters. If a student moves into a residence hall it is understood that they agree to be responsible for room and board payments through the academic year, even if they have not filled out or signed a residence hall agreement. Students who enter the residence halls for the spring semester are only subject to the terms for that semester.

The halls will be closed to all students during Thanksgiving break, semester break and spring break. The halls close for the summer on the day following the last final exam in May.
Students will have an opportunity to express their choice of a hall and roommate preference on the residence hall housing application, which will be made available to them at the time of admission. Students furnish their own linens, pillows, spreads, and blankets for twin-size beds, their own washcloths and towels, waste cans, desk lamps, desk chair, and small personal items of furniture.

New Students

Entering students are urged to file their residence hall applications as soon as possible after they receive notice of their admission to the University. Application is made by the housing agreement, available online through admissions at YourBradley. Those who apply earliest before the semester in which they plan to enroll are more likely to receive the assignment they wish. Applications will not be accepted until after admission is complete.

Married Students

Furnished houses and apartments for families with children are available in the Peoria area. We advise married students to visit Peoria in advance to look at the accommodations before they enter into any lease arrangements.

Inquiries regarding Student Apartment Complex (SAC) or Residence Halls can be made by contacting:

Residential Living
Bradley University
1501 W. Bradley Ave.
Peoria, IL 61625
(309) 677-3221
housing@bradley.edu
www.bradley.edu/campuslife/reslife/housing/

Smith Career Center

The Bradley University Smith Career Center empowers students to achieve positive career outcomes through career development, experiential education, and learning opportunities. We partner in this work with stakeholders who benefit from the skills and talents of our students and alumni.

With the help of the Smith Career Center, students and alumni can explore and define career options, develop job search strategies, obtain career-related work experience and identify and connect with prospective employers. The Center provides individual career advisement, job search workshops, extensive web-based career resources, a targeted internship & full-time employment database, several job fairs, a graduate/professional school fair, and campus interviews with prospective employers.

The Smith Career Center and the Springer Center for Internships also administer Bradley's centralized co-operative education and internship program. Through internships, cooperative education, and summer or part-time employment, students have opportunities for professional development, which integrate classroom theory with supervised work experience.

Several hundred employers visit the Bradley campus each year to talk with our students, participate in job fairs and conduct interviews with candidates. Employers are eager to hire Bradley students and graduates because of the many skills and talents that were developed during their years at Bradley.

Springer Center for Internships

Students are encouraged to gain career-related work experience prior to graduation. Through internships, cooperative education, and summer or part-time employment, the Springer Center for Internships provides students with opportunities for professional development that integrate classroom theory with supervised work experience.

Cooperative education and internship courses are offered to students in all five colleges of the University. Students are guided through reflective learning assignments that complement the work experiences. 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.

A series of job search workshops is offered to assist students in the co-op or intern process. Employers review resumes and/or conduct interviews to make hiring decisions. Placement is not guaranteed. Student-developed jobs may be approved if they meet the work-learning criteria. A work assignment or credit will not be approved retroactively.

While on a registered full-time co-op/intern 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 co-op/intern 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 be either registered for a minimum of three hours of non-cooperative education/internship credit or be on a full-time cooperative education or internship assignment.

For additional information about the program, contact the Smith Career Center at (309) 677-2510.

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CENTER FOR STUDENT INVOLVEMENT

- Campus Recreation and Athletic Facilities
- Event Services
- Student Activities
    - Fraternity and Sorority Life
    - Lewis J. Burger Center for Leadership and Service
- Student Government
- Student Organizations

Student Involvement 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 are provided for students to learn new skills, broaden their abilities, and manage their organizational activities. Communication between faculty, administration, students, and staff will be encouraged as a means to promote a well-informed campus community regarding student activities and government.

Campus Recreation and Athletic Facilities

Campus Recreation provides a variety of programs to meet the recreational needs of all students. The Markin Family Student Recreation Center is a multi-use indoor facility. The center provides opportunities for intramural events, sports and fitness classes, and unscheduled, informal activity. It has exercise and fitness equipment, an indoor pool, two racquetball courts, a rock climbing wall that stands 46 feet, a bouldering wall, a Multi-Activity Court (MAC court), a 1/8-mile running/walking track, and a juice bar. It has four basketball courts for intramural and recreational games and a championship court, which seats about 300 and will be used for, among other things, hosting championship intramural events. The intramural sports calendar includes 25 different events.

Outdoor recreational opportunities exist at the David Markin Tennis Courts and the Meinen Field outdoor recreation complex, which houses 21/2 basketball courts and a multi-sport field where soccer, softball, flag football, and a variety of other activities occur.

Campus Recreation also offers a variety of club sports students can participate in. Some of the most popular are men's ice hockey, men's and women's volleyball, men's and women's soccer, softball, and ultimate frisbee among many others.

Athletic Facilities provides facility management to the Renaissance Coliseum, Markin Tennis Courts, and Meinen Field. With a capacity of 4,200, the Renaissance Coliseum is home to some of Bradley University's largest events, including concerts, women's basketball and volleyball, commencements, and other special events. Past concerts have featured Weezer, Wiz Khalifa, The Band Perry, and Macklemore & Ryan Lewis. Students receive free or discounted tickets to most events.

Event Services

Event Services is responsible for scheduling and reserving rooms in most buildings on campus, including the Michel Student Center, Global Communications Center, and academic buildings other than the labs.

Fraternity and Sorority Life

Fraternity and Sorority Life is comprised of over 1,100 students, representing 29% of the undergraduate population. Bradley is the home to 30 fraternity and sorority chapters, which are represented by 4 governing councils.

Student Activities Office and Student Organizations

The Student Activities Office provides support and oversight for student organizations including but not limited to: annual registration, creation of new organizations, student organization event approval, advertisement approval, student organization conduct, Student Organization Handbook, Student Activities Budget Review Committee policies and procedures, assists with purchasing and signs contracts on behalf of funded organizations. The Student Activities Office maintains the student organization directory and management portal, BInvolved, which can be found online at bradley.presence.io.

The Lewis J. Burger Center for Leadership and Service

The Lewis J. Burger Center (LJB Center) represents the University's commitment to educate and prepare our students for civic responsibility to become committed leaders for the 21st century. By involving our students in a myriad of leadership and service experiences, the Center benefits not only Bradley students, but also the Central Illinois Community and our society. These impactful and experiential learning opportunities provide students the ability to enhance their leadership skills while becoming active citizens. The LJB Center works continually to cultivate and maintain reciprocal partnerships with community partners.

The LJB Center strives to help students develop a greater leadership self-awareness, the ability to work collaboratively within diverse settings, and build the confidence to enact social change. Students can participate in leadership workshops, seminars, conferences, become a Bradley Fellows scholar, or join the Braves L.E.A.D. program. The Lewis J. Burger Center also hosts the Campus Life Ambassador program during Welcome Week each fall. By participating in these experiences, students will have the opportunity to engage in activities and discussions that will help them establish their core values, learn ways to build community and a common purpose, as well as strategies for empowering others to lead. Students, faculty, and staff can also check out the Center's volunteer website, Braves Volunteer. Whether it is Service on Saturday, a one-time opportunity, or an on-going commitment, the Center can help anyone find a place to make a difference in the Greater Peoria area.

For more information go to bradley.edu/studentleadership or email leadandserve@bradley.edu

Campus Programming

The Student Activities Office provides a number of programming opportunities for students and the campus community including programming by ACBU and Late Night BU.

Student Government

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.

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OFFICE OF RESIDENTIAL LIVING AND STUDENT CONDUCT

- Judicial System
- Fraternities and Sororities
- Residence Hall Programs
- Residence Halls and Residence Hall Staff

Residential Living and Student Conduct is responsible for the general welfare of residence hall students at Bradley University, particularly concerning their out-of-class activities and living environment. This office interacts with all segments of the University including students, faculty, administrators, parents, and the community.

The Student Conduct System is responsible for protecting the rights of the University and the individual student through the University Standards of Conduct.

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CENTER FOR STUDENT SUPPORT SERVICES

- Students with Bereavement Issues or Emergencies
- Student Withdrawal from University
- Violations of Title IX (sexual assault, sexual misconduct)
- Family Association
- Academic Success Center
- International Student Services
- Orientation
- Student Access Services

Student Support Services is designed to offer guidance to students in times of need. Our mission is to provide personal attention and resources to students as they work to achieve their academic and personal goals. Student Support Services serves as a major link between academic and student affairs striving to improve student retention through positive communication and relationships with students, faculty, staff, and families. We will help students find the necessary information or resources so they may have a personally rewarding education at Bradley.

Academic Success Center

The Academic Success Center strengthens comprehensive learning, enhances retention, and promotes student success by providing academic support services to Bradley students. The programs provided include:

Academic Advisement

Academic Advisement at Bradley is decentralized, meaning that all students are assigned a faculty advisor in the major they are currently declared in, including the Academic Exploration Program. If a student changes their major, they will be assigned a new academic advisor. Advisors help students to define academic and career goals, provide course planning assistance, clarification of academic policies and regulations, and provide awareness and guidance to those interested in studying abroad or in registering an internship for credit with the Smith Career Center. Students should feel comfortable contacting their academic advisor not only during registration periods, but all year long. We also provide online resources to aid students in the advising and registration process. The Academic Success Center offers supplemental advising to all students who may need help deciding on specific courses for all-university degree requirements and offers support to faculty advisors with any questions they may have about academic policies and requirements.

Academic Exploration Program (AEP)

The Academic Exploration Program (AEP) helps students with undecided majors and undeclared majors (exploratory students) identify and pursue their academic and professional goals. Through a combination of instruction, reflection and exposure, students gain the experience and confidence to declare a major and succeed professionally. The key

to success in the Academic Exploration Program rests with the student-academic advisor relationship. Each student in AEP is assigned an advisor, with whom they will spend time in the classroom and in one-on-one advising within the first semester. The award-winning academic advisement in AEP is integrated throughout the AEP curriculum and helps students select the major and career path that is best for them through the lens of whole student development.

Academic Coaching

Students experiencing challenges that are causing academic difficulty (such as time management, test-taking strategies, self-regulation and accountability, etc.) can meet with ASC staff members to create a plan and to identify strategies to improve their likelihood of academic success. Students are offered an unlimited number of coaching appointments each semester, contingent on staff availability.

AEP 115: Learning Enhancement Strategies Seminar

The Learning Enhancement Seminar (AEP 115) is for University program students to ensure they have the college-level study skills necessary to be successful at Bradley.

Turning Point Program (TPP)

Many students experience some form of academic difficulty during their college career. At Bradley, students whose difficulty has resulted in academic probation are required to participate in the Turning Point Program (TPP). TPP's mission is to assist first-time probation students as they work to regain good academic standing. Program participants meet with TPP staff and create and accomplish a plan for the semester that includes the Learning Enhancement Strategies Seminar (AEP 115), as well as accountability meetings or connections to other campus resources.

Tutoring

Bradley undergraduate students qualify for three hours of free one-on-one peer tutoring per week across all subjects for which free tutoring is offered. Check the ASC website for a specific list.

University Program (UNV)

The University Program (UNV) helps students get started at Bradley on the right track by ensuring appropriate academic advisement and goal setting for major(s) of interest. Students in University Program majors will be assigned an advisor in their college or a professional advisor and will spend time outside of their traditional classes working toward developing habits that enhance academic success and identifying major options that align with students' interests, skills, and goals.

International Student Services

International Student Services (ISS) provides immigration advising for undergraduate and graduate international students. The office primarily serves F-1 visa holders but is open for all non-residents of the United States. ISS maintains up-to-date policies and government immigration records and is the primary campus liaison to agencies regarding immigration issues including the Department of Homeland Security, Department of State, and Student and Exchange Visitor Program.

Orientation

First-Year Student Orientation will give students the necessary tools to deal with a wide range of emotions as they begin their "college career" at Bradley University. Orientation is a necessary introduction to college life and to the challenges and opportunities, students will encounter. Because of its importance, it is required that first year students attend one 1-1/2 day session offered during the summer. During Orientation, students will meet other students through social activities, register for fall semester classes, become familiar with campus and learn about campus life, and participate in "team orientated" events.

Student Access Services

Student Access Services (SAS) is committed to the fulfillment of equal educational opportunity, academic freedom and human dignity for students with disabilities. The SAS exists to provide reasonable and appropriate accommodations for qualified students with documented disabilities, to assist students in self-advocacy, to educate the Bradley community about disabilities, and ensure compliance with federal and state law.

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SMITH CAREER CENTER

The Bradley University Smith Career Center empowers students to achieve positive career outcomes through career development, experiential education, and learning opportunities. We partner in this work with stakeholders who benefit from the skills and talents of our students and alumni.

With the help of the Smith Career Center, students and alumni can explore and define career options, develop job search strategies, obtain career-related work experience and identify and connect with prospective employers. The Center provides individual career advisement, job search workshops, extensive web-based career resources, a targeted internship & full-time employment database, several job fairs, a graduate/professional school fair, and campus interviews with prospective employers.

The Smith Career Center and the Springer Center for Internships also administer Bradley's centralized co-operative education and internship program. Through internships, cooperative education, and summer or part-time employment, students have opportunities for professional development, which integrate classroom theory with supervised work experience.

Several hundred employers visit the Bradley campus each year to talk with our students, participate in job fairs and conduct interviews with candidates. Employers are eager to hire Bradley students and graduates because of the many skills and talents that were developed during their years at Bradley.

Springer Center for Internships

Students are encouraged to gain career-related work experience prior to graduation. Through internships, cooperative education, and summer or part-time employment, the Springer Center for Internships provides students with opportunities for professional development that integrate classroom theory with supervised work experience.

Cooperative education and internship courses are offered to students in all five colleges of the University. Students are guided through reflective learning assignments that complement the work experiences. 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.

A series of job search workshops is offered to assist students in the co-op or intern process. Employers review resumes and/or conduct interviews to make hiring decisions. Placement is not guaranteed. Student-developed jobs may be approved if they meet the work-learning criteria. A work assignment or credit will not be approved retroactively.

While on a registered full-time co-op/intern 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 co-op/intern 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 be either registered for a minimum of three hours of non-cooperative education/internship credit or be on a full-time cooperative education or internship assignment.

For information about the program, contact the Smith Career Center at (309) 677-2510.

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FOSTER COLLEGE OF BUSINESS

Vision Statement

To be the standard for engagement, innovation, and impact in business higher education.

Mission Statement

Through close interaction and experiential learning, we empower individuals and organizations to achieve great outcomes.

Our Values

In everything we do, we value integrity, hard work, innovation, collaboration, impact, growth, diversity, and risk taking.

Distinctive Competencies

Faculty who are scholar/educators, utilization of experiential learning, expertise in providing business acumen to technical professionals.

Programs

In support of our mission, vision, and values, the Foster College of Business is proud to offer the following graduate programs:

1. MBA program with concentrations in finance and management
2. Theresa S. Falcon Executive MBA in leadership
3. Master of Science in Accounting
4. Graduate Certificate in Management

Administration

Krishnanand (Kris) Y. Maillacheruvu,
Interim Dean

Paul Stephens,
Associate Dean & Academic Director, Master of Business Administration Program

Lucy Lu,
Academic Director, Master of Science in Accounting Program

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BRADLEY University

MASTER OF SCIENCE IN ACCOUNTING

Lucy Lu,

Master of Science in Accounting Academic Director

All degree programs offered by the Foster College of Business, Bradley University, are accredited by the AACSB International: The Association to Advance Collegiate Schools of Business. The Department of Accounting offers a graduate program leading to the Master of Science in Accounting (MSA) degree. The program provides graduate education that prepares students to meet professional practice challenges in public, private, and not-for-profit accounting. The program is designed to broaden the student's knowledge, to provide for in-depth study, and to complement theoretical study with relevant and significant research. Graduates should be prepared for meeting the 150-hour CPA examination education requirement and entrance into, or advancement within, their chosen careers.

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

Admissions Information

a. An undergraduate accounting degree or the equivalent.
b. Admission requirements as follows:

Admission—MSA

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

1. **Application form.** All applicants must submit an Application for Graduate Admission, signed and dated by the applicant. Applications for Graduate Admission may also be submitted online. A check of $40 for U.S. students or $50 for international students, payable to Bradley University, must accompany the application.
2. **Transcript(s).** Applicants are required to provide one official transcript sent directly from the Registrar's office at the institution from which they receive their bachelor's degree or the international equivalent. Additional transcripts may be required at the discretion of Graduate Education. Applicants should submit additional official transcripts from post-baccalaureate coursework for consideration. Applicants who have completed graduate-level coursework should submit all transcripts reflecting graduate coursework. Official transcripts should be submitted to: Graduate Education, 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 Education Office or visiting the GMAT Web site at www.gmac.com. Students currently in a four-year undergraduate

accounting program should take the GMAT the first semester of their senior year in order to allow sufficient time for processing of the results.

5. **Essays.** Answers to essay questions must be complete with meaningful and well-developed answers to the questions on the goals of the applicant.

6. **A current resume.**

7. **TOEFL (Test of English as a Foreign Language).** Applicable only to international students whose native language is not English. The test measures proficiency in oral and written English. The IELTS is an acceptable substitute for TOEFL.

Admission Criteria

The entire application package including the GMAT score, the undergraduate GPA, transcripts, letters of recommendation, experience, essay responses, and other materials are all considered in an application review for student admission. Also considered are the applicant's grades in Intermediate Accounting and Federal Income Tax.

The final recommendation on admission rests with the MSA Academic Director with the advice of an admissions committee consisting of Department of Accounting graduate faculty members.

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 500 or 600-level courses from the Foster College of Business. 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. The program allows a maximum of six semester hours to be taken outside of the Foster College of Business and requires a minimum of nine semester hours outside of accounting.

Accounting Courses Required (15 hours)

- ATG 601 Financial Accounting Theory
- ATG 614 Advanced Cost Management
- ATG 657 Advanced Auditing
- ATG 677 Tax Research
- ATG 698 Accounting Comprehensive Assessment
- One 3-hour elective course to be chosen from the 500-level accounting courses (with the exception of ATG 505) listed in the graduate catalog.

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

Elective (9 hours) Foster College of Business

For choices, see the listing of 500 and 600-level courses (with the exception of ATG 604) in the Foster College of Business MBA program and obtain approval from the MSA Academic Director.

Other Electives (6 hours)

May be taken in accounting with approval from the MSA Academic Director. See "Note" above. May also be taken outside of the college with approval from the MSA Academic Director. For business course choices, see the listing of 500 and 600-level courses (with the exception of ATG 604) in the Foster College of Business MBA program and

obtain MSA Program Coordinator approval.

Other Requirements

As part of the 15 hours of program electives (Accounting, Foster College of Business, and Other) each MSA student must take either ATG 530, Professional Interviewing Skills, or M L 615, Interpersonal Relations.

All students working towards an MSA degree will be required to abide by and meet all Graduate Education policies and degree regulations located in the front of this catalog.

Comprehensive Examination

Each MSA student must take a written comprehensive examination. This examination covers the graduate work that the student is presenting for the degree. The time, place, and nature of the examination are a part of ATG 698.

Foundation Courses

Individuals entering the MSA program with an accounting degree from a regionally accredited university will not be required to complete any foundation courses. Individuals entering the MSA program with a non-accounting business degree from a regionally accredited university will be required to complete only the accounting foundation courses. For all other individuals, transcripts will be reviewed to determine whether the individual has completed courses equivalent to the business and accounting foundation courses within the last 10 years, and any foundation class for which an equivalent has not been completed will be required. Equivalency will be determined for a foundation course using the undergraduate equivalency guides. All foundation courses must be completed with a grade of B or better and must be completed prior to beginning the MSA degree requirements unless approval is given by the MSA Academic Director.

Business foundation courses include:

- Accounting Principles – Financial – ATG 157
- Accounting Principles – Managerial – ATG 158
- Legal Environment of Business – BLW 342
- Operations Management – M L 353 or 653
- Organizational Management – M L 350 or 520
- Microeconomics – ECO 221 or 606
- Macroeconomics – ECO 222 or 510
- Finance – FIN 322 or 622
- Marketing – MTG 315 or 624
- Quantitative Analysis – QM 263
- Management Information Systems – MIS 173 or 572

Accounting foundation courses include:

- Cost Accounting - ATG 314
- Intermediate Accounting - ATG 301
- Intermediate Accounting - ATG 302
- Accounting Systems and Control - ATG 383
- Auditing - ATG 457

- Federal Tax I - ATG 477

Foundation courses with a 500- or 600-course level option may be taken as one of the required program electives. For descriptions of the foundation courses, please see the undergraduate and graduate catalogs.

ACCOUNTING COURSE DESCRIPTIONS

ATG 505 - Accounting Principles-Financial *(2 hours)*

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

ATG 514 - Advanced Managerial Accounting *(3 hours)*

Specialized topics in strategic cost management. Emphasis on the role of accounting information in strategy development and implementation. Includes topics such as value chain analysis, target costing, activity-based management, theory of constraints, environmental costing, and strategic performance evaluation. (Not open to students who have taken ATG 304 or ATG 614.) Cross-listed with ATG 414. Prerequisite: ATG 301, 383.

ATG 526 - Fraud Examination *(3 hours)*

Techniques for identification and detection of asset misappropriation schemes and fraudulent financial statements. Controls to prevent and detect problems. (Not open to students who have taken ATG 585 as Fraud Examination.) Cross-listed with ATG 426. Prerequisite: ATG 301, 383.

ATG 530 - Professional Skills of Inquiry *(3 hours)*

Planning and implementation of face-to-face encounters in order to achieve business objectives. Information interviews, interrogations, and other interviews used in business. Listening skills and analysis of non-verbal communication. Cross-listed with ATG 430. Prerequisite: ATG 301, ATG 383, or consent of instructor

ATG 547 - Internal Auditing *(3 hours)*

Internal audit activity's role in governance, risk, and control. Professional practices framework. Establishing a risk-based plan, conducting the internal audit engagement, reporting results, monitoring engagement outcomes. Cross-listed with ATG 447. Prerequisite: ATG 301 and ATG 383.

ATG 548 - Computer Assisted Audit Techniques *(3 hours)*

Design and implementation of data extraction and analysis techniques to achieve audit objectives. Course includes hands-on use of generalized audit software. Cross-listed with ATG 448. Prerequisite: ATG 301, 383.

ATG 561 - International Accounting Issues *(3 hours)*

Significant accounting matters experienced by multi-national companies. Accounting matters include currency transactions and translations, transfer pricing, management planning and control, and taxation. Cross-listed with ATG 461. Prerequisite: ATG 302.

ATG 585 - Contemporary Issues in Accounting *(1-3 hours)*

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. May be repeated for maximum 6 hours of credit. Prerequisite: Consent of department chair

ATG 601 - Financial Accounting Theory *(3 hours)*

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

ATG 603 - Planning, Decision Making and Performance Measurement *(2 hours)*

Introduces the learner to critical Financial and Managerial Accounting tools, techniques and concepts. Financial Accounting is the language of business and learners will be taught how to read and understand financial statements and reports commonly used to report the results of operation for a medical business environment. Managerial Accounting involves the planning, operating and control tools to manage a medical business environment. Learners will be introduced to a number of essential concepts to improve these aspects of business decision making. As well, learners will be taught short- and long-term budgeting concepts to improve their planning capabilities and skills.

ATG 604 - Controllership *(3 hours)*

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. Prerequisite: Foster College of Business Graduate Student or Consent of Associate Dean

ATG 605 - Cooperative Education/Internship in Accounting *(1-3 hours)*

Cooperative education or internship assignment. Credit applies to Department of Accounting MSA electives. Pass/Fail. Repeatable to a combined total of three credit hours. Internships registered for ATG 605 credit may not also be registered for BUS 301 credit. Prerequisite: Foster College of Business Graduate Student or consent of the MSA Academic Director.

ATG 614 - Advanced Cost Management *(3 hours)*

Specialized topics in strategic cost management. Emphasis on the role of accounting information in strategy development and implementation. Includes topics such as value chain analysis, target costing, activity-based management, theory of constraints, environmental costing, and strategic performance evaluation. Prerequisite: ATG 314

ATG 657 - Advanced Auditing *(3 hours)*

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

ATG 658 - Topics in Accounting *(3 hours)*

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 *(1-3 hours)*

Individual readings for qualified students, under the guidance of a member of the faculty. Repeatable to a maximum of 3 credit hours. Prerequisite: consent of instructor and director of graduate programs.

ATG 677 - Tax Research *(3 hours)*

Techniques in effective tax research, planning and communication. Also includes a discussion of tax policy. Prerequisite: ATG 478.

ATG 690 - Applied Professional Accounting Research *(3 hours)*

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

ATG 698 - Accounting Comprehensive Assessment *(0 hours)*

Preparation for and completion of the comprehensive assessment required for the Master of Science in Accounting. Pass/Fail. Prerequisite: 18 hours of graduate credit, including twelve semester hours from ATG 601, 614, 657, and 677.

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DATA SCIENCE AND ANALYTICS

MS in Data Science and Analytics

Bradley University offers an interdisciplinary graduate program leading to the degree of master of science in Data Science and Analytics. This course of study is designed to prepare students for professional careers in the field or for further study and research.

The Data Science and Analytics graduate program provides students with the necessary skills to effectively use large data sets to solve problems and potentially find new insights.

Students can concentrate their study in various application areas including: 1) business analytics, 2) computational data science, and 3) engineering analytics.

In addition to satisfying all the Graduate Education requirements for the degree, all candidates for the master's degree must satisfy the following departmental requirements:

- At least 34 hours of graduate-level coursework. Some remedial course(s), e.g., an introductory programming class, such as CS 502, or an entry level statistics course, such as MTH 111, Q M 262, or IME 302, do not count as part of the total hours needed.
- No "D" grades can be counted in the completion of requirements for the degree.
- Every student must pass a written comprehensive examination that will be based on the core requirements for the program pursued.

Students in the Data Science and Analytics program may register for only three courses per semester. Any exceptions must be approved by the appropriate department chair.

Admission requirements to the Data Science and Analytics program are given below:

- completed at least one semester of statistics.
- must submit GRE General Test or GMAT scores taken within the last five years. The applicant may request a GRE or GMAT waiver under certain circumstances.

Note that prospective students who do not meet the conditions for admission may be admitted conditionally, in which case the department will prescribe a program for the removal of such admission conditions. Conditional status must be removed prior to graduation.

Data Science and Analytics

In addition to meeting all the general requirements of Graduate Education and of the department(s) as stated above, candidates for the master's degree in Data Science and Analytics must satisfy the following requirements:

1. At least 24 of the 34 required hours must be earned in courses labeled CS, CIS, IME, or MIS.
2. To satisfy the core (breadth) requirement, six courses or 16 credit hours must be taken:

- IME 511 Probability & Statistics for Analytics (3 credit hours)
- IME 512 Regression and Experimental Design (3 credit hours)
- CS 560 Fundamentals of Data Science (3 credit hours)
- CS 571 Database Management Systems (3 credit hours) or IME 514 Operations Research (3 credit hours)
- MIS 570 Introduction to Business Analytics (3 credit hours)
- BUS 511 Communicating Quantitative Information (1 credit hour)

3. To satisfy depth requirements, the student must take three or four courses from one of the concentrations offered and listed below. No course taken to satisfy the core requirement (item 2 above) may be counted as one of the courses in this requirement. The Business Analytics concentration is 9 credit hours, the Computational Data Science concentration is 12 credit hours or 15 credit hours if a student writes a thesis, and the Engineering Analytics concentration is 9 credit hours.
4. The remaining credit hours will be made-up of approved elective courses.

For admission into the data science and analytics program, a student must have the approval of the department(s) and have completed:

1. at least one semester of statistics,
2. submitted standardized test results, and
3. specific requirements for one of the concentrations
   a. Business Analytics concentration:
      1. basic spreadsheet proficiency
   b. Computational Data Science concentration:
      1. Two semesters of programming classes or CS 502
      2. Two semesters of calculus
      3. Linear Algebra
   c. Engineering Analytics concentration
      1. One semester of programming class or numerical analysis
      2. Two semesters of calculus
      3. Linear Algebra

Concentrations

Business Analytics Concentration - 9 credit hours (ch)

The Business Analytics concentration provides students with the necessary skills to analyze organizational data to aid in business decision-making. The concentration is comprised of 9 semester hours of study.

Prerequisites:

- Basic spreadsheet proficiency

Required courses (3 courses):

1. MIS 571 Business Analytics Software and Applications I - 3 ch
2. MIS 573 Data Visualization for Business - 3 ch
3. MIS 590 Business Analytics Consulting Project – 3 ch **OR** CS 594 Capstone Project for Data Science - 3 ch **OR** IME 691 Research/Practicum – 3 ch

Computational Data Science Concentration - 12-15 credit hours (ch)

The Computational Data Science concentration provides students with the necessary skills to understand the theory and algorithms utilized in data science and to be able to implement and apply them. The concentration is comprised of 12 to 15 semester hours of study.

Prerequisites

- Two semesters of programming classes or CS 502
- Two semesters of calculus
- Linear Algebra

Required courses (4 courses):

1. CS 562 Machine Learning - 3 ch
2. CS 563 Knowledge Discovery and Data Mining - 3 ch
3. CS 572 Distributed Databases and Big Data - 3 ch
4. CS 594 Capstone Project for Data Science - 3 ch **OR** CS 699 Thesis – 6 ch (Note: 3 ch taken for two consecutive semesters) **OR** MIS 590 Business Analytics Consulting Project – 3 ch **OR** IME 691 Research/Practicum – 3 ch

Interested and qualified students pursuing the Computational Data Science concentration have the option to write a master's thesis. Students selecting this option are encouraged to choose an advisor and topic as early as possible in order to plan the thesis development and any needed supporting coursework. The following policies apply to theses:

- A minimum grade point average of 3.5 in computer science and computer information systems graduate courses is required for students enrolling in a thesis course, i.e., CS 699.
- No student may register for a thesis until 9 hours of graduate courses have been completed in the program.
- Six credit hours of a thesis course are required and, upon completion, the thesis must be defended in an oral examination.
- No grade will be given for a thesis course until after the oral defense.
- A written outline of the thesis project and a tentative schedule must be submitted to and approved by the graduate coordinator and the chair prior to the registration for a thesis course.

Engineering Analytics Concentration - 9 credit hours (ch)

The Engineering Analytics concentration provides students with the skills to analyze and process large-size and complex data, to utilize proper methodology in identifying problems, formulating mathematical or algorithmic models, and to solve problems arising from engineering applications, including product design, process design, manufacturing execution, inventory management, production planning, quality control, economic analysis of engineering decision.

Prerequisites

- One semester of programming class or numerical analysis
- Two semesters of calculus
- Linear algebra

Required Courses (3 courses):

1. IME 568 Engineering Analytics I - 3 ch
2. IME 586 Logistics and Supply Chain Systems - 3 ch
3. IME 691 Research/Practicum – 3 ch **OR** MIS 590 Business Analytics Consulting Project – 3 ch **OR** CS 594 Capstone Project for Data Science - 3 ch

Possible electives for the Data Science and Analytics Program include courses required by the other concentrations, or additional courses listed below, or courses approved by the department chair. It is the responsibility of the student to ensure they have met the prerequisites for their elective courses.

- CIS 576 Data Management
- CIS 580 Digital Society and Computer Law
- CS 541 Python for Data Science
- CS 561 Artificial Intelligence
- ECE 565 Engineering Applications of Machine Learning
- IME 501 Engineering Cost Analysis
- IME 526 Reliability Engineering
- IME 561 Simulation of Manufacturing & Service Systems
- IME 578 Engineering Analytics II
- IME 583 Production Planning and Control
- MIS 613 Advanced Algorithms for Business
- MTG 624 Marketing Decision Making
- MTH 510 Numerical Methods I
- MTH 511 Numerical Methods II

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THERESA S. FALCON EXECUTIVE MASTER OF BUSINESS ADMINISTRATION

All degree programs offered by the Foster College of Business, Bradley University, are accredited by the AACSB International: The Association to Advance Collegiate Schools of Business.

The Theresa S. Falcon 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 typically continue to work full time while enrolled in the program. Participants begin the program at the same time and move through the curriculum together, completing the requirements as a group. The collective professional experience of the program participants enriches the educational environment.

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

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

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

Admissions Information

Admissions Requirement

Online applications are accepted on a rolling admissions basis. Applicants should submit all of their application materials at least 60 days prior to the start of the program. Applicants will be evaluated on the following criteria: managerial experience, undergraduate/graduate performance, letters of recommendation, essay, and a personal interview 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 online, to Bradley University. The fee for domestic applicants is $40.
2. **Transcript(s).**
   Official transcripts, sent directly from all post-secondary institutions attended, are required. Bradley alumni need not provide Bradley transcripts. Transcripts can be sent electronically or mailed to:

   Graduate Education

   Bradley University

   1501 W. Bradley Ave.

   Peoria, IL 61625

   USA

   Additional transcripts may be required at the discretion of Graduate Education. Applicants who have completed graduate-level coursework or post-baccalaureate coursework should submit all transcripts reflecting graduate coursework.

3. **Three letters of recommendation.** Recommendation forms are included on the online application site. Please note that a direct supervisor must be one of the recommenders, unless you are self-employed.
4. **Personal essay.** Directions for the essays can be found on the online application site.
5. **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.

A link to the online application site can be found at www.bradley.edu/emba. For additional information, please contact the Graduate Program Coordinator, Foster College of Business, Bradley University, 1501 W. Bradley, Peoria, IL 61625. E-mail: emba@bradley.edu. Phone: (309) 677-3714.

Admissions Criteria

The entire application package is evaluated as a portfolio. The portfolio includes a personal statement, history of managerial and/or leadership experience of at least five to seven years, and letters of reference. As well as determining the academic qualifications of each individual, the composite picture aids in identifying if that person will contribute to the growth of fellow students in the cohort. A personal interview with the EMBA Academic Director is an integral part of the portfolio evaluation.

The GMAT is not required for admission to the EMBA program. Rarely, a candidate without a baccalaureate degree may be admitted as an exception to the baccalaureate degree requirement when the applicant has an exceptional portfolio including a significant record of managerial experience.

The final admission recommendation rests with the Associate Dean.

Program Costs

The fee for the Fall 2019 EMBA degree program is $68,000. Tuition, instructional materials, meals, and the international trip, excluding student's airfare and some meals, are included in the fee.

Payment Schedule for Program

Deposit $500
Due immediately upon acceptance into the program

First Payment $33,500
Due on the first day of class

Second Payment $34,000
Due halfway through the program

Scholarships

Theresa S. Falcon Executive MBA Scholarships

Funded through the Theresa S. Falcon Executive MBA endowment, limited scholarships may be available to students admitted to the EMBA program, with an emphasis on health professionals. The available earnings shall be used to award scholarships as determined by the Director of the Theresa S. Falcon Executive MBA program in consultation with the University's Office of Financial Services.

Other Scholarships

The following scholarships are also available for EMBA students who are admitted unconditionally into the program: Company Loyalty, Non-profit/Government/Education, and the Dean's EMBA Scholarship.

Applicants for need-based scholarships must complete a Free Application for Student Aid (FAFSA).

The application deadline for all EMBA Scholarships is 60 days prior to the start of the program. Contact the Graduate Program Coordinator at emba@bradley.edu or 309-677-3714 to learn about priority scholarship award timelines.

Degree Requirements

The EMBA consists of several distinct modules comprising 38 academic credit hours. The program lasts approximately 16 calendar months and meets every other weekend on Friday and Saturday for the program's duration. Two extended periods of study, lasting 5–10 days each, will be required. Participants must successfully complete all modules in sequence, participate in executive coaching, and pass a written comprehensive examination. Because of the cohort, lock-step curriculum in the EMBA program, participants must pass all courses in sequence with a C or better in order to continue in the program. Failure to do so will result in immediate dismissal from the EMBA program. All participants are expected to adhere to the Theresa S. Falcon Executive MBA in Leadership Honor Code and EMBA Policies and Procedures. Unless otherwise specified in the Honor Code or EMBA Policies and Procedures, participants are subject to the probation and dismissal policies of Graduate Education.

Required Courses - 38 hours total

- BUS 615 Executive Coaching – 3 hrs.
- BUS 621 Leadership Immersion: Awareness, Connection, Impact - 2.5 hrs.
- BUS 623 Scanning the Environment - .5 hr.
- BUS 625 External Economic Environment - 1 hrs.
- BUS 627 Managing Product & Process Technology – 1 hr.
- BUS 629 Cost Management - 1.5 – 2 hrs.
- BUS 631 Competition and Pricing - 1 hr.
- BUS 633 Creating and Maintaining Customer Satisfaction - 3 hrs.
- BUS 635 Communication Workshop - 2 hrs.
- BUS 637 Attracting and Developing Talent - 1.5 – 2 hrs.
- BUS 639 Building Employee Commitment - 1.5 – 2 hrs.
- BUS 643 Legal Issues in Business - 1 – 1.5 hrs.
- 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 - 2.5 hrs.
- BUS 658 EMBA Topics - .5–5 hrs.
- BUS 672 Assessing Privacy and Security Threats – 1 hr.

EMBA COURSE DESCRIPTIONS

BUS 615 - Executive Coaching *(1 hour)*

To effectively lead today's organizations, executives need ongoing support to navigate interpersonal and organizational challenges while developing their leadership skills and competencies. While immersed in the EMBA program, students also face challenges in negotiating coursework, learning team dynamics, and work-life balance, all while their leadership skills undergo scrutiny and transformation. Executive coaching is a personalized experience to support students while in the intensely developmental EMBA program.

BUS 621 - The Leadership Challenge *(2.5 hours)*

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 *(0.5 hours)*

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. Graded Satisfactory/ Unsatisfactory.

BUS 625 - External Economic Environment *(1 hour)*

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 hours)*

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 *(1.5-2 hours)*

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 hour)*

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 & Maintaining Customer Satisfaction *(3 hours)*

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 *(2 hours)*

Business writing and presentation skills will be learned and strengthened through practice and coaching. In addition to in-class assignments, students will be coached through various writing and presentation opportunities throughout the EMBA curriculum in order to reinforce the tools developed. Executive communication internal to the organization and to external stakeholders, utilizing various media outlets, will receive primary emphasis.

BUS 637 - Attracting & Developing Talent *(1.5-2 hours)*

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 *(1.5-2 hours)*

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 645 - Acquiring Capital & Making Investment Decisions *(3 hours)*

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 & Issues *(3 hours)*

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 hours)*

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 & Control Systems *(2 hours)*

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 & Maximizing Performance *(2.5 hours)*

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 *(1-1.5 hours)*

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 and project management strategies to their respective organizations.

BUS 658 - EMBA Topics *(0.5-5 hours)*

Topics of special interest which may vary each time course is offered. May be repeated under different topics for a maximum of 5.0 hours credit. Topic stated in current Schedule of Classes. Graded Satisfactory/Unsatisfactory.

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BRADLEY University

MASTER OF BUSINESS ADMINISTRATION

All degree programs offered by the Foster College of Business, Bradley University, are accredited by the AACSB International: The Association to Advance Collegiate Schools of Business.

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

The curriculum is primarily geared toward deepening business acumen, but also to build competencies in integrative thinking, change management, and leadership. 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 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: business. health, government, and non-profit organizations, as well as the traditional large and small manufacturing and service firms.

The practical application 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.

Admissions Information

The entire application package, including the application form, GMAT score, undergraduate GPA, transcripts, letters of recommendation, experience, essay responses, and other materials, is considered in an application review for student admission.

The required documents are the following:

1. **Application form.** All applicants must submit an Application for Graduate Admission, signed and dated by the applicant. Applications for Graduate Admission are submitted online. All applicants must submit a non-refundable application fee, payable online to Bradley University. The fee for domestic applicants is $40 and $50 for international applicants.

2. **Transcript(s).** Official transcripts, sent directly from all post-secondary institutions attended, are required. Transcripts can be sent electronically or mailed to:

Graduate Education

Bradley University

1501 W. Bradley Ave.

Peoria, IL 61625

USA

Additional transcripts may be required at the discretion of Graduate Education. Applicants who have completed graduate-level coursework or post-baccalaureate coursework should submit all transcripts reflecting graduate coursework.

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 supervisors are appropriate references.

4. **GMAT (Graduate Management Admission Test).** The GMAT is a standardized test designed to measure aptitude for graduate study in management. Applicants must arrange to take the test in sufficient time to permit processing of the application with the test results prior to the application deadline. For reporting the test results, the Bradley University GMAT institutional code is 1070. Information about the GMAT may be obtained by contacting the Graduate Education Office or by visiting www.mba.com.

The Graduate Record Exam (GRE) may be substituted for the GMAT exam. The GMAT exam (or GRE) may be waived if the applicant (1) has significant professional work experience and either an undergraduate degree in a business discipline from an AACSB accredited institution or an undergraduate degree in a non-business discipline from a regionally accredited institution (e.g. Higher Learning Commission), (2) has earned a terminal degree in his/her profession (e.g. JD in law or a PhD in some field), or (3) the candidate has a master's degree in an analytically rigorous discipline (e.g. mathematics, engineering, etc.) with a master's GPA of at least 3.4 or better.

The decision on the waiver of the GMAT rests with the Associate Dean. To request a waiver, the applicant must include a written request with the application materials. Requests of a GMAT waiver due to work experience must include a detailed description of managerial responsibilities associated with that experience and how they demonstrate the necessary analytical and critical thinking abilities to succeed in the MBA program.

5. **Essays.** Answers to essay questions must be complete with meaningful and well-developed answers to the questions on the goals of the applicant.

6. **A current resume.** Since the evaluation includes analysis of work experience, a current resume is very helpful to the admissions committee.

7. **TOEFL (Test of English as a Foreign Language).** Applicable only to international students whose native language is not English. The test measures proficiency in oral and written English. The IELTS is an acceptable substitute for TOEFL.

A link to the online application site can be found at www.bradley.edu/mba. For additional information, please contact the Graduate Program Coordinator, Foster College of Business, Bradley University, 1501 W. Bradley, Peoria, IL 61625. E-mail: mba@bradley.edu. Phone: (309) 677-2914.

The final admission recommendation rests with the Associate Dean.

Progress Toward the Degree

Course Enrollment

Graduate courses in the Foster College of Business are restricted to graduate students who have been admitted to the MBA program or another degree-granting or certificate-granting program in Graduate Education. Enrollment in courses is on a space-available basis.

Leave of Absence

Please refer to the Graduate Education Step-Out Policy.

Degree Requirements

The MBA program is composed of 30 semester hours of required courses. The program begins with an interpersonal relations course that emphasizes the development and application of interpersonal skills critical for managerial success. The program continues with an in-depth treatment of key issues in business decision-making, drawing on experienced practitioners and graduate faculty teams. The MBA program concludes with a capstone strategy course that integrates the cross-functional business approach with organizational issues.

MBA Courses
Required Core (30 hrs.)

- ATG 604 Controllership
- BLW 540 Legal Environment for Managers
- ECO 510 Global Markets and Sustainability
- ECO 606 Microeconomics for Managers
- FIN 622 Financial Management
- MTG 624 Marketing Decision Making
- MIS 572 Information Systems Management
- M L 615 Interpersonal Relations
- M L 520 Management Theory
- M L 628 Business Policy and Strategy Formulation

Other Requirements

Applicants should review the Graduate Education 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 M L 628. Students must be in good standing upon starting M L 628. In case of failure, the candidate will be allowed to retake M L 628 and the comprehensive exam only once.

MBA Association

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

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GRADUATE CERTIFICATE IN MANAGEMENT

The program provides students with access to graduate coursework in management practice. Many students receive strong training in technical skills (e.g., engineering or in computer science) that are essential for securing initial employment. Over time, such students may wish to progress in their careers and become supervisors or managers of organizational units in their core discipline. To be prepared for the managerial role, these individuals need access to knowledge and practice in the management, supervision, and leadership of organizations.

The Graduate Certificate in Management will give these students exposure to the knowledge, understanding, and skills needed to succeed in the managerial role. Core courses in interpersonal relations skills, managerial theory, and/or organization behavior will give students a background in management practice and theory. Additional elective courses will enable students to tailor a program of study appropriate to their organization that will prepare them for advancement to particular organizational roles.

Admissions Information

The entire application package including the Application Form, GMAT score, undergraduate GPA, transcripts, letters of recommendation, experience, essay responses, and other materials are all considered in an application review for student admission.

The required documents are the following:

1. **Application form**. All applicants must submit an Application for Graduate Admission, signed and dated by the applicant. Applications for Graduate Admission are submitted online. All applicants must submit a non-refundable application fee, payable online to Bradley University. The fee for domestic applicants is $40 and $50 for international applicants.

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    Bradley University
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    Additional transcripts may be required at the discretion of the Graduate Education. Applicants who have completed graduate-level coursework or post-baccalaureate coursework should submit all transcripts reflecting graduate coursework.

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 supervisors are considered appropriate references.

4. **GMAT** (Graduate Management Admission Test). The GMAT is a standardized test designed to measure aptitude for graduate study in management. Applicants must arrange to take the test in sufficient time to permit processing of the application with the test results prior to the application deadline. For reporting the test results, the Bradley University GMAT institutional code is 1070. Information about the GMAT may be obtained by contacting the Graduate Education Office or by visiting www.mba.com.

   The Graduate Record Exam (GRE) may be substituted for the GMAT exam. The GMAT exam (or GRE) may be waived if the applicant (1) has significant professional work experience and either an undergraduate degree in a business discipline from an AACSB accredited institution or an undergraduate degree in a non-business discipline from a regionally accredited institution (e.g. Higher Learning Commission), (2) has earned a terminal degree in his/her profession (e.g. JD in law or a PhD in some field), or (3) the candidate has a master's degree in an analytically rigorous discipline (e.g. mathematics, engineering, etc.) with a master's GPA of at least 3.4 or better.

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5. **Essays.** Answers to essay questions must be complete with meaningful and well-developed answers to the questions on the goals of the applicant.

6. **A current resume.** Since the evaluation includes analysis of work experience, a current resume is very helpful to the admissions committee.

7. **TOEFL** (Test of English as a Foreign Language). Applicable only to international students whose native language is not English. The test measures proficiency in oral and written English. The IELTS is an acceptable substitute for TOEFL.

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The final admission recommendation rests with the Associate Dean.

Course Enrollment

Graduate courses in the Foster College of Business at the 500 or 600 level are restricted to graduate students who have been admitted to the MBA program or another degree-granting or certificate-granting program in Graduate Education. Enrollment in courses is on a space-available basis. Students-at-large may not take 600-level graduate courses in the Foster College of Business.

Requirements

The Graduate Certificate in Management will require students to take 12 hours of courses, all of which are within the structure of the existing Master's of Business Administration program.

Students must take at least one of the following three courses, which constitute Core Contents for the Graduate Certificate in Management:

- M L 520 Management Theory
- M L 602 Organizational Behavior
- M L 615 Interpersonal Relations

Students must select an additional 9 hours of coursework from the list below, in order to meet the 12-hour requirement:

- BUS 610 Graduate Business Practicum
- M L 520 Management Theory
- M L 602 Organizational Behavior
- M L 608 Open Book Management
- M L 615 Interpersonal Relations
- M L 657 Executive Development
- M L 658 Topics in Management and Leadership
- M L 659 Topics in Management
- MTG 624 Marketing Decision Making
- MTG 640 Obtaining, Analyzing, and Applying Market Information

Other courses may be substituted with the approval of the Associate Dean.

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MASTER OF BUSINESS ADMINISTRATION COURSE DESCRIPTIONS

Required Core Courses

ATG 604 Controllership *(3 hours)*

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: BUS 500 and Foster College of Business Graduate Student or Consent of Associate Dean.

BLW 540 - Legal Environment for Managers (3 hours)

Analysis of the basic principles of business law while focusing on global information technologies using the case study method. Topics will include an understanding of the legal system, ethics, cybertorts, cybercrimes, information privacy issues, intellectual property, and contracts. Prerequisite: Foster College of Business Graduate Student or consent of Associate Dean.

ECO 510 Global Markets and Sustainability *(3 hours)*

Examination of global macroeconomics and its application to the modern business environment, the business cycle and economic policies, major linkages to between economies, domestic and international economic indicators, institutions and cultural aspects of business, sustainable development. Prerequisites: BUS 500 and Foster College of Business Graduate Student or Consent of Associate Dean.

ECO 606 Microeconomics for Managers *(3 hours)*

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: BUS 500 and Foster College of Business Graduate Student or Consent of Associate Dean.

FIN 622 Financial Management *(4 hours)*

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. Prerequisites: BUS 500 and Foster College of Business Graduate Student or Consent of Associate Dean.

MIS 572 Information Systems Management (*2 hours*)

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.

M L 520 Management Theory (*3 hours***)**

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

M L 615 Interpersonal Relations *(3 hours)*

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

M L 653 Operations Management (*3 hours***)**

Foundational knowledge and deeper understanding of the operations function. A broad managerial perspective emphasizes the strategic impact of the operations decisions and the interfaces between operations and the other functional areas of the organization. Operation functions in both service and manufacturing contexts will be examined, as well as investigating how operations provides sustainable competitive advantage along the dimensions of cost, quality, delivery, flexibility, and innovation. Prerequisites: BUS 500 and Foster College of Business Graduate Student or Consent of Associate Dean.

MTG 624 Marketing Decision Making *(3 hours)*

Marketing management problems, policies, and solutions. Case studies of marketing problems, research, and applications of marketing techniques to business problems. Prerequisites: BUS 500 and Foster College of Business Graduate Student or Consent of Associate Dean.

Capstone Course>

M L 628 Business Policy and Strategy Formulation *(3 hours)*

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

Other Graduate Business Elective Courses

ATG 505 Accounting Principles—Financial *(2 hours)*

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 658 Topics in Accounting *(3 hours)*

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 (*1-3 hours*)

Individual readings for qualified students, under the guidance of a member of the faculty. Repeatable to a maximum of 3 credit hours. Prerequisites: consent of instructor and director of graduate programs.

BLW 542 Legal Environment of Business (*2 hours*)

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

BLW 648 Legal Aspects of Fraud Examination (*3 hours*)

Introduces students to the various legal issues associated with both civil and criminal fraud examinations and the process of taking the fraud issues to trial.

BLW 689 Topics in Business Law (*1-3 hours*)

Conceptual treatment of topics related to business law. 1-3 hours, may be repeated up to 6 hours under different titles/topics.

BUS 610 Graduate Business Practicum (*0-3 hours*)

This course helps the business consultant develop the statistical and decision analysis skills required for evidence-based management, providing training in the application of statistical and decision analysis tools that students need for preparation of two consultant reports. The course relies on an interactive, experiential approach, performed through simulation in an on-line context.

BUS 681 Professional Development (*1-3 hours*)

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

CIS 572 Computing Management: Systems, Technology, Services (*3 hours*)

See College of Liberal Arts and Sciences portion of catalog for current description.

ECO 506 - Elements of Microeconomics (*2 hours*)

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 603 - Economic Markets: Competition and Monopoly *(1 hour)*

Introduces the learner to the basic workings of the economic market. Included are concepts addressing consumer and producer motivations in the market; surpluses and shortages; and third-party intervention into markets. Also the importance of competitive markets will be emphasized with a discussion of a lack of competition such as monopoly and the consequences for society. Prerequisite: Nursing Majors only; Graduate standing

ECO 605 - Health Care Economics & Finance *(3 hours)*

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. Prerequisite: BUS 500 and Foster College of Business Graduate Student or Consent of Associate Dean.

ECO 608 U.S. Business Cycles in the International Economy (*2 hours)*

The application of economic analysis to explain fluctuations in Gross Domestic Product (GDP), employment, and inflation in our contemporary open economy; evaluation of alternative economic stabilization policies; uses and applications for managerial decision making. Prerequisites: ECO 221; or ECO 506; MTH 115; Q M 262, 263 (or Q M 501, 502); or consent of instructor.

ECO 658 Topics in Economics (*3 hours)*

Economics-related topics which may vary each time the course is offered. Topic stated in current Schedule of Classes. Repeatable to a maximum of 6 credit hours.

ECO 660 Readings in Economics *(1-3 hours)*

Individual readings for qualified students, under the guidance of a member of the faculty. Repeatable to a maximum of 3 credit hours. Prerequisites: consent of instructor and director of graduate programs.

ENT 660 Additional Readings in Entrepreneurship *(1-3 hours)*

Individual readings for qualified students, under the guidance of a member of the faculty. 1-3 hours, may be repeated up to 6 hours under different titles/topics.

ENT 680 Entrepreneurial Creativity *(1 hour)*

Developing the tools necessary to think more creatively and generate creative entrepreneurial ideas. Students will gain knowledge of various theories of creativity and innovation and will learn how to rebuild cognitive models for creativity.

ENT 682 Entrepreneurship *(3 hours)*

This course is for MBA students who wish to explore launching a venture of their own or immersing themselves in another actual venture. Beyond the readings, a variety of exercises, live cases and other learning opportunities will enable participants to partially customize the course content to fit their needs and interests. Several specialists and

entrepreneurs will serve as distinguished guest entrepreneurs for certain sessions. This is an applied, experiential course that allows for the application of knowledge from other MBA courses. A primary focus will be on conducting a venture feasibility or other project.

ENT 689 Topics in Entrepreneurship *(1-3 hours)*

Conceptual treatment of topics important to entrepreneurship. Topics stated in current Schedule of Classes. 1-3 hours, may be repeated up to 6 hours under different titles/topics.

FIN 522 Introduction to Finance *(1-3 hours)*

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.

FIN 623 Multinational Financial Management *(3 hours)*

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 hours)*

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 hours)*

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 hours)*

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 628 Socially Responsible Financial Policy (*3 hours*)

Explores through research and discussion the implications of Corporate Social Responsibility (CSR) for the traditional value/profit motive of corporate financial policy. Readings and case studies will be used to explore CSR topics such as environmental issues; shareholder activism; fair trade; philanthropy; fair compensation; socially responsible investing and other related topics.

FIN 633 - Quantitative Methods in Finance *(3 hours)*

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

FIN 636 - Fixed Income *(3 hours)*

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

FIN 637 - Derivatives II *(3 hours)*

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

FIN 639 - Uncertainty Analysis and Measurement *(3 hours)*

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

FIN 649 - Quantitative Finance Capstone *(3 hours)*

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

FIN 655 - Practicum in Quantitative Finance *(3 hours)*

Providing solutions to complex financial problems under faculty supervision, with a financial benefit. May involve research with faculty. Up to three hours credit. Repeatable to a combined total of six credit hours. Prerequisite: Graduate Master of Science in Quantitative Methods student in good standing; approval of Director of Master of Science in Quantitative Methods program.

FIN 658 Topics in Finance *(3 hours)*

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

FIN 659 - Topics in Quantitative Finance *(3 hours)*

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

FIN 660 Readings in Finance *(1-3 hours)*

Individual readings for qualified students, under the guidance of a member of the faculty. Repeatable to a maximum of 3 credit hours. Prerequisites: consent of instructor and director of graduate programs.

I B 656 International Business Administration *(3 hours)*

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: M L 620 or MTG 624 or consent of instructor; consent of director of graduate programs.

I B 658 Topics in International Business *(1-3 hours)*

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

I B 660 Readings in International Business *(1-3 hours)*

Individual readings for qualified students, under the guidance of a member of the faculty. Repeatable to a maximum of 3 credit hours. Prerequisites: consent of instructor and director of graduate programs.

IME 555 Computer Integrated Manufacturing *(3 hours)*

See College of Engineering and Technology portion of catalog for current description.

MIS 613 Advanced Algorithms for Business

Study of advance algorithms focusing on complex data structures and nonlinear systems using chaos and fractal theory for quantitative analysis. Course implements graphical geometry to represent recursion, termination of solution progress, limits, self-similarity and moving target analysis as it applies to business based financial approximations. This course is tailored to the needs of Master of Science in Quantitative Finance (MSQF) and Master of Business Administration (MBA) students. Various programming environments will be used to program solutions. Prerequisites: Consent of Instructor or MIS 275 or CIS 275.

MIS 614 Topics in Advanced Technology *(3 hours)*

Study of advanced topics in business technology. Topics may vary each time course is offered. Topics will be stated in current schedule of classes. May be repeated for a total of 6 credit hours. Prerequisites: Consent of Instructor. .

MIS 658 Topics in Management Information Systems (*1-3 hours*)

Topics of special interest, which may vary each time the course is offered. May be repeated under different topics for a maximum of six (6) hours credit. Topic stated in current Schedule of Classes.

MIS 660 Readings in Management Information Systems *(1-3 hours)*

Individual readings in Management Information Systems for qualified students under the guidance of a member of the faculty. Repeatable to a maximum of 6 credit hours. Prerequisites: advancement to candidacy; consent of instructor and director of graduate programs.

MIS 671 Productivity Software for Managers *(3 hours)*

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.

MIS 673 Data Communications for Managers *(3 hours)*

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: MIS 672 or consent of the director of graduate programs.

MIS 675 Managing Systems Development *(3 hours)*

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: M L 672 or consent of director of graduate programs.

MIS 676 Electronic Commerce *(3 hours)*

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: M L 672 or consent of director of graduate programs.

M L 553 Operations Management *(2 hours)*

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.

M L 602 Organizational Behavior *(3 hours)*

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

M L 608 Open Book Management *(3 hours)*

Effective management practice under conditions of timely communication of frequently updated operational and financial data for problem solving by organization members. Emphasis on effective coordination of organization members' tasks with shared goals and shared knowledge of how activities relate to these goals. Course considers Open Book Management implications for job descriptions, performance measurement, selection and training, supervision, handling conflict, relationships with suppliers, innovation, and learning from failure.

M L 630 Management in Healthcare Organizations *(3 hours)*

Interdisciplinary approach to understanding management in healthcare organizations. Emphasis on the complex roles of healthcare workers and the behavioral processes of leadership, communication, motivation, group dynamics, conflict, change, organizational development. The class also considers diversity, social responsibility, and ethics. Prerequisites: Graduate standing; As specified in the Schedule of Classes.

M L 657 Executive Development *(3 hours)*

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.

M L 658 Topics in Management and Leadership *(3 hours)*

Topics of special interest, which may vary each time the course is offered. Repeatable to a maximum of 6 credit hours. Topic stated in current Schedule of Classes.

M L 659 Topics in Management *(3 hours)*

Management-related topics presented in modules or seminars. Topics may vary each time the course is offered. Topic stated in current Schedule of Classes. Repeatable to a maximum of 6 credit hours.

M L 660 Readings in Management and Leadership *(1-3 hours)*

Individual readings for qualified students, under the guidance of a member of the faculty. Repeatable to a maximum of 3 credit hours. Prerequisites: advancement to candidacy; consent of instructor and director of graduate programs.

MTG 630 Building and Maintaining Marketing Relationships *(3 hours)*

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.

MTG 640 Obtaining, Analyzing, and Applying Marketing Information *(3 hours)*

Gathering, understanding, and using marketing information, data base marketing, qualitative research, electronic research, forecasting, and computer software data analysis packages.

Choose six semester hours from the following:

MTG 644 Professional Selling and Sales Management *(3 hours)*

Students will study professional selling from the perspective of both the salesperson and the sales manager through readings, class discussion, presentations, and role plays. As a result, students will become familiar with and practiced in the professional sales process as well as further develop their understanding of several universal management functions.

MTG 654 Managing Services Marketing *(3 hours)*

In-depth analysis of the problems facing marketing managers in service and nonprofit organizations. Interdependence of marketing, operations, and human resources.

MTG 658 Topics in Marketing *(3 hours)*

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

MTG 660 Readings in Marketing *(1-3 hours)*

Individual readings for qualified students, under the guidance of a member of the faculty. Repeatable to a maximum of 3 credit hours. Prerequisites: consent of instructor and director of graduate programs.

MTG 688 Supply Chain Management *(3 hours)*

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

Q M 502 Quantitative Analysis II *(2 hours)*

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: Q M 501; or Q M 262 and MTH 115 or MTH 121.

Q M 658 Topics in Quantitative Methods *(3 hours)*

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

Q M Readings in Quantitative Methods *(1-3 hours)*

Individual readings for qualified students, under the guidance of a member of the faculty. Repeatable to a maximum of 3 credit hours. Prerequisites: consent of instructor and director of graduate programs.

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 and Design, as well as courses in communication and interactive media. A dedicated faculty of professional artist-teachers is committed to providing quality educational opportunities to students desiring post-baccalaureate study.

Gary Will,
Chair, Department of Art

Randy Carlson,
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 the production of a significant body of work. Students admitted to the program demonstrate the potential to engage existing dialogues in the visual arts and address developing technologies and discourses.

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

Admission Requirements

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

Following are requirements for admission to the program:

1. Official transcript confirming an undergraduate degree with a major in art, design, or the equivalent, and in fulfillment of requirements of Graduate Education.
2. Digital images of a cohesive body of work (20 jpeg images at 72 ppi, 1020 pixels on longest side) representing: ceramics, drawing, painting, photography, printmaking, sculpture, or visual communication production work.
3. Three letters of recommendation.
4. A statement of one's interests, abilities, and direction in art and/or design. (250 words).
5. Personal interview with graduate or studio area co-coordinator (recommended).
6. Application deadlines are August 15 (for spring entrance) and January 15 (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 (see residency requirements below). For details, consult the department chair or graduate coordinator.

Degree Requirements:

General requirements:

1. The following studio major concentrations are offered: ceramics, drawing, painting, photography, printmaking, sculpture, and visual communication.
2. A residency of 48 semester hours is required for the M.F.A. degree and 24 semester hours for the M.A. degree.
3. Upon approval student may transfer 6 hours of credit in the major concentration from another accredited institution. The graduate coordinator may recommend acceptance of hours to the Dean of Graduate Education. In rare instances, and upon written approval of the Dean of Graduate Education, more than 6 semester hours may be transferred. But in no instance will Bradley accept more than 12 hours of transfer credit toward a degree.
4. Undergraduate study may be necessary where deficiencies exist. The graduate faculty will make a collaborative decision regarding courses that fulfill specific deficiencies for the student's continuation in the program.
5. Each student is assigned a graduate advisory committee consisting of a major professor in the field and two additional graduate faculty members. The student must work closely with the Graduate Advisor and Coordinator to plan his or her program of study.
6. Students are eligible to advance to candidacy with an oral and visual presentation to the graduate faculty after completion of 9 hours but before 18 hours.
7. It is recommended that full-time graduate students take one seminar each semester until the requirement for seminar is completed. Six credits of seminar courses are required.'
8. Students must pass a written comprehensive examination and deliver an acceptable oral presentation.
9. Documentation of the student's thesis exhibition and presentation shall be the responsibility of the student and will become the property of the University.

Master of Arts in Studio Art

The Master of Arts in Studio Art requires a minimum of 33 hours of credit. The degree is offered with a required oral presentation, written comprehensive exam, and exhibit in concentrations of ceramics, drawing, printmaking, painting, sculpture, photography, or visual communications.

The required 33 hours includes at least 15 hours in a primary studio area, 6 hours in graduate studio electives, 3 hours graduate electives, 3 hours in art history and contemporary practice, 3 hours in theory and criticism, and 3 hours credit for thesis exhibition.

M.A. candidates must hold a B.F.A., B.A., B.S. or degree in art equivalent to that offered by Bradley University. Undergraduate courses to remediate deficiencies must be completed but do not apply toward the 33 semester hour graduate degree requirements.

All M.A. students undergo graduate faculty review for advancement to candidacy for M.A. degree after completion of 9 hours but before completion of 18 hours. A written artist's statement must also be approved and accompany the work at this time.

In consultation with the graduate advisor and thesis committee, M.A. candidates will write a comprehensive exam paper leading to a thesis exhibition. This paper will be based on topics agreed upon between the candidate, the graduate advisor, and graduate committee reflecting issues contained in the body of work presented for the exhibition. The course number, Art 698, is assigned to this written element for which the student earns 3 hours credit.

Course Requirements

Studio (major concentration) - 15 hrs.

Graduate studio electives - 6 hrs.

Graduate electives (must be pre-approved University graduate courses, additional graduate studios, seminars) - 3 hrs.

Seminar in art history or contemporary practices - 3 hrs.

Seminar in theory and criticism - 3 hrs.

Thesis (exhibition) - 3 hrs.

Total: 33 hrs.

Sample plan of study:

Semester 1

Studio (concentration) - 6 hrs.

Seminar - 3 hrs.

Total: 9 hrs.

Semester 2

Studio (concentration) - 6 hrs.

Graduate level elective - 3 hrs.

Seminar or pedagogy - 3 hrs.

Total: 12 hrs.

Semester 3

Studio (concentration) - 6 hrs.

Seminar - 3 hrs.

Art 698 Thesis Exhibition M.A. - 3 hrs.

Total - 12 hrs.

M.A. Total: 33 hrs.

Master of Fine Arts in Studio Art

The Master of Fine Arts in Studio Art requires a minimum of 60 hours of graduate credit (inclusive of M.A. credits). The degree is offered with thesis exhibition and oral defense with concentrations in: ceramics, drawing, printmaking, painting, sculpture, photography, and visual communication.

The required total of 60 hours (inclusive of M.A.) requires at least 18 hours in a concentration area subject, at least 9 hours in secondary studio areas selected from the fields listed above, and at least 6 hours in historical seminar courses focusing on historical and theoretical themes.

M.F.A. students must hold an M.A. in art equivalent to that offered at Bradley University. Transfer credit is decided by faculty review in consultation with Graduate Education.

M.F.A. students will earn 3 hours for a written comprehensive exam that addresses issues of technical, aesthetic, and historical concerns of their work. Culmination of the M.F.A. program will result in the production and exhibit of work and presentation of an oral defense by registering for Art 699.

Prerequisite: Successful completion of the M.A. program in a studio area - 33 hrs.

M.A. in Studio Art hours from Bradley are fully transferable to M.F.A.

For M.A. transfer credit from another university, see Bradley University Graduate Catalog.

Course Requirements

Studio concentration - 18 hrs.
Graduate studio electives - 3 hrs.
Graduate electives (must be pre-approved University graduate courses, additional graduate studios, seminars) - 3 hrs.
Thesis (exhibition) - 3 hrs.
M.F.A. program hours - 27 hrs.

M.A. Hours - 33 hrs.

Total Hours Required (Combined M.A., M.F.A.): 60 hrs.

Sample plan of study:

Semester 1:
Studio (concentration) - 3 hrs.
Studio elective - 3 hrs.
Seminar or University graduate elective - 3 hrs.
Total semester hours - 9 hrs.

Semester 2:
Studio (concentration) - 6 hrs.
Studio elective - 3 hrs.

Total semester hours - 9 hrs.

Semester 3:

Studio (concentration) - 6 hrs.

Art 699 Thesis Exhibition M.F.A. - 3 hrs.

Total semester hours - 9 hrs.

ART COURSE DESCRIPTIONS

ART 500 - Advanced Studio *(3-6 hours)*

Advanced work in printmaking, drawing, photography, ceramics, sculpture, interdisciplinary studio or painting. Repeatable to a maximum of 6 hours. Prerequisite: Graduate standing or completion of corresponding senior level course.

ART 590 - Art Seminar *(3 hours)*

Art history and theory seminar. May be repeated under different topics for a maximum of twelve credit hours. Cross-listed under 490. Prerequisite: Graduate standing or qualified undergraduate art history major.

ART 600 - Photography Studio *(1-6 hours)*

Development of advanced technical, aesthetic and conceptual concerns through experimentation within the photographic media relating to appropriate historical and contemporary references. Repeatable to a maximum of 33 hours. Prerequisite: Graduate Standing

ART 605 - Critique Seminar *(1 hour)*

Critique seminar, repeatable to a maximum of six hours. Prerequisite: Graduate standing.

ART 610 - Drawing Studio *(1-6 hours)*

Analytical and conceptual evaluation of individual style and content emphasizing technical, creative, and digital competencies on a professional level. Repeatable to a maximum of 33 hours. Prerequisite: Graduate Standing

ART 620 - Printmaking Studio *(1-6 hours)*

Technical and conceptual development with intaglio, relief, and planographic printing. Etching, engraving, wood, paper, and plastic relief printing, serigraphy and lithography. Repeatable to a maximum of 33 hours. Prerequisite: Graduate Standing

ART 630 - Ceramics Studio *(1-6 hours)*

Techniques and material used in stoneware earthenware and porcelain production. Emphasis on creative development and technical competence. Repeatable to a maximum of 33 hours. Prerequisite: Graduate Standing

ART 640 - Sculpture Studio *(1-6 hours)*

Technical and conceptual information about wood and stone carving and construction, welding and metal fabrication, foundry practice, emphasizing individual development. Repeatable to a maximum of 33 hours. Prerequisite: Graduate Standing

ART 650 - Pedagogy *(3 hours)*

Focus of this course is the teaching practice of artistic concepts, foundations of art and subject matter of technical, historical and conceptual content in art curricula. Students will be exposed to the many issues of conveying ideas,

and motivating students to make the educational experience meaningful. Practical issues of : teaching philosophy, resources, syllabi creation, assessment and course planning will be part of the discussion. Prerequisite: Graduate Standing

ART 660 - Interdisciplinary Studio *(1-6 hours)*

Advanced work in more than one concentration. May include two- or three-dimensional media; may incorporate installation work, performance, construction, and creative expression with interrelated forms of fine arts and design. Repeatable to maximum of 9 hours. Prerequisite: Graduate Standing

ART 670 - Painting Studio *(1-6 hours)*

Advanced painting in the medium and direction of the student's choice. Emphasis on creative development and technical competence. Repeatable to a maximum of 33 hours. Prerequisite: Graduate Standing

ART 680 - Special Problems *(1-6 hours)*

Problems in area of students interest as advised by instructor. Repeatable to a maximum of 18 hours. Prerequisite: Graduate Standing

ART 689 - Design Research and Collaboration *(3 hours)*

A design problem that responds to social, economic, and environmental concerns created in consultation and collaboration with a corporation, institution, or government agency under the supervision of the faculty. Repeatable to a maximum of 9 hours. Prerequisite: Graduate Standing

ART 690 - Seminar *(3 hours)*

Research and presentation of art topics ranging from history to contemporary concerns of the artist, to interdisciplinary courses consisting of an organized sequence of guest speakers. May be repeated under different topics to a maximum accumulated credit of 18 hours.

ART 694 - Visual Communications and Design Studio *(1-6 hours)*

Working with hypothetical environments and data, focuses on design development, problem-solving skills, visualization and invention. Concept, exploration emphasized while developing a personal creative vision and understanding of current graphic design practices and technology. Repeatable to a maximum of 33 hours. Prerequisite: Graduate Standing

ART 695 - Theory and Criticism *(3-6 hours)*

Research, discussion and presentation on topics in fine arts and design, including contemporary trends, philosophies, literature and history. Repeatable to a maximum of 6 semester hours Prerequisite: Graduate Standing

ART 696 - Advanced Digital Design *(3-6 hours)*

Advanced work in applied software for web design, animation, rapid prototyping, interactive design and experience design. Repeatable to 9 semester hours. Prerequisite: Graduate Standing

ART 697 - Design Management *(3-6 hours)*

Development phases of real-world project execution, including: research, problem definition, planning, cost and budget analysis, organization,and presentation of information for business, public institutions, government and the entertainment industry. Repeatable to 9 hours. Prerequisite: Graduate Standing

ART 698 - Thesis Exhibition *(0-3 hours)*

At the beginning of their second semester, studio art M.A. candidates must submit a proposal that defines their evolving work. Full time M.A. candidates register for Art 698 for the third semester. At this time candidates present thesis exhibitions for review by the graduate faculty and other invited participants. A written comprehensive exam also supplements the exhibition. Upon successful completion of all academic and exhibition requirements, students may be invited to continue toward completion of the M.F.A. requirements. Prerequisite: Candidacy for M.A.

ART 699 - Thesis Exhibition M.F.A. *(0-3 hours)*

At the beginning of the second semester, M.F.A. candidates submit a proposal that defines their evolving thesis work. During the last semester of their final year, all M.F.A. candidates will be registered for Art 699 and will present thesis exhibitions for review by graduate faculty and other invited guests. A written comprehensive exam done in consultation with the student's graduate committee supplements the exhibition. Prerequisite: M.A. and candidacy for M.F.A.

This is the official catalog for the 2023-2024 academic year. This catalog serves as a contract between a student and Bradley University. Should changes in a program of study become necessary prior to the next academic year every effort will be made to keep students advised of any such changes via the Dean of the College or Chair of the Department concerned, the Registrar's Office, u.Achieve degree audit system, and the Schedule of Classes. It is the responsibility of each student to be aware of the current program and graduation requirements for particular degree programs.

CFA COURSE DESCRIPTIONS

CFA 604 - Independent Study *(1-3 hours)*
Independent research or creative production problems not leading to a thesis. Repeatable to a maximum of 6 credit hours with permission of the graduate coordinator. Prerequisite: consent of appropriate chairperson.

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GAME DESIGN AND DEVELOPMENT

Admission Requirements

Following are requirements for admission to the program:

1. Official transcript confirming an undergraduate degree with a major in game development or the equivalent, and in fulfillment of requirements of Graduate Education. Alternatively, a major in animation, computer science, or user experience without game development would be considered with additional required study.
2. A minimum undergraduate last-60-hour grade point average of 3.0 on a 4.0 scale is needed for unconditional admission. Students with a GPA below that threshold may be admitted on a conditional basis.
3. A portfolio of game development work that demonstrates technical, design, or artistic accomplishment. Applicants should indicate which projects were collaborative efforts as well their role and contribution.
4. One or two letters of recommendation.
5. A statement of one's interests, abilities, and direction in game design & development. (250 words).
6. Application deadlines are August 15 (for spring entrance) and January 15 (for fall entrance) to be assured full consideration.

Degree Requirements

General Requirements:

1. Students must enroll in the program full-time.
2. Students may not transfer graduate credit from another institution or program.
3. Undergraduate or additional graduate study may be necessary where deficiencies exist. The graduate faculty will make a collaborative decision regarding courses that fulfill specific deficiencies for the student's continuation in the program.

Master of Science in Game Design & Development

The Master of Science in Game Design & Development requires 30 hours of credit. Students may also choose to earn a concentration in Game Programming, which requires 31 hours of credit.

M.S. candidates must hold a B.F.A., B.A., B.S. or degree in a game development equivalent to that offered by Bradley University. Undergraduate or graduate courses to remediate deficiencies must be completed but do not apply toward the semester hour graduate degree requirements.

All M.S. students undergo graduate faculty review for advancement to candidacy for M.S. degree after completion of 10 hours (1 semester).

The game programming concentration provides students with essential background, understanding, knowledge, and skills in the practice of game programming and software design and development. The concentration consists of 31 semester hours of study including 28 semester hours of required courses and 3 semester hours of elective courses as outlined below.

Game Design & Development Course Requirements

- IM 526 Practicum - 2 hrs.
- IM 580 Game Seminar - 6 hrs.
- IM 588 Game Prototyping - 6 hrs.
- IM 589 Game Production - 12 hrs.
- IM 590 Game Post-Production - 4 hrs.

Total: 30 hrs.

Game Design & Development with Game Programming Concentration Course Requirements

- CIS 556 Game Engine Programming - 3 hrs.
- IM 588 Game Prototyping - 6 hrs.
- IM 589 Game Production - 12 hrs.
- CS 590 Fundamentals of Software Engineering
    - or CIS 575 Computer Information Systems Analysis, Design and Integration - 3 hrs.
- IM 590 Game Post-Production - 4 hrs.

Elective Courses (choose one from the following):

- CIS 546 Advanced Mobile Programming - 3 hrs.
- CIS 559 Computer Game Capstone Project - 3 hrs.
- CIS 697 Advanced Topics in Computer Information Systems - 3 hrs.
- CIS 698 Directed Individual Studies in Computer Information Systems - 3 hrs.
- CS 514 Algorithms - 3 hrs.
- CS 591 Software Project Management - 3 hrs.

Total: 31 hrs.

Plan of study for Game Design & Development

Semester 1

- IM 526 Practicum - 1 hr.
- IM 580 Game Seminar - 3 hrs.
- IM 588 Game Prototyping - 6 hrs.

Total: 10 hrs.

Semester 2

- IM 526 Practicum - 1 hr.
- IM 580 Game Seminar - 3 hrs.
- IM 589 Game Production - 6 hrs.

Total: 10 hrs.

Semester 3

- IM 589 Game Production - 6 hrs.

- IM 590 Game Post-Production - 4 hrs.

Total: 10 hrs.

M.S. Total: 30 hrs.

Plan of study for Game Programming Concentration:

Semester 1

- CIS 556 Game Engine Programming - 3 hrs.
- IM 588 Game Prototyping - 6 hrs.
- CS 590 Fundamentals of Software Engineering OR CIS 575 Computer Information Systems, Analysis, Design and Integration - 3 hrs.

Total: 12 hrs.

Semester 2

- CS/CIS Elective - 3 hrs.
- IM 589 Game Production - 6 hrs.

Total: 9 hrs.

Semester 3

- IM 589 Game Production - 6 hrs.
- IM 590 Game Post-Production - 4 hrs.

Total - 10 hrs.

M.S. Total: 31 hrs.

This is the official catalog for the 2023-2024 academic year. This catalog serves as a contract between a student and Bradley University. Should changes in a program of study become necessary prior to the next academic year every effort will be made to keep students advised of any such changes via the Dean of the College or Chair of the Department concerned, the Registrar's Office, u.Achieve degree audit system, and the Schedule of Classes. It is the responsibility of each student to be aware of the current program and graduation requirements for particular degree programs.

COLLEGE OF EDUCATION AND HEALTH SCIENCES

Jessica Clark,

Dean

Jana Hunzicker,

Associate Dean for Academic Affairs

Deborah Erickson,

Associate Dean for Distance Education

Rachel Vollmer,

Associate Dean for Student Success

Cara Burritt,

Assistant Dean for Finance and Administration

Vision

Lead teaching excellence, innovation, collaboration, and scholarship in an ever-changing society on a national level.

Mission

Prepare ethical, effective leaders and life-long learners within the human service professions to promote the well-being of all humanity.

Core Values

The following core values are the philosophical underpinnings of the College's mission and vision. These values and their inherent actions are integral to the College's overall functioning.

- Development of Leadership
- Commitment to Collaboration
- Promotion of Innovation
- Commitment to Excellence
- Commitment to and Celebration of Diversity and Inclusion
- Promotion of Well-Being

The College offers a variety of graduate degree programs and certificates:

Doctoral Programs

- Doctor of Education

- Doctor of Nursing Practice
- Doctor of Occupational Therapy
- Doctor of Physical Therapy

On-Campus Graduate Degree Programs

- Clinical Mental Health Counseling
- Nutrition and Dietetics
- Occupational Therapy
- Physical Therapy
- Professional School Counseling

Online Graduate Degree Programs

- Adult Gerontology Nurse Practitioner
- Clinical Mental Health Counseling
- Education Technology
- Family Nurse Practitioner
- Higher Education Administration and Leadership
- Nonprofit Leadership
- Nursing Administration
- Occupational Therapy
- PreK-12 Education Administration and Leadership
- Professional School Counseling
- Psychiatric Mental Health Nurse Practitioner

On-Campus Post-Master Certificates

- Clinical Mental Health Counseling
- Neurocounseling
- Professional School Counseling

Online Post-Master Certificates

- Adult Gerontology
- Clinical Mental Health Counseling
- Family Nurse Practitioner
- Neurocounseling
- Nonprofit Leadership
- Nurse Practitioner
- Professional School Counseling
- Psychiatric Mental Health Nurse Practitioner

In addition to its graduate degree programs and certificates, the College of Education and Health Sciences offers a variety of undergraduate major and minor programs of study. Please see Bradley University's Undergraduate Catalog for a complete listing.

This is the official catalog for the 2023-2024 academic year. This catalog serves as a contract between a student and Bradley University. Should changes in a program of study become necessary prior to the next academic year every effort will be made to keep students advised of any such changes via the Dean of the College or Chair of the Department concerned, the Registrar's Office, u.Achieve degree audit system, and the Schedule of Classes. It is the responsibility of each student to be aware of the current program and graduation requirements for particular degree programs.

BRADLEY University

DEPARTMENT OF EDUCATION, COUNSELING, AND LEADERSHIP

Mission Statement

The Department of Education, Counseling, and Leadership educates compassionate and competent professional leaders who promote social justice and global community relationships.

Vision Statement

The Department of Education, Counseling, and Leadership creates a socially just learning community of educators, counselors, administrators and leaders who advance multicultural competence.

Admission

Admission to the 60–61-semester-hour Master of Arts in Counseling, Track I: Professional School Counseling and the 60-semester-hour Track II: Clinical Mental Health Counseling, the 36-semester hour Nonprofit Leadership, as well as the Ed.D. Higher Education Administration (HEA) program is based on a thorough review of each applicant's documents. Requirements include:

1. An undergraduate last-60-hour grade point average of 3.0 based on a 4.0 scale (for unconditional admission). Conditional admission requires an undergraduate overall cumulative grade point average of 2.75 or higher.
2. Completion of the Graduate Record Examination Aptitude Test (GRE) or the Miller Analogies Test (MAT) within five years prior to admission if Graduate Education GPA evaluation is less than a 3.0.

Master of Arts

The Master of Arts degree is conferred upon students who have completed 36 graduate semester hours in Leadership in Nonprofit Leadership, and, 60–61 graduate semester hours in Counseling. Bradley University's Counseling program courses are offered via campus-based and online pedagogies. The Council for Accreditation of Counseling and Related Educational Programs has accredited the Counseling program and its pedagogies since 1993. The online delivery offers the equivalent academic curriculum offered to campus-based students. The Higher Learning Commission has accredited the online delivery of Clinical Mental Health Counseling and Professional School Counseling since 2015.

Both campus-based and online students graduating from Bradley University's Master of Arts in Counseling program who demonstrate successful academic and professional development will be eligible to take the National Counselor Examination during their final year of study. Online counseling students must check the specific requirements for the practice of counseling in the state where they reside or where they intend to practice, as well as any applicable reciprocity rules.

All applicants must complete the prescribed application forms of the College of Education and Health Sciences and Graduate Education. A candidate who may need to furnish standardized scores may contact Educational Testing Service directly at www.ets.org to complete either the Graduate Record Examination or the Miller Analogies Test (GRE or MAT).

The applicant seeking admission to the Educational Administration, Nonprofits, or Counseling programs must obtain three letters of reference from educational field employers or college/university professors who can recommend the applicant as having strong potential for success in graduate studies and potential continued service to the education profession.

ENC 604 is strongly recommended as the first course taken by all degree candidates. The other core course that is required in all professional education programs within the College of Education and Health Sciences is ENC 606.

Students should consult with their faculty advisor for departmental program requirements prior to registering for classes.

Online Programs

Online Students. Students who reside outside of Illinois must check with the department website for credentialing information in either Professional School Counseling or Clinical Mental Health Counseling to learn about specific requirements for professional practice, as well as any applicable reciprocity rules. Variations in requirements may occur either in the student's state of residence or the state where the student may plan to practice professional counseling relative to his or her area of specialization.

Bradley University is a SARA-approved institution (SARA=State Authorization Reciprocity Agreements).

State laws governing distance education programs may limit Bradley University's ability to offer online opportunities to students. If you wish to enroll in one of our online degree programs and reside outside of Illinois, please inquire to determine if Bradley has acquired permission to offer online courses in your state.

Doctor of Education Degree

Higher Education Administration

Master of Arts Degrees

Master of Arts in Nonprofit Leadership

Master of Arts in Counseling

- Clinical Mental Health Counseling Specialization
- Professional School Counseling Specialization

Certificate Programs

Post Master Certificate Program in Neurocounseling

Administration Programs

The Department of Education, Counseling, and Leadership offers an administration program leading to the Master of Arts degree in Nonprofits. 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 culminating in a supervised internship.

Master of Arts in Nonprofit Leadership

The Nonprofit Leadership program requires 36 hours and develops specialized skills for leadership positions with a variety of nonprofits: community and social service agencies, colleges and universities, health care facilities, faith-based and charitable organizations and foundations. The program focuses on developing effective, ethical and visionary leaders building students' relationship tool kit for success in the nonprofit sector with courses in strategic planning, human resources, fundraising, advocacy and grant writing. In the capstone Field Experience students collaborate with a practicing administrator mentor through the completion of 150-200 hours of internship during which they learn to apply theory to real-world practice.

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

In addition to the GPA requirement, the screening process requires three letters of recommendation that address leadership, ethical behaviors, and professional competencies. One letter of recommendation must be written by a current supervisor. In the essay required by Graduate Education, applicants are advised to address the applicant's leadership experiences, qualifications, and ethical considerations of leadership.

College Core Required Courses - 9 hrs.

- ENC 604 Research Methodology and Applications - 3 hrs.

- ENC 605 Legal and Social Change - 3 hrs.
- ENC 606 Interpersonal Behavior and Organizational Leadership - 3 hrs.

Departmental Required Courses - 21 hrs.

- ENC 580 Financial Leadership in Nonprofit Leadership - 3 hrs.
- ENC 582 Grant Writing in Nonprofit Leadership - 3 hrs.
- ENC 583 Supervision and Employee Engagement in Nonprofit Leadership - 3 hrs.
- ENC 610 Survey in Nonprofit Leadership - 3 hrs.
- ENC 612 Institutional Planning and Evaluation - 3 hrs.
- ENC 673 Leadership Perspectives - 3 hrs.
- ENC 686 Field Experience in Administration - 3-6 hrs.

Suggested Elective Courses - 6 hours

- ENC 540 Human Growth and Development - 3 hrs.
- ENC 550 Independent Study - 1–6 hrs.
- ENC 551 Substance Abuse Counseling - 2 hrs.
- ENC 581 Topics in Nonprofit Leadership 1-3 hrs.
- ENC 582 Grant Writing in Nonprofit Leadership - 3 hrs.
- ENC 586 Counseling Diverse Populations - 3 hrs.
- ENC 620 Introduction to Counseling: Professional Orientation - 2 hrs.
- ENC 651 Clinical Mental Health Counseling - 3 hrs.
- ENC 662 Community Relations - 1 hr.
- ENC 681 Seminar in Educational Administration - 1–6 hrs.
- ENC 682 Seminar in Nonprofit Leadership - 1–6 hrs.
- ENC 699 Thesis - 0–6 hrs.
- MLS 633 Issues in Higher Education - 3 hrs.

Master of Arts in Counseling

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

The Master of Arts in Counseling program is designed to prepare students for positions as counselors in a variety of settings. The counselor education and supervision 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 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 Process and Retention Policy to assist in determining the suitability of an individual for a career in counseling as well as monitoring progress through the program. A detailed description of the Screening Process and Retention Policy is available in the Counseling Handbook. Continuance in the program is reviewed when a student fails to demonstrate appropriate professional behaviors, or when other circumstances occur which would make a counseling degree candidate ineligible to be certified or licensed as a professional counselor.

Areas of specialization are offered in Clinical Mental Health Counseling and Professional School Counseling. 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.

The program prepares the students for the exam for certification as a National Certified Counselor. It also prepares students who are Illinois residents for Illinois Professional Educator License as a Professional School Counselor. The counseling concentrations are CACREP accredited as Professional School Counseling and Clinical Mental Health Counseling. The Higher Learning Commission has authorized online delivery of these counseling tracks' academic curricula. In addition, courses of continuing professional education are offered to practicing counselors who wish to increase competencies to meet emerging needs of the profession.

Master of Arts in Counseling/Clinical Mental Health Counseling Concentration

The Master of Arts in Counseling with academic concentration in Clinical Mental Health Counseling requires completion of 60 semester hours of graduate work. This graduate program is designed to meet the certification requirements in Clinical Mental Health Counseling toward licensure in the state of Illinois, as well as the competency Standards for this professional track as determined by the Council for Accreditation of Counseling and Related Educational Programs. In 2015, the Higher Learning Commission authorized the online delivery of this accredited counseling curriculum.

Bradley University's counseling program courses are offered via campus-based and online pedagogies. The online delivery offers the equivalent academic curriculum offered to campus-based students. Bradley University is a regionally accredited institution of higher education in the U.S.

Both campus-based and online students graduating from Bradley University's Master of Arts in Counseling program will receive the same academic degree and transcripts. Both campus-based and online students who demonstrate successful academic and professional development will be eligible to sit for the National Counselor Examination during their final year of study. Online counseling students must check the specific requirements for the practice of counseling in the state where they reside or where they intend to practice, as well as any applicable reciprocity rules.

The program consists of a graduate core of six semester hours and a program core of 45 semester hours of study required of all candidates. In addition, students take an additional 9 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. Students must also pass each of the eight core areas of the Counselor Preparation Comprehensive Exam to advance toward graduation. All students should consult with their academic advisors to determine specific courses that will meet their professional goals.

Graduate Core - 3 hrs.

- ENC 604 Research Methodology and Applications - 3 hrs.

Program Core - 48 hrs.

- ENC 540 Human Growth and Development Across the Lifespan- 3 hrs.
- ENC 551 Prevention and Treatment of Substance-Related and Addictive Disorders - 3 hrs.
- ENC 586 Counseling Diverse Populations - 3 hrs.
- ENC 620 Professional Counseling Orientation and Ethical Practice - 3 hrs.
- ENC 621 Career and Life Planning Across the Lifespan - 3 hrs.
- ENC 623 Pre-Practicum in Counseling - 3 hrs.
- ENC 624 Theories and Techniques of Counseling - 3 hrs.
- ENC 625 Principles of Group Counseling - 3 hrs.
- ENC 630 Diagnosis and Treatment of Mental Disorders - 3 hrs.
- ENC 631 Trauma, Crisis, and Grief Counseling - 3 hr.
- ENC 640 Clinical Supervision - 2 hrs.
- ENC 641 Assessment in Counseling - 3 hrs.
- ENC 654 Consultation in Helping Professions - 1 hr.
- ENC 661 Intimate Partner Relationships and Family Counseling - 3 hrs.
- ENC 690 Practicum - 3 hrs.
- ENC 691 Internship I - 3 hrs.
- ENC 692 Internship II - 3 hrs.

Clinical Mental Health Counseling Specialty Area Course Work - 9 hrs.

Required - 6 hrs.

- ENC 607 Neurocounseling: Bridging Brain and Behavior - 3 hrs.
- ENC 651 Clinical Mental Health Counseling - 3 hrs.

Electives - 3 hrs.

- ENC 608 Brain-Based Counseling Interventions - 3 hrs.

- ENC 585 Understanding Schools: A Primer for Non-Teachers - 1 hr.
- ENC 669 Education Law, Advocacy, and Leadership - 3 hrs.
- ENC 699 Thesis – 1-3 hrs.

Total Program Hours: 60

Graduate Certificate Program in Clinical Mental Health

The Graduate Certificate Program in Clinical Mental Health objectives are to:

1. Advance needed skills in the mental health profession.
2. Provide needed course requirements for the Certified Clinical Mental Health Counseling (CCMHC) certification through the National Board of Certified Counselors.
3. Allow graduate counselors from a 48-51 semester hour master degree program to further their educational studies.

Admissions

All candidates for this certificate will preferably hold a master degree in counseling from a CACREP approved program. Any other type of credentialing must be assessed by the Department of Education, Counseling, and Leadership.

Requirements - 12 hrs.

- ENC 530 Loss and Grief Counseling - 1 hr.
- ENC 622 Counseling: Ethics and the Law - 1 hr.
- ENC 630 Diagnosis and Treatment of Mental Disorders - 3 hrs.
- ENC 631 Crisis Intervention Counseling - 1 hr.
- ENC 632 Psychopharmacology in Counseling - 1 hr.
- ENC 640 Clinical Supervision in Counseling - 2 hrs.
- ENC Electives - 3 hrs.

Application and Screening Interview Procedures for Graduate Certificate Program in Clinical Mental Health for master graduates of the Department of Education, Counseling, and Leadership and Master of Arts in Counseling Program

1. Prospective candidates for certification must formally apply to the Graduate Certificate Program in Clinical Mental Health. Application materials for each candidate shall consist of:
   a. Bradley Certification Application Form and all standard graduate application forms from Graduate Education.
   b. Two letters of recommendation.
   c. Copies of all official transcripts including master's degree.
2. Upon receipt of all admission materials, the Counseling faculty will deliberate over admission of applicants. After faculty decisions, applicants will be notified through a letter. If there is no consensus for acceptance, applicants will be sent a letter outlining faculty concerns and requiring the applicant to interview with Counseling faculty to address identified concerns. Following the screening interview applicants will be notified by letter of final disposition of their application.
3. Upon successful application and screening, applicants must complete a plan of study based upon a transcript review and any identified deficit coursework and experience.

In all cases, submission of materials does not guarantee acceptance into any program offered by the Department of Education, Counseling, and Leadership, nor does such submission guarantee interim certification approval and signature by appropriate college officers.

Application and Screening Interview Procedures for Graduate Certificate Program in Clinical Mental Health for master's graduates from other CACREP accredited programs

1. Prospective candidates for certification must formally apply to the Graduate Certificate Program in Clinical Mental Health. Application materials for each candidate shall consist of:
   a. Formal application to the Certification Program, including Bradley Certification Application form and all standard graduate application forms from Graduate Education.
   b. Two letters of recommendation.
   c. Official copies of transcripts.
   d. Copies of course syllabi and/or course catalog descriptions as determined by Counseling faculty.
2. Students in this category may be asked to submit a video recording of counseling skills as part of their admission packet.

3. Upon receipt of admission materials all applicants are required to complete a screening interview. The screening interview shall be the same as the interview currently required for applicants to the Department of Education, Counseling, and Leadership Master of Arts in Counseling program. Following the screening interview applicants will be notified by letter of final disposition of their application.

4. Upon successful application and screening, applicants must complete a plan of study based upon a transcript review and identified deficit coursework and experience.

In all cases, submission of materials does not guarantee acceptance into any program offered by the Department of Education, Counseling, and Leadership, nor does such submission guarantee interim certification approval and signature by appropriate college officers.

Application and Screening Interview Procedures for Graduate Certificate Program in Clinical Mental Health for master's graduates from non-CACREP accredited programs or post-master's graduates in related fields, e.g., social work or psychology

1. Prospective candidates for certification must formally apply to the Graduate Certificate Program in Clinical Mental Health. Application materials for each candidate shall consist of:
   a. Formal application to the Certification Program, including Bradley Certification Application form and all standard graduate application forms from Graduate Education.
   b. Two letters of recommendation.
   c. Bradley-equivalent GRE/MAT, GPA.
2. Students in this category may be asked to submit a video recording of counseling skills as part of their admission packet.
3. Upon receipt of admission materials all applicants are required to complete a screening interview. The screening interview shall be the same as the interview currently required for applicants to the Department of Education, Counseling, and Leadership Master of Arts in Counseling program. Following the screening interview applicants will be notified by letter of final disposition of their application.
4. Upon successful application and screening, applicants must complete a plan of study based upon a transcript review and any identified deficit coursework and experience. This plan of study must include ENC 620 Introduction to Counseling: Professional Orientation and ENC 622 Counseling: Ethics and the Law.

In all cases, submission of materials does not guarantee acceptance into any program offered by the Department of Education, Counseling, and Leadership, nor does such submission guarantee interim certification approval and signature by appropriate college officers.

Transcript Evaluation to Pursue Counseling Certification

Certification Only in Counseling

Individuals wishing to pursue clinical mental health counseling certification will pay a transcript analysis and assessment fee of $50. If the student enrolls as a graduate student in either Bradley University's Master of Arts in Counseling program or as a certification only student, this fee will be applied towards tuition. For further information, please contact the Associate Dean and Director of the Department of Education, Counseling, and Leadership.

Master of Arts in Counseling/ Professional School Counseling

The Master of Arts in Counseling program with academic concentration in Professional School Counseling meets the requirements for the Illinois Professional Educator License as a School Counselor/Educator License. In response to school counseling certification rule changes (23 IL Admin Code § 25.225) approved by the Illinois State Board of Education on June 1, 2004, the Bradley University Professional School Counseling program in the Department of Education, Counseling, and Leadership has established the following courses of study for degree-seeking and post-master certification-only students in the Professional School Counseling concentration. (In all cases, submission of materials does not guarantee acceptance into any program offered by the Department of Education, Counseling, and Leadership.) These courses meet the competency standards for this professional track as determined by the Council for Accreditation of Counseling and Related Educational Programs since 1993. In 2015, the Higher Learning Commission authorized the online delivery of this accredited counseling curriculum.

Bradley University's Counseling program courses are offered via campus-based and online pedagogies. The online delivery offers the equivalent academic curriculum offered to campus-based students. Bradley University is a regionally accredited institution of higher education in the U.S.

Both campus-based and online students graduating from Bradley University's Master of Arts in Counseling program will receive the same academic degree and transcripts. Both campus-based and online students will be eligible to take the National Counselor Examination toward certification and licensure upon completion of their program of studies. This credential is transferable across the U.S. Online graduates must check the specific requirements for the practice of counseling in the state where they reside or where they intend to practice, as well as any applicable reciprocity rules.

Degree-seeking students who have Illinois teacher certification/license

Degree-seeking students enrolled in the Master of Arts in Counseling with concentration in Professional School Counseling, who hold or are qualified to hold a teacher certificate/license in Illinois, must meet the Department of Education, Counseling, and Leadership master's degree requirements while completing 60 hours of graduate study as follows:

Graduate Core Credits - 3 hrs.

- ENC 604 Research Methodology and Applications - 3 hrs.

Program Core - 48 hrs.

- ENC 620 Professional Counseling Orientation and Ethical Practice - 3 hrs.
- ENC 586 Counseling Diverse Populations - 3 hrs.
- ENC 540 Human Growth and Development Across the Lifespan - 3 hrs.
- ENC 621 Career and Life Planning Across Lifespan - 3 hrs.
- ENC 551 Prevention and Treatment of Substance-Related and Addictive Disorders - 3 hrs.
- ENC 623 Pre-Practicum in Counseling - 3 hrs.
- ENC 624 Theories and Techniques of Counseling - 3 hrs.
- ENC 630 Diagnosis and Treatment of Mental Disorders - 3 hrs.
- ENC 625 Principles of Group Counseling - 3 hrs.
- ENC 631 Trauma, Crisis and Grief Counseling - 3 hr.
- ENC 640 Clinical Supervision in Counseling - 2 hrs.
- ENC 641 Assessment in Counseling - 3 hrs.
- ENC 654 Consultation in Helping Professions - 1 hrs.
- ENC 661 Intimate Partner Relationships and Family Counseling - 3 hrs.
- ENC 690 Practicum - 3 hrs.
- ENC 691 Internship I (in School Counseling) - 3 hr.
- ENC 692 Internship II (in School Counseling) - 3 hrs.

Professional School Counseling Specialty Area Course Work - 9 hrs. teachers; 10 hrs. non-teachers.

- ENC 653 Professional School Counseling K–8 - 3 hrs.
- ENC 655 Professional School Counseling in Secondary Schools - 3 hrs.
- Electives - 3 hrs.

Required Electives for Non-teachers - 4 hrs.

- ENC 585 Understanding Schools: A Primer for Non-Teachers - 2 hrs.
- ENC 669 Special Education Law - 2 hrs.

Total Semester hours: 60 (teachers); 61 (non-teachers)

Degree-seeking students who do not have Illinois teacher certification

Degree-seeking students enrolled in the Master of Arts in Counseling with a concentration in Professional School Counseling who are not certified teachers in Illinois also must meet the Department of Education, Counseling, and Leadership master's degree requirements while completing 61 hours of graduate study. The program of study is the same as listed for students holding certification/licensure, with the exception that, in lieu of electives, students must take or have taken course work addressing additional requirements by the Illinois Board of Education [ISBE, K-12] (IL. Amin. Code § 25.225.d.2.A.-D.). These four areas and the ENC courses addressing them are:

- the structure, organization and operation of the educational system with an emphasis on P-12 schools; ENC 585 Understanding Schools: A Primer for Non-Teachers (2 credit hours) and ENC 653/655 Professional School Counseling (3 credit hours)
- the growth and development of children and youth and their implications for counseling in schools; ENC 540 Human Growth and Development (3 credit hours) and ENC 653/655 Professional School Counseling (3 credit hours)

- the diversity of Illinois students and the laws and programs that have been designed to meet their unique needs; ENC 669 Special Education Law (2 credit hours)
- effective management of the classroom and the learning process; ENC 585 Understanding Schools: A Primer for Non-Teachers (2 credit hours), ENC 653/655 Professional School Counseling, and ENC 690, 691, 692 Practicum and Internship

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

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Post-Masters Certification in School Counseling

Post-Masters Certification in School Counseling refers to students who have a master's degree in counseling or a related field who wish to obtain a professional educator license as a school counselor in Illinois. Applicants who hold a master's degree in any related field other than school counseling (e.g., other counseling specialty, social work, or psychology) are required to complete the equivalent of all requirements of an approved school counseling preparation program. Pursuant to 23 IL Admin Code § 25.225.h., the Department of Education, Counseling, and Leadership will review the applicant's educational background to determine any deficits as identified by standards set forth at 23 IL Adm. Code § 23.110 or other applicable requirements of 23 IL Admin Code § 25.225.

Application and Screening Interview Procedures for Post-Masters Certification in Professional School Counseling for master's graduates of the Department of Leadership in Education, Counseling, and Leadership Master of Arts in Counseling Program

1. Prospective candidates for certification must formally apply to the Post-Masters Certification in School Counseling. Application materials for each candidate shall consist of:
    a. Bradley Certification Application Form and all standard graduate application forms from Graduate Education.
    b. Two letters of recommendation.
    c. Copies of all official transcripts including master's degree.
    d. Deficit coursework and experience list as identified in a transcript review using Department of ENC Professional School Counseling course requirements and 23 IL Admin Code § 23.110 and § 25.225.
2. Upon receipt of all admission materials, the Counseling faculty will deliberate over admission of applicants. After faculty make decisions, applicants will be notified through a letter. If there is no consensus for acceptance, applicants will be sent a letter outlining faculty concerns and requiring the applicant to interview with Counseling faculty to address identified concerns. Following the screening interview applicants will be notified by letter of final disposition of their application.
3. Upon successful application and screening, applicants must complete a plan of study based upon a transcript review and identified deficit coursework and experience.
4. In all cases, submission of materials does not guarantee acceptance into any program offered by the Department of Education, Counseling, and Leadership, nor does such submission guarantee interim certification approval and signature by appropriate college officers.

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

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

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

1. Prospective candidates for certification must formally apply to the Post-Masters Certification in School Counseling. Application materials for each candidate shall consist of:
   a. Formal application to the Certification Program, including Bradley Certification Application form and all standard graduate application forms from Graduate Education.
   b. Two letters of recommendation
   c. Bradley-equivalent GRE/MAT, GPA
   d. Deficit coursework and experience list as identified in a transcript review using Department of Education, Counseling, and Leadership School Counseling course requirements and 23 IL Admin Code § 23.110 and § 25.225.
2. Students in this category may be asked to submit a video recording of counseling skills as part of their admission packet.
3. Upon receipt of admission materials all applicants are required to complete a screening interview. The screening interview shall be the same as the interview currently required for applicants to the Department of Education, Counseling, and Leadership Master of Arts in Counseling program. Following the screening interview applicants will be notified by letter of final disposition of their application.
4. Upon successful application and screening, applicants must complete a plan of study based upon a transcript review and identified deficit coursework and experience. This plan of study must include ENC 620 Introduction to Counseling: Professional Orientation and ENC 622 Counseling: Ethics and the Law.

In all cases, submission of materials does not guarantee acceptance into any program offered by the Department of Education, Counseling, and Leadership, nor does such submission guarantee interim certification approval and signature by appropriate college officers.

Policy for Dated Coursework

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

Interim Certification as School Counselor Intern and Employment

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

Transfer Credits

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

Retention Procedures for Certification-Only Students

Certification-only students are held to the same retention criteria and procedures as degree-seeking students. Students must complete a plan of study with an advisor that must be approved by the advisor and Associate Dean and Director of the Department of Education, Counseling, and Leadership.

In all cases, submission of materials does not guarantee acceptance into any program offered by the Department of Education, Counseling, and Leadership.

Transcript Evaluation to Pursue Counseling Certification

Certification Only in Counseling

Individuals wishing to pursue a professional educator license as a school counselor in Illinois will pay a transcript analysis and assessment fee of $50. If the student enrolls as a graduate student in either Bradley University's Counseling graduate degree program or as a certification only student, this fee will be applied towards tuition. For further information, please contact the Associate Dean and Director of the Department of Education, Counseling, and Leadership.

Post Master Certificate Program in Neurocounseling

The Post Master Certificate Program in Neurocounseling is available to both campus-based and online students.

Neurocounseling is an emerging area in the field of counseling that bridges brain and behavior into the traditional counseling framework. The program will provide students with a curriculum that is drawn from courses currently accredited by CACREP (Council for the Accreditation of Counseling and Related Educational Programs) at Bradley University.

Program Objectives

This program offers post master's-related education and professional development to improve the practice of mental health practitioners from diverse disciplines (e.g., social work, psychology, pastoral counseling, rehabilitation counseling, psychiatric nursing, etc.). Graduates can earn the needed courses to meet the 60-credit hour educational requirement for many state licenses.

Admission

Admission requirements vary between licensed mental health professionals and counseling program graduates seeking additional hours:

1. *Admission requirements for licensed mental health professionals (e.g., social work, psychology, pastoral counseling, rehabilitation counseling, psychiatric nursing, etc.):*

   a. Completed graduate education post-master's certificate application form
   b. Two letters of recommendation
   c. Copy of license and, if necessary, evidence of completion of a master's degree program.

Admission will be determined by the Counseling program faculty.

2. *Requirements for Counseling Master graduates seeking additional hours for licensure:*

   a. Completed graduate education post-master's certificate application form
   b. Two letters of recommendation,
   c. Successful completion of the counseling program screening interview
   d. Individuals holding a master's degree from a non-CACREP accredited program, or who do not meet other admission requirements, may be required to submit official scores from the GRE General Test or the Miller Analogies Test (MAT)
   e. In all cases, submission of materials does not guarantee acceptance into any program offered by the Department of Education, Counseling, and Leadership, nor does such submission guarantee interim certification approval and signature by appropriate college officers.

Curriculum

Required Courses:

ENC 607 Neurocounseling: Bridging Brain and Behavior	3
ENC 608 Brain Based Counseling Interventions	2
ENC 632 Psychopharmacology in Counseling	1
ENC 630 Diagnosis and Treatment of Mental Disorders	3
ENC 530 Loss and Grief Counseling	1
ENC 631 Crisis Intervention Counseling	1
ENC 640 Clinical Supervision in Counseling	2

| Total: | 13 |

In most cases, students can reasonably expect to complete the program in one calendar year. Students carrying a part-time course load have a maximum of five years to complete the program.

Doctor of Education in Higher Education Administration (HEA)

The Post-Master's Ed.D. in Higher Education is available on an online basis only.

Bradley University's Doctor of Education (Ed.D.) program in Higher Education Administration is created upon the values of Lydia Moss Bradley, founder of Bradley University. The core values of entrepreneurship, social justice, and philanthropy are woven throughout the program's curriculum in alignment with Mrs. Bradley's life work. The program is designed for working professionals who have a broad and diverse background in education or a related field and seek a career or career advancement in higher education.

Program Objectives

The objective of the Ed.D. program is to provide graduate students with interactive, research-based leadership development experiences within authentic educational contexts that are connected to student learning, quality instruction, and organizational effectiveness in higher education.

Admission Requirements

1. Minimum degree required: master's degree
2. Resume or CV
3. Three letters of recommendation (from supervisors to assess leadership skills)
4. Personal statement essay detailing why you are seeking admission to the Ed.D. program
5. Official transcripts from your prior institutions
6. Submission of a portfolio that presents evidence of your achievements during your administrative experience in the specific areas required (rubric provided online)

Ed.D. Program Requirements

To satisfy graduation requirements for the Ed.D., students must successfully complete 16 courses at 3 credits each for a total of 48 credits. Students can complete the program in seven semesters by following a prescribed Program of Study. The Program of Study varies based on which term students begin the program (e.g., spring, summer or fall).

The Scholarly Research Project and the internship are capstones for the Ed.D. program. The action research courses that support the Scholarly Research Project begin in the first semester, while the internship takes place near the end of the program, in the sixth and seventh semesters. Students are responsible for finding their own internship site and site supervisor.

Program Core Courses - 12 hrs.

ENC 708 Boards and Educational Governance- 3 hrs.

ENC 709 Ethical and Political Foundations of Educational Policy—3 hrs.

ENC 710 Learning in an Era of Technology- 3 hrs.

ENC 711 National Trends in Assessment, Data Analysis, and Accountability- 3 hrs.

Required Courses – 36 hrs.
Scholarly Research Courses

ENC 703 Action Research 1: Introduction to Action Research- 3 hrs.

ENC 704 Action Research 2: Action Research Design and Ethics- 3 hrs.

ENC 705 Action Research 3: Data Collection in Action Research- 3 hrs.

ENC 706 Action Research 4: Data Analysis and Reporting in Action Research- 3 hrs.

ENC 707 Scholarly Writing and Presentation in Action Research- 3 hrs.

Higher Education Administration Courses

ENC 717 Leadership in Higher Education and Community College- 3 hrs.

ENC 718 Administration of Online Programs in Higher Education and Community Colleges- 3 hrs.

ENC 719 Student and Academic Affairs- 3 hrs.

ENC 720 The Contemporary Learner- 3 hrs.

ENC 721 Financial Affairs in Higher Education- 3 hrs.

Internship Courses

ENC 722 Internship 1- 3 hrs.

ENC 723 Internship 2- 3 hrs.

EDUCATION, COUNSELING AND LEADERSHIP COURSE DESCRIPTIONS

ENC 510 - Statistical Procedures *(3 hours)*

Principles and procedures for statistical interpretation of data. Study of measures and control tendency, variability, correlation, and introductory predictive and inferential statistics.

ENC 530 - Loss and Grief Counseling *(1 hour)*

Offers students the opportunity to understand the beliefs about loss and grief, blockers, and interventions. Students will identify the different types of losses. Loss and grief seem to underlie all life experience, and culture and gender influence how we grieve and mourn. Integration of neurocounseling into the grief process is discussed.

ENC 540 - Human Growth and Development Across the Lifespan *(3 hours)*

Studies that provide an understanding of the nature and needs of persons at all developmental levels and in multicultural contexts, including common theories, neurobiological behavior, models of resiliency, exceptional abilities, factors that affect normal and abnormal behavior, and wellness over the life span. Experiential activities emphasize personal contact and on-site work with people of different ages and stages of physical and psychological development.

ENC 550 - Independent Study *(1-6 hours)*

Independent study in a selected area related to educational goals.

ENC 551 - Prevention and Treatment of Substance-Related and Addictive Disorders *(3 hours)*

Theories and etiology of substance-related and addictive disorders, including strategies for prevention, intervention, and treatment in relation to the individual and the impact on the community.

ENC 584 - Topics in Human Development Counseling *(1-6 hours)*

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.

ENC 585 - Understanding Schools: A Primer for Non-Teachers *(2 hours)*

Intended for non-teachers seeking state licensure as a school counselor. This course is a combined survey and field observation experience. Students will learn about the structure, organization, and operation of the US educational system, P-12. Using current neuroscience and neurocounseling research on teaching and learning students are introduced to concepts in curriculum and instruction, to include reading methods and reading in the content areas. Prerequisite:

ENC 586 - Counseling Diverse Populations *(3 hours)*

Students are introduced to value systems and diverse groups and the use of theories and models of diversity in establishing effective helping relationships.

ENC 604 - Research Methodology and Applications *(3 hours)*

Research methods, statistical analysis, needs assessment, and program evaluation utilized in counseling, education, and human service administration. The use of research to inform evidence-based and ethical practice in decision making is emphasized.

ENC 606 - Interpersonal Behavior & Organizational Leadership *(3 hours)*

Theory and practice related to interpersonal communication, organizational behavior, and leadership are addressed. Students analyze the neuroanatomy of leadership on four levels: self-awareness, self-management, social awareness, and relationship Leadership skills are developed in the context of mentoring, conflict resolution, and work group dynamics.

ENC 607 - Neurocounseling: Bridging Brain and Behavior *(3 hours)*

This introductory neurocounseling course will teach students how physiology and the brain affect behavior and emotions and thus impact counseling. Concise self-regulation methods and strategies for integration into counseling will be offered.

ENC 608 - Brain-Based Counseling Interventions *(3 hours)*

Students will become skilled in neurocounseling interventions supported by current research findings. Through experiential activities, discussion, research, and reflections, students will interactively explore interventions designed to support healthy brain plasticity and bridge counseling skills to the brain's physiology and function. Interventions such as mindfulness, meditation, neurotherapy, neurofeedback, and other strategies for self-regulation will be demonstrated, discussed, and practiced. Prerequisite:

ENC 611 - Instructional Leadership *(3 hours)*

Identification of current instructional changes and requirements in PK-12 schools and consideration of leadership and necessary knowledge to create effective school learning communities.

ENC 620 - Professional Counseling Orientation and Ethical Practice *(3 hours)*

A survey course introducing the counseling profession as the promotion of human development, including an overview of the historical and philosophical development of the field, a survey of relevant skills, client population and settings, and ethical practice. Required of all students preparing to become leaders in the profession of counseling.

ENC 621 - Career and Life Planning Across the Life Span *(3 hours)*

Basic counseling skills for career planning, exploration, and decision-making across the life span. Theories of career development, assessment in career counseling, career guidance programs for primary, secondary, and higher education, and career issues for special populations are addressed. Opportunity for practical experience in interviewing, assessment, and career information gathering and distribution is provided.

ENC 622 - Counseling: Ethics and the Law *(1 hour)*

The study of ethical standards of professional organizations and credentialing bodies, and application of ethical and legal considerations in professional counseling. Ethical decision-making and critical thinking are emphasized and practiced.

ENC 623 - Pre-Practicum in Counseling *(3 hours)*

Instruction, demonstration, practice, and evaluation in basic interviewing and counseling skills. Emphasis on practice and skill development. Prerequisite: ENC 620 or concurrent enrollment.

ENC 624 - Theories and Techniques of Counseling *(3 hours)*

The study of counseling theories and models that facilitate client conceptualization, selection of appropriate interventions, and development of a personal model of counseling. Prerequisite: ENC 623 or concurrent enrollment or consent of instructor.

ENC 625 - Principles of Group Counseling *(3 hours)*

Group theory and experiential understanding of group counseling dynamics including group purpose, practices, methods, and group leader facilitation skills for a multicultural society will be taught. Students will receive supervised practice and experience in group counseling as a leader and as a participant. Prerequisite: ENC 623 and 624; or consent of instructor

ENC 630 - Diagnosis and Treatment of Mental Disorders *(3 hours)*

Etiology, diagnostic process, and nomenclature, clinical and psychopharmacological treatment, referral, and prevention of mental and emotional disorders. Prerequisite: ENC 624.

ENC 631 - Trauma, Crisis and Grief Counseling *(3 hours)*

Effects of crises, disasters, and other trauma-causing events on persons of all ages: principles of crisis intervention, emergency management systems, psychological first aid, grief and loss, and trauma-informed care.

ENC 632 - Psychopharmacology in Counseling *(1 hour)*

Basic classifications, indications, and contraindications of commonly prescribed psychopharmacological medications. Prerequisite: ENC 630.

ENC 640 - Clinical Supervision *(2 hours)*

Offers students the opportunity to better understand the supervisory process. Evidenced-based supervision (EBS), different models of supervision and a common factors approach are emphasized. Integration of neurocounseling into supervision is discussed. Prerequisite: ENC 623 and ENC 624

ENC 641 - Assessment in Counseling *(3 hours)*

Individual and group approaches to assessment and evaluation in a multicultural society including historical perspectives, basic concepts of standardized and non-standardized testing, and other assessment techniques. Statistical concepts and social/cultural factors related to assessment and evaluation.

ENC 651 - Clinical Mental Health Counseling *(3 hours)*

Principles of clinical mental health counseling including prevention, intervention, consultation, and advocacy as well as operation of programs and networks that promote mental health in a multicultural society. Prerequisite: ENC 620 or consent of instructor.

ENC 653 - Professional School Counseling K-8 *(2 hours)*

Students will learn about the history and development of elementary and middle school counseling programs, including their administration, financing, and accountability. Using current neuroscience and neurocounseling

research on teaching and learning, students will be introduced to reading methods; reading in the content areas; cognitive, experiential, and social-emotional learning skills; methods for group and individual counseling; and methods for counseling students with disabilities and students from diverse populations. Prerequisite: ENC 620 or consent of instructor.

ENC 654 - Consultation in the Helping Professions *(1 hour)*

A conceptual understanding of effective consultation and its relevance to the helping professional. Demonstration of knowledge and skills necessary to deliver effective consultative services in schools and clinical mental health agencies. Prerequisite: ENC 620 and foundational concentration course (ENC 651, 653, or 655) or consent of instructor.

ENC 655 - Professional School Counseling in Secondary Schools *(3 hours)*

Secondary professional school counseling programs, including administration, finance, and accountability; cognitive and experiential skills. History and development of school counseling; secondary school education and counseling programs (similarities and differences); group and individual counseling; the counselor's role in school testing; career planning and exploration. Practical experiences. Prerequisite: ENC 620 or consent of instructor.

ENC 661 - Intimate Partner Relationships and Family Counseling *(3 hours)*

Theories and techniques of intimate partner relationships and family counseling. Emphasis is on working with couples (intimate partners), families, and children to promote human development, including the role of the family counselor within the network of school and clinical mental health settings. Prerequisite: ENC 651 or 653 or 655.

ENC 662 - Community Relations *(1 hour)*

Developing effective community relations through a four-step process involving two-way communication and researching, planning, communicating, and evaluating.

ENC 663 - Counseling and the Dynamics of Aging *(1 hour)*

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.

ENC 669 - Education Law, Advocacy and Leadership *(2 hours)*

The course reviews all disability categories related to special education services and includes appropriate staffing and instructional methods for students with exceptionalities. Course content provides information on state and federal requirements relative to students where English is not their primary language and the statutory provisions of the Individuals with Disabilities Education Act (IDEA), Section 504 of the Rehabilitation Act of 1973 and the American with Disabilities Act (ADA). An examination of stakeholders and participants in special education services, identification/evaluation of services, appropriate instructional methods, least restrictive environment, related services, and free and appropriate education. Prerequisite:

ENC 670 - Human Resource Management *(3 hours)*

Survey approaches to supervision and evaluation in K-12 education based upon legislative requirements; examination of the relationship between practices, professional development, and the improvement of instruction;

development skills of classroom observation and conferencing; and development of skills in hiring and induction of personnel.

ENC 676 - The School Principalship *(3 hours)*

Various components, background, and training for an entry-level elementary or secondary school principal. Prerequisite: ENC 673 or consent of instructor.

ENC 677 - Educational Finance *(2 hours)*

Theory and practice; historical and present sources of revenue and allocation of funds.

ENC 678 - United States Public School Law *(3 hours)*

Legal aspects of education. Constitutional, statute, and administrative laws related to public and private education.

ENC 681 - Seminar in Educational Administration *(0-6 hours)*

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.

ENC 682 - Seminar in Nonprofit Leadership *(1-6 hours)*

Special problems, area, or current issues in nonprofit leadership.

ENC 684 - Seminar in Professional Counseling *(0-6 hours)*

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 one to a maximum of 6 hours.

ENC 690 - Practicum *(3 hours)*

Supervised application of theory and development of counseling skills with clients representing the ethnic and demographic diversity of the community. Prerequisite: ENC 625; consent of instructor.

ENC 691 - Internship I *(1-3 hours)*

Comprehensive supervised experience that reflects a professional counselor's work appropriate to the students' designated program area. Prerequisite: ENC 690; consent of instructor

ENC 692 - Internship II *(1-6 hours)*

Comprehensive supervised experience that reflects a professional counselor's work appropriate to the students' designated program area. Prerequisite: ENC 690; consent of instructor

ENC 699 - Thesis *(0-6 hours)*

Advanced educational or social science research under the guidance of a departmental faculty member. Student will design, develop, and present the research proposal, then conduct the approved research study consistent with the Committee for Use of Human Subjects in Research (CUHSR) regulations and university ethical guidelines. Minimum of 3.0 and maximum of 6.0 hours may be taken and applied toward Master's degree.

ENC 700 - Independent Study *(1-6 hours)*

This customized course offers independent study in a selected area commensurate with student academic and/or career goals. Prerequisite: Graduate student standing and consent of department chair

ENC 702 - Current Topics and Issues in Education *(1 hour)*

This inquiry-based course deeply explores a current topic or issue in P-20 education from a range of perspectives through intentionally-selected readings, class discussions, and written reflections. Special emphasis on analysis, evaluation, synthesis, and application. May be repeated up to a maximum of 5 credit hours. Prerequisite: Graduate student standing and consent of department chair

ENC 703 - Action Research 1: Introduction to Action Research *(3 hours)*

Introduction to action research and how it can be used to inform practice. Focus on the action research process as an approach to scholarly research, selecting and developing a research topic, ethical considerations in scholarly research, and designing a scholarly research project. Prerequisite:

ENC 704 - Action Research 2: Action Research Design and Ethics *(3 hours)*

Guides students through the processes of scholarly research design and human subject research approval. Focus on research methods; ethical standards for scholarly investigation; developing a theoretical framework; writing a literature review; and writing a research proposal. Prerequisite: ENC 703

ENC 705 - Action Research 3:Data Collection in Action Research *(3 hours)*

Guides students through the data collection stage of an ongoing scholarly research project. Focus on methods of data collection and analysis; data management; and initial data analysis. Prerequisite: ENC 704 and Bradley-approved CUHSR proposal

ENC 706 - Action Research 4: Data Analysis and Reporting in Action Research *(3 hours)*

Guides students through the data analysis and reporting stages of an ongoing scholarly research project. Focus on methods of data analysis; framing a scholarly discussion; drawing conclusions; and presenting scholarly work. Prerequisite: ENC 705

ENC 707 - Action Research 5:Scholarly Writing and Presentation in Action Research *(3 hours)*

Guides students through the process of reporting an ongoing scholarly research project using a five-chapter format and reporting scholarly research to various audiences. Focus on standards for scholarly writing; presenting scholarly work; and application of action research findings. Prerequisite: ENC 706

ENC 708 - Boards and Educational Governance *(3 hours)*

Examines board policies and working relationships between higher education institutions and the larger community. Focus on standards, accountability, the impact of pressure groups, and leadership and policy development within the framework of the educational institution and the political environment. Prerequisite:

ENC 709 - Ethical & Political Foundations of Educational Policy *(3 hours)*

Critical analysis of higher education policy from social justice perspectives. Focus on application of effective political leadership practices to ensure equity for all students. Prerequisite:

ENC 710 - Learning in an Era of Technology *(3 hours)*

Critical analysis of effective uses of technology in higher education learning environments. Focus on systemic structures to ensure effective, accessible learning for all students. Prerequisite:

ENC 711 - National Trends in Assessment, Data Analysis & Accountability *(3 hours)*

Examines current trends in assessment and effective leadership practices in higher education to ensure accountability and inform continuous improvement. Prerequisite:

ENC 717 - Organization and Leadership in Higher Education *(3 hours)*

Unique missions, traditions, people, and agendas shape the decision-making structure(s) of higher education organizations. The framework of organizational lenses, and leadership are explored, and applied to the multi-varied audiences of the higher education institution.

ENC 718 - The Community College *(3 hours)*

The community college is essential to the higher education landscape. Community college history, academic and community mission, and economic development capabilities are explored as essential tenants of the greater postsecondary environment. Prerequisite:

ENC 719 - Student & Academic Affairs *(3 hours)*

Systematic inquiry into ethical issues faced by contemporary educational leaders related to student and academic affairs and effective resolution strategies. Prerequisite:

ENC 720 - The Contemporary Learner *(3 hours)*

A study of the latest research and trends surrounding the adult, post-secondary learner. Course explores innovative approaches in education where leaders develop the capacity to engage communities and educators to imagine, build and sustain vibrant learning ecosystems that allow all students to thrive. Prerequisite:

ENC 721 - Financial Affairs in Higher Education *(3 hours)*

Systematic inquiry into political, economic, and social issues faced by contemporary educational leaders related to the financing of higher education. Prerequisite:

ENC 722 - Internship 1 *(3 hours)*

The first of a two-semester internship in higher education administration. Focus on examining and addressing present and future leadership challenges in an authentic educational setting. Prerequisite: ENC 706

ENC 723 - Internship 2 *(3 hours)*

The second of a two-semester internship in higher education administration. Focus on examining and addressing present and future leadership challenges in an authentic educational setting. Prerequisite: ENC 722

ENC 724 - Scholarly Writing Workshop *(1 hour)*

This application-based course provides structured writing time, collaborative conferencing, and instructor/peer feedback related to the content, organization, formatting, and scholarship of original drafts of student writing. Special emphasis on strategies for successful completion of degree-related course assignments, including papers, reports, chapters, and proposals. May be repeated up to a maximum of 5 credit hours. Prerequisite: Graduate student standing and consent of department chair

ENC 731 - The Superintendency and District-Level Administration *(3 hours)*

In this course the Ed.D. Candidate will examine and understand the role of the PreK-12 district administrator in the 21st Century with an emphasis on the role of the superintendent.

ENC 732 - Legal & Ethical Issues Facing the Superintendency *(3 hours)*

This course will examine key legal and ethical issues that govern daily and long-range decision for district-level educational leaders. The focus is on understanding state and federal laws and emphasizes key legal concepts. Students will examine trends in law and ethics to positively influence educational institutions.

ENC 733 - Strategic Decision-Making and Supervision *(3 hours)*

Decision-making is a constant for district-level administrators in the PreK-12 setting. This course focuses on various methods of researching, evaluating, planning, and communicating positive decisions for a PreK-12 school district while at the same time discussing supervision of district-level processes, programs, and entities.

ENC 734 - Educational Finance *(3 hours)*

This course examines the methods of generating, managing, and distributing a school district's financial resources to realize educational goals in an ethical, practical and efficient manner to promote growth, change, and accountability.

ENC 735 - Personnel, Unions, and Collective Bargaining *(3 hours)*

Successful employee relationships and district-level decisions affecting human resources in the local school district will be explored, especially those who fall under a collective bargaining agreement.

ENC 741 - Applied Educational Media *(3 hours)*

This course will cover pre-production (assessing need and resources, planning, and preparing), production (development and implementation), and post-production (assessment/evaluating technology and media application for effectiveness in an instructional environment). Understanding how to use technology to increase the likelihood of reaching educational goals is a primary outcome of this course. This course will be performance driven with students being required to create instructional materials. The latest and most relevant ISTE (International Society for Technology in Education) standards will be covered in order to serve as a framework for application. Prerequisite: ENC 708, ENC 709, ENC 710, and ENC 711 or consent of program director

ENC 742 - Instructional Design *(3 hours)*

This course will cover instructional design (ID) models and theories. Students will complete an entire instructional design sequence on an instructional unit (patterned after a selected ID model). Students will assess needs to identify instructional goals, analyze learners and contexts, conduct instructional analysis, draft performance/learning/instructional objectives, develop instruments for proper assessment, craft instructional strategy, create and/or select materials for instruction, plan and conduct formative evaluation of instruction, engage in revision of instruction, and design and conduct summative evaluation. Prerequisite: ENC 708, ENC 709, ENC 710, and ENC 711 or consent of program director

ENC 743 - Learning Theory and Instructional Strategies *(3 hours)*

This course will dive deeply into theories of human learning, motivation, and instruction in order to inform teaching and learning to maximize the likelihood that educational practice will be effective, efficient, and engaging. Students will link theory to practice in order to maximize effective instructional design as well as curriculum development. Many of the course objectives will align to the most recent and/or most relevant AECT (Association of Educational and Communication Technology) Standards. Prerequisite: ENC 708, ENC 709, ENC 710, and ENC 711 or consent of program director

ENC 744 - Digital Learning: Online, Distance, and Distributed Instru Instruction *(3 hours)*

This course concentrates on the theories informing best practices for online and distributed teaching and learning. Various distance and distributed learning models will be examined and students will have an opportunity to craft lessons and develop curriculum, not just for online learning, but in contexts where technology can enhance or even maximize the learning experience. Students will examine differentiated instruction in online/blended environments and explore best practices for meeting the needs of learners across various contexts and under diverse circumstances in technology-based environments. Prerequisite: ENC 708, ENC 709, ENC 710, and ENC 711 or consent of program director

ENC 745 - Digitally Driven Educational Practice *(3 hours)*

The world is now mediated by digital technology, and a large percentage of that technology is cloud driven and/or virtual augmentation of reality. Managing educational environments, administering educational opportunities, and assessing educational outcomes are all informed by a web-mediated world where new literacies and new consumer competencies and practices serve to catalyze learner expectations. This class will look at frameworks for assessing, applying and prognosticating technological application for administration of education as well as forecasting for curriculum and instruction evolution and progression. Prerequisite: ENC 708, ENC 709, ENC 710, and ENC 711 or consent of program director

ENC 748 - Advanced Instructional Design *(3 hours)*

Students will dive deeper into instructional design practices with an emphasis on design informed by technology. Students will also acquire the ability to translate learning theories into educational practice and to evaluate and diagnose problems in various instructional design situations and contexts based on real world challenges. The primary goal of this course is to prepare students for future professional practice through direct participation in the processes of instructional design. Working with a subject matter expert as well as a web-based technology platform will enhance the likelihood the learning goal is attained during the semester. Prerequisite: ENC 742

ENC 749 - Educational Technology Portfolio *(3 hours)*

This course will be a laboratory for enhancing digital design and development skills resulting in a web-based portfolio worthy project. Students will gain hands-on experiences building real-world and professionally mediated educational technology projects. The intent of this course is twofold: First, the experience gained in this course will enhance student's understanding of instructional design theory and educational technology support by requiring students practice technology-driven instructional design and development. The second intention of this course is to provide each student with a relevant, real-world educational technology artifact. Prerequisite: ENC 748

BRADLEY University

ANNUAL TITLE II REPORT CARD

2012–2013 Title II Report Card

Teacher Education Mission

The mission of Teacher Education at Bradley University is to prepare teachers who will be effective leaders, advocates, and life-long learners. We believe that teaching and learning are dynamic, interactive, life-long processes based on empowering interactions among learners.

Teacher Preparation Programs

Bradley University offers 18 baccalaureate programs leading to state teacher certification and graduate-level certification programs in Educational Administration and School Counseling.

Student Characteristics

Most undergraduates (95 percent) are of traditional college age; 95 percent attend full-time, and 87.4 percent are Illinois residents. Seventeen percent of all students are minority students. The average ACT score for the fall 2012 freshmen was 25.7. Undergraduate enrollment is 4,873. Graduate enrollment is 578. Total enrollment is 5,451.

Admissions Requirements

Admission to Teacher Education Program: Candidates must have earned a minimum grade point average of 2.5 overall, 2.5 in education courses, and a 2.5 in their content major or concentration. Candidates must have earned grades of not less than a C in COM 103, ENG 101, and a mathematics course that meets university general education requirements. They must have completed a prescribed group of education courses for each major with the appropriate GPA and no Ds, passed the Illinois Certification Test of Academic Proficiency, demonstrated appropriate pre-professional behaviors and dispositions, been cleared on a check of criminal history, and received a satisfactory vote of the faculty.

Admission to Student Teaching: Candidates must have maintained a minimum grade point average of 2.5 overall, 2.5 in education courses, and a 2.5 in their content major or concentration. They must have been advanced to candidacy, passed the Illinois Certification Test in their content area, and been cleared on the State Police fingerprint check.

Accreditation

Bradley University is accredited by the North Central Association of Colleges and Schools; the College of Education and Health Sciences is accredited by the National Council for the Accreditation of Teacher Education (NCATE)/Council for the Accreditation of Educator Preparation (CAEP); and all teacher preparation programs are approved by the Illinois State Board of Education. Individual teacher preparation programs are accredited by one of the following: National Association for the Education of Young Children (NAEYC), Association for Childhood Education International (ACEI), National Council for the Social Studies (NCSS), National Science Teachers Association (NSTA), National Council of Teachers of English (NCTE), National Council of Teachers of Mathematics (NCTM), and Council for Exceptional Children (CEC).

Best Practices

- Practicum experiences in the schools begin the first year and continue each year of the program, increasing in responsibility.
- Each candidate will have clinical experiences in the full range of his or her certification and in a diverse setting.
- The university has Professional Development School partners at each level from early childhood through high school.

Notable Features and Accomplishments

- The Department of Teacher Education received notification in August 2012 that all teacher education programs were nationally recognized by their respective Specialized Professional Associations (SPAs).

- The Department of Teacher Education received University Senate approval for 15 course modifications and 5 program modifications to finish the alignment of the curriculum of each of the respective programs in the Department of Teacher Education to the newly revised *Illinois Professional Teaching Standards.*

- The new History/Social Studies education program, which received national recognition from the National Council for the Social Studies Standards, was implemented in fall 2012.

- Dr. Cecile Arquette was awarded a Fulbright to teach English to pre-service English teachers at Pontificia Universidad Católica de Valparaíso, Chile, from March–July 2014.

- Dr. Dean Cantu, chairperson, began a two-year term as president of the Illinois Association for Teacher Education in Private Colleges (IATEPC).

- Dr. Jana Hunzicker received the 2012–2013 College of Education and Health Sciences' Joan L. Sattler Endowed Faculty Award for Excellence in Teaching.

- Dr. Sherrie Pardieck received the 2012–2013 College of Education and Health Sciences' Center for Research and Service Annual Faculty Award for Service.

- The Department of Teacher Education was notified in February 2013 by the Illinois State Board of Education that the Illinois State Educator Preparation and Licensure Board (SEPLB) approved all teacher education programs at Bradley University, as follows: Early Childhood Education; Early Childhood/Elementary Education; Elementary Education; English Language Arts; Family and Consumer Sciences; Foreign Language–German, French and Spanish; Learning Behavior Specialist (LBS I); Mathematics; Music; Science–Biology, Chemistry, and Physics; Social Science–History; and Visual Arts.

Illinois Certification Testing System
Annual Institution Report

Program Year 2012–2013 Bradley University

Number of Program Completers: 127

Test Field/Category		Number Tested	Number Passed	Pass Rate	Statewide Pass Rate
Basic Skills					
Basic Skills Test		127	127	100%	100%
Professional Knowledge/Pedagogy					
101	Apt: Birth To Grade 3	9	--	--	100%
102	Apt: Grades K-9	54	54	100%	100%
103	Apt: Grades 6-12	31	31	100%	100%
104	Apt: Grades K-12	35	35	100%	100%
Academic Content Areas					
105	Science: Biology	2	--	--	100%
106	Science: Chemistry	2	--	--	99%
107	Early Childhood Education	9	--	--	99%
110	Elementary/Middle Grades	69	69	100%	100%
111	English Language Arts	6	--	--	100%
114	Social Science: History	11	11	100%	100%
115	Mathematics	6	--	--	100%
135	Foreign Language: Spanish	1	--	--	99%
143	Music	9	--	--	100%
145	Visual Arts	2	--	--	100%
163	Special Ed. General Curriculum	22	22	100%	100%
Other Content Areas					
172	Family And Consumer Sciences	5	--	--	100%
Teaching Special Populations					
155	Learning Behavior Specialist I	22	22	100%	100%

Pass rates are not shown for tests taken by fewer than 10 students.

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DOCTOR OF EDUCATION

Doctor of Education in Educational Leadership

Bradley University's post-master's Doctor of Education (Ed.D.) program in Educational Leadership is offered as a fully online, distance education program. Students may select from three concentrations: Higher Education Administration and Leadership, Pre-K-12 Education Administration and Leadership, or Educational Technology. The program's mission is to prepare working professionals who have a broad and diverse background in education and/or leadership for a career or career advancement in pre-K-12 to higher education administration.

Program Goal and Objectives

The overall goal of the Ed.D. program in Educational Leadership is to engage graduate students in interactive, research-based leadership development experiences within authentic educational contexts connected to student learning, quality instruction, and organizational effectiveness to prepare them for leadership positions in pre-K-12 and higher education settings. Five program objectives guide the teaching and learning within each course and throughout the program:

1. Core Courses: To provide foundational knowledge, skills, and theory related to boards and educational governance, ethical and political foundations, technology, and trends in assessment and data-drive decision-making in pre-K-12 to higher education.
2. Concetration Courses: To provide concentration-specific advanced knowledge, skills, and theory related to pre-K-12 higher education and educational technology leadership
3. Scholarly Research Project: To immerse students in the process of planning, conducting, writing, and presenting a comprehensive empirical action research project related to current trends and issues in pre-K-12 to higher education.
4. Internship or educational technology/media project: To immerse students in the application of knowledge, theory, and skills by serving in a leadership capacity within an authentic pre-K-12 to higher education setting under the supervision of a currently practicing education administrator.
5. Social Justice: To engage students in self-reflection and critical examination of leadership practices and policies related to equity and opportunity in pre-K-12 to higher education.

Overall Ed.D. in Educational Leadership Program Requirements

To satisfy graduation requirements for the Ed.D. in Educational Leadership, students must successfully complete 16 courses at 3 s.h. each for a total of 48 s.h. Students can complete the program in as few as eight semesters by following a prescribed Plan of Study. The cohort-based Plan of Study varies based on students' term of entry (e.g., spring, summer or fall). A five-chapter Scholarly Research Project and a two-semester internship or educational technology/media project comprise the program's capstone experiences. The action research courses that support completion of the Scholarly Research Project begin in the first year; the internship/project takes place in the final two semesters of the program. Students are responsible for finding their own internship site and site supervisor.

Ed.D. in Educational Leadership Program Transfer Credit Policy

- Per Bradley University's Graduate Education Policy, students enrolling in the Ed.D. in Educational Leadership program may transfer in up to 9 semesters hours of doctoral-level graduate credit from an accredited program.
- Students must make a request for transfer credit at the time they apply to the program.
- For transfer credit to be considered, students must submit a copy of the syllabus for the course they wish to transfer in. The syllabus must be from the semester during which they completed the course. The syllabi will be uploaded to SLATE to be considered as part of the application materials.
- The request for transfer credit will be reviewed by the appropriate Ed.D. program faculty member. Students will receive notification of approved transfer credit in their admission letter.
- Transfer credit will not be accepted after the first day of a student's first term in the Ed.D. in Educational Leadership program.
- Transfer credit will not be accepted for the action research courses (ENC 703, 704, 705, 706, 707) or for the internship courses (ENC 722, 723).

Ed.D. in Educational Leadership Program

Coursework Requirements

All concentrations in the program require the following coursework:

Scholarly Research Courses (15 hours)

- ENC 703 Action Research 1: Introduction to Action Research - (3 credit hours)
- ENC 704 Action Research 2: Action Research Design and Ethics - (3 credit hours)
- ENC 705 Action Research 3: Data Collection in Action Research - (3 credit hours)
- ENC 706 Action Research 4: Data Analysis and Reporting in Action Research - (3 credit hours)
- ENC 707 Action Research 5: Scholarly Writing and Presentation in Action Research - (3 credit hours)

Core Courses (12 hours)

- ENC 708 Boards and Educational Governance - (3 credit hours)
- ENC 709 Ethical and Political Foundations of Educational Policy - (3 credit hours)
- ENC 710 Learning in an Era of Technology - (3 credit hours)
- ENC 711 National Trends in Assessment, Data Analysis, and Accountability - (3 credit hours)

Each concentration requires an additional 21 credit hours. See each concentration below to see the additional required coursework.

Educational Technology (EdTech)

Concentration Overview

The Educational Leadership Ed.D program is a 48 semester hour program with 21 semester hours focused in coursework concentrating on educational technology. The program prepares students to meet the many needs of the digitally mediated, technology infused, and ever changing learning environments of today and into the future. Concentration courses cover topics including instructional design, online and distributed teaching and learning, instructional and learning theory, and applied educational media. Students will also complete 12 semester hours of core educational leadership courses and 15 semester hours of action research that culminates in an action research project. The Ed Tech concentration culminates with an educational technology portfolio development course that

allows students to demonstrate practical application of educational technology having developed a digital portfolio large scale educational technology/media project. Students will be prepared to serve in such leadership positions, as teachers, administrators, or instructional designers or developers in a variety of fields, including education, industry, the military, or non-profit sector.

Concentration Outcomes

Graduates will be future ready, forward thinking and will model the following characteristics as demonstrative of meeting the learning goals of the Ed Tech concentration:

1. Master creating, using and applying, assessing, and managing theoretical and practical applications of educational technologies and processes that solve and circumvent educational problems.
2. Develop a growth mindset marked by a willingness to embrace reflective practice that informs the execution of effective implementation of educational technologies and processes based on best-practices for the delivery of contemporary content
3. Develop and hone a heart for instruction marked by a willingness and ability to act as mediator of learning in the various roles of creator, user, evaluator, and manager of effective learning environments and technologies.
4. Master the practice of designing, developing, implementing, and evaluating learning environments undergirded and/or mediated entirely by technology within a supportive community of practice both pragmatically and theoretically.
5. Develop and hone an intrepidness grounded in pragmatism and efficiency and demonstrated by a willingness to explore, evaluate, synthesize, and apply methods of inquiry to use technology and best practices to enhance learning and improve performance

Concentration Admission Criteria

In addition to Bradley University Graduate Admission Requirements, the EdTech concentration requires the following:

- Minimum degree required: earned master's degree
- Master's level GPA of 3.00 or higher; no more than one final grade of C
- Current and complete resume or CV
- Written responses to interview prompts (typed)
- Two letters of recommendation from professors or professional colleagues

Program of Study

Ed.D. students completing the program in the EdTech Concentration will experience the Core Courses (12 credit hours) and Scholarly Research Courses (15 credit hours) listed above. In addition they will complete the following 21 hours of coursework:

Concentration Courses (21 hours)

- ENC 741 Applied Educational Media- (3 credit hours)
- ENC 742 Instructional Design- (3 credit hours)
- ENC 743 Learning Theory and Instructional Strategies- (3 credit hours)
- ENC 744 Digital Learning: Online, Distance, and Distributed Instruction- (3 credit hours)
- ENC 745 Digitally Driven Educational Practice- (3 credit hours)
- ENC 748 Advanced Instructional Design- (3 credit hours)
- ENC 749 Educational Technology Portfolio- (3 credit hours)

Higher Education Administration and Leadership (HEAL)

Concentration Overview

This 48-semester hour program concentration will engage Ed.D. students in an authentic exploration of administrative inquiry, focused on the higher education organization through a range of leadership, academic and student life issues. This interactive, fully online program concentration incorporates quality instruction, practice-based learning and application, and scholarly action research methods to provide a pragmatic approach required of a higher education professional within today's changing landscape.

Concentration Outcomes

Ed.D. students graduating from the HEAL Concentration will have the opportunity to investigate and obtain the following knowledge, understandings, and actions required to be successful in:

1. The exploration of organizational governance associated by institutional type, purpose, audience, and core values.
2. The ideation and creation of reimagined learning ecosystems in multiple aspects of academic and student life.
3. The recognition of the unique barriers, responsibilities and purpose of the community college, as it compares and contrasts the broader academic environment.
4. The recognition of political, social, and economic influences as it applies to the financing of higher education.
5. The recognition of, and resolution toward ethical challenges and solutions facing all members of the campus community.

Concentration Admission Criteria

In addition to Bradley University Graduate Admission Requirements, the HEAL concentration requires the following:

- Minimum degree required: earned master's degree
- Master's level GPA of 3.00 or higher, no more than one final grade of C
- Current and complete resume or CV
- Four written responses to essay prompts
- Two letters of recommendation from professors or professional colleagues

Other Requirements

Recommended: A background of 3-5 years of professional administrative experience within a higher education environment.

Program of Study

Ed.D. students completing the program in the HEAL Concentration will complete the Core Courses (12 credit hours) and Scholarly Research Courses (15 credit hours) listed above. In addition, they will complete the following 21 hours of coursework:

Concentration Courses (15 hours)

- ENC 717 Organization and Leadership in Higher Education (3 credit hours)
- ENC 718 The Community College (3 credit hours)
- ENC 719 Student and Academic Affairs (3 credit hours)
- ENC 720 The Contemporary Learner (3 credit hours)
- ENC 721 Financial Affairs in Higher Education (3 credit hours)

Internship (6 hours)

- ENC 722 Internship 1 (3 credit hours)
- ENC 723 Internship 2 (3 credit hours)

PreK-12 Education Administration and Leadership (PEAL)

Concentration Overview

This 48-semester hour program concentration will engage Ed.D. students in interactive, research-based leadership development experiences within authentic and practical educational administrative contexts connected to student learning, quality instruction, and organizational effectiveness to prepare them for district leadership positions in PreK-12 educational settings.

Concentration Outcomes

Ed.D. students graduating from the PEAL Concentration will have had the opportunity to investigate and obtain the following knowledge, understandings, and actions required to be successful in:

1. the requirements, roles, and responsibilities of the district superintendent and other district-level leadership in the context of the local culture of the community in which they serve.
2. the standards by which a superintendent ethically governs a school district through federal and state law, district policies, and administrative procedures.
3. methods of making effective short-term and long-range decisions for the local school district and the actions processes required to transform those plans into action.
4. standards of responsible district-level supervision, oversight, and management of divisions and departments within a school district (i.e. curriculum and instruction, special student populations, faculty and staff, finances, facilities and maintenance, athletics, etc.).
5. sound management of a school district's financial resources to realize the district's educational goals in an ethical, practical, and efficient manner to promote growth and positive change.
6. the building of successful employee relationships and the district-level decisions affecting the organization and deployment of human resources with a special emphasis on employees who fall under a collective bargaining agreement.
7. coursework necessary for the application of the candidate for superintendent licensure within the State of Illinois as a first step towards superintendent licensure/certification in each student's home state (any additional individual state requirements will be the responsibility of the student).

Concentration Admission Criteria

In addition to Bradley University Graduate Admission Requirements, the PEAL concentration requires the following:

Requirements for admission (from 23 Illinois Administrative Code 33, 2022):

- Have at least two years in a public school district or nonpublic school recognized in accordance with 23 Illinois Administrative Code 425 on one of the following endorsements to the professional educator license or, for out-of-state candidates, the requisite experience while holding a certification or license that is comparable to the respective Illinois credential: General Administrative, Principal, Director of Special Education, or Chief School Business Official.
- A minimum of three letters of recommendation which includes at least one recommendation from a direct educational administrator who has supervised the candidate in a school or district administration role.
- Each applicant shall interview with no fewer than two of the program's full-time faculty members and shall, at a minimum, discuss the contents of the applicant's portfolio and complete a written response to a scenario presented by the interviewers.

Other Requirements

Ed.D. students enrolling in the PEAL Concentration must also:

- provide an updated copy of their CV or resume.
- a learning experience based on technology and online learning (adequate hardware, Google applications, Microsoft Office Suite, Canvas, etc.)

Program of Study

Ed.D. students completing the program in the PEAL Concentration will complete the Core Courses (12 credit hours) and Scholarly Research Courses (15 credit hours) listed above. In addition, they will complete the following 21 hours of coursework:

PEAL Concentration Courses (15 hours)

- ENC 731 The Superintendency and District-Level Administration (3 credit hours)
- ENC 732 Legal and Ethical Issues of the Superintendency (3 credit hours)
- ENC 733 Strategic Decision-Making and Supervision (3 credit hours)
- ENC 734 Educational Finance (3 credit hours)
- ENC 735 Personnel, Unions, and Collective Bargaining (3 credit hours)

Internship (6 hours)

- ENC 722 Internship 1 (3 credit hours)
- ENC 723 Internship 2 (3 credit hours)

Overall Graduation Requirements for Doctor of Education, Educational Leadership: 48 credit hours

Total Required Concentration Hours: 21 credit hours

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MASTER OF ARTS IN NONPROFIT LEADERSHIP

The Nonprofit Leadership program requires 36 hours and develops specialized skills for leadership positions with a variety of nonprofits: community and social service agencies, colleges and universities, health care facilities, faith-based and charitable organizations and foundations. The program focuses on developing effective, ethical and visionary leaders building students' relationship tool kit for success in the nonprofit sector with courses in strategic planning, human resources, fundraising, advocacy and grant writing. In the capstone Field Experience students collaborate with a practicing administrator mentor through the completion of 150-200 hours of internship during which they learn to apply theory to real-world practice.

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

In addition to the GPA requirement, the screening process requires three letters of recommendation that address leadership, ethical behaviors, and professional competencies. One letter of recommendation must be written by a current supervisor. In the essay required by Graduate Education, applicants are advised to address the applicant's leadership experiences, qualifications, and ethical considerations of leadership.

Required Courses - 36 hours

- NPL 580 Financial Leadership in Nonprofit Organizations - 3 hrs
- NPL 581 Topics in Nonprofit Leadership 3 hrs (taken twice)
- NPL 582 Grant Writing in Nonprofit Leadership - 3 hrs
- NPL 583 Supervision and Employee Engagement in Nonprofit Leadership - 3 hrs
- NPL 605 Legal and Social Change - 3 hrs
- NPL 606 Digital Media Applications for the Nonprofit Leader - 3 hrs
- NPL 610 Survey in Nonprofit Leadership - 3 hrs
- NPL 612 Strategic Planning in Nonprofit Organizations - 3 hrs
- NPL 673 Effective Leadership in Nonprofit Organizations - 3 hrs
- NPL 686 Field Experience in Administration - 3 hrs
- FCS 541 Research Methods – 3 hrs

Post-Baccalaureate Certificate in Nonprofit Leadership

The Nonprofit Leadership Certificate is designed for professionals looking to enhance their leadership skills in the nonprofit industry at any level. This online, 12-semester hour certificate provides students with the tools to develop comprehensive knowledge, appropriate skills, innovative problem solving, and a strong core of personal values to

empower them in becoming outstanding leaders in a variety of roles. Faculty encourage reflective practice and focus on leading organizational change. Numerous electives allow you to tailor the coursework to fit your experiences and interests.

Graduates of the certificate program may apply to the Master of Arts in Nonprofit Leadership program. Coursework completed during the certificate with a grade of B or better can be applied toward the 36-semester hour master's degree program.

Required Courses (12 hrs)

NPL 610 Survey in Nonprofit Leadership - 3 hrs

Elective Courses - choose 9 hrs

FCS 541 Research Methods - 3 hrs.

NPL 580 Financial Leadership in Nonprofit Leadership - 3 hrs.

NPL 581 Topics in Nonprofit Leadership - 3 hrs.

NPL 582 Grant Writing in Nonprofit Leadership 3 hrs.

NPL 583 Supervision and Employee Engagement in Nonprofit Leadership - 3 hrs.

NPL 605 Legal and Social Change - 3 hrs.

NPL 606 Digital Media Applications for the Nonprofit Leader - 3 hrs.

NPL 612 Institutional Planning and Evaluation - 3 hrs.

NPL 673 Effective Leadership in Nonprofit Organizations - 3 hrs.

MASTERS IN NONPROFIT LEADERSHIP COURSES

NPL 580 - Financial Leadership in Nonprofit Organizations *(3 hours)*

Provides students with a comprehensive overview of financial management related to nonprofit 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.

NPL 581 - Topics in Nonprofit Leadership *(1-3 hours)*

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.

NPL 582 - Grant Writing in Nonprofit Leadership *(3 hours)*

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.

NPL 583 - Supervision and Employee Engagement in Nonprofit Leadership *(3 hours)*

Focuses on the recruitment, selection, and engagement of employees within the context of mission in nonprofit organizations.

NPL 605 - Legal and Social Change *(3 hours)*

Analysis of the effects of legal and social change on communities and nonprofit organizations; focus on selected issues of legal and social change with diverse populations.

NPL 606 - Digital Media Applications for the Nonprofit Leader *(3 hours)*

This course focuses on the ever-evolving digital media tools, technologies, applications, and best practices utilized in nonprofit leadership. The design and development of innovative digital strategies using the latest digital tools to achieve specific organizational goals will be emphasized.

NPL 610 - Survey in Nonprofit Leadership *(3 hours)*

An introduction to the roles and responsibilities of administrators in nonprofit organizations. Trends in nonprofit 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.

NPL 612 - Strategic Planning in Nonprofit Organizations *(3 hours)*

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

NPL 673 - Effective Leadership in Nonprofit Organizations *(3 hours)*

Concepts of leadership, organizational theory, and decision making presented from multiple perspectives; focus on the practice of educational administration and nonprofit leadership.

NPL 686 - Field Experiences in Administration *(0-6 hours)*

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: Departmental consent

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MASTER OF SCIENCE IN NUTRITION AND DIETETICS

Graduate Program Director

Teresa Drake

The Department of Family and Consumer Sciences offers a Master of Science in Nutrition and Dietetics degree. The program integrates didactic coursework with supervised experiential learning in a competency-based curriculum that is designed to prepare nutrition and dietetics practitioners for future practice. Successful completion of the program will lead to a master's degree and students will be eligible to sit for the national registration exam for dietitians.

Mission

The mission of the Bradley University Master of Science in Nutrition and Dietetics Program is to prepare competent, entry-level registered dietitian nutritionists who advocate for equitable and sustainable nutritional health among families and communities.

The Master of Science in Nutrition and Dietetics program has received Accreditation status from the Accreditation Council for Education in Nutrition and Dietetics (ACEND): 120 South Riverside Plaza, Suite 2190, Chicago, IL 60606-6995 (1-800-877-1600).

Program Goals

1. Graduates are prepared for careers as registered dietitian nutritionists.
2. Graduates are prepared to advocate for equitable and sustainable nutritional health among families and communities.

Admission Requirements

Admission into the Master of Science in Nutrition and Dietetics Program requires a GPA of 3.0, although conditional admission is an option in some cases. Admissions will also be based upon the program application forms, which includes a personal statement, official transcripts, and letters of recommendation. Please see the program website for details.

- Must have a bachelor's degree
- Prerequisites (Must be completed prior to admission OR with conditional admission where students must complete coursework at Bradley prior to starting program):
    - Anatomy and Physiology (minimum of 6 hours)
    - Advanced metabolism (must include both macro and micronutrients)
    - Servsafe certification (or equivalent)
    - Medical terminology (or ability to pass exam prior to admission)

Admission to the program is contingent upon admission by Graduate and International Admissions. . Admissions criteria for Graduate Education can be viewed on Bradley University's Graduate Catalog.

Graduation Requirements

Students must successfully complete all 36 hours of graduate coursework and supervised experiential learning requirements including documentation of attainment of competencies through evaluations and assignments, as well as a comprehensive case study assessment.

Total hours: 36 hours

The Master of Science in Nutrition and Dietetics program requires a total of 36 credit hours. This includes 30 credit hours of required courses and 6 credit hours of electives.

Required Courses (36 hours)

- FCS 501 Community Nutrition Intervention - 3 hrs
- FCS 502 Foundations of Dietetic Practice - 1 hr
- FCS 505 Food Development - 1 hr
- FCS 507 Nutrition Assessment and Counseling - 3 hrs
- FCS 508 Advanced Food Service Management - 3 hrs
- FCS 511 Advanced Medical Nutrition Therapy I - 3 hrs
- FCS 512 Advanced Medical Nutrition Therapy II - 3 hrs
- FCS 514 Food Security and Food Systems - 3
- FCS 541 Research Methods - 3 hrs
- FCS 695 Supervised Experiential Learning in Food Service - 2 hrs
- FCS 696 Supervised Experiential Learning in Community Dietetics - 2 hrs
- FCS 697 Supervised Experiential Learning in Clinical Dietetics - 3 hrs
- Elective Courses (6 hrs)
  - Approved options for electives include (pending availability)
    - ENC 540 Human Growth and Development across the Lifespan - 3 hrs.
    - ENC 586 Counseling Diverse Populations - 3 hrs
    - ENC 607 Neurocounseling: Bridging Brain and Behavior - 3 hrs.
    - ENC 620 Introduction to Counseling: Professional Orientation - 2 hrs
    - ENC 622 Counseling Ethics and Law - 1 hr
    - ENC 623 Pre-Practicum in Counseling - 3 hrs
    - ENC 624 Theories and Techniques of Counseling - 3 hrs
    - FCS 510 Topics in Global Wellness - 3 hrs (Study abroad in London - additional costs apply)
    - FCS 513 Cultural Influences in Food and Nutrition - 3 hrs
    - FCS 586 Supervised Research in Family and Consumer Sciences – 1-6 hrs
    - FCS 595 Supervised Experiential Learning – 1-3 hrs
    - NPL 580 Financial Leadership in Nonprofit Leadership – 3 hrs
    - NPL 581 Topics in Nonprofit Leadership – 3 hrs
    - NPL 582 Grant Writing in Nonprofit Leadership – 3 hrs
    - NPL 583 Supervision and Employee Engagement in Nonprofit Leadership – 3 hrs
    - NPL 605 Legal and Social Change – 3 hrs
    - NPL 606 Digital Media Applications for the Nonprofit Leader – 3 hrs
    - NPL 610 Survey in Nonprofit Leadership – 3 hrs
    - NPL 612 Institutional Planning and Evaluation – 3 hrs
    - NPL 673 Effective Leadership in Nonprofit Organizations – 3 hrs
    - NUR 533 International Health and Nursing - 3 hrs.

Combined 4+1 BS/MS Nutrition and Dietetics Program

The Combined 4+1 BS/MS Nutrition and Dietetics program provides an accelerated path to achieve both a BS and MS in Nutrition and Dietetics. Refer to the Undergraduate Catalog for information regarding the BS in Nutrition and Dietetics. The Master of Science in Nutrition and Dietetics program integrates didactic coursework with supervised experiential learning in a competency-based curriculum that is designed to prepare nutrition and dietetics practitioners for future practice. Successful completion of the program will lead to a master's degree and students will be eligible to sit for the national registration exam for dietitians.

The Master of Science in Nutrition and Dietetics program has received Accreditation status from the Accreditation Council for Education in Nutrition and Dietetics (ACEND): 120 South Riverside Plaza, Suite 2190, Chicago, IL 60606-6995 (1-800-877-1600).

Mission

The mission of the Bradley University Master of Science in Nutrition and Dietetics Program is to prepare competent, entry-level registered dietitian nutritionists who advocate for equitable and sustainable nutritional health among families and communities.

Program Goals

1. Graduates are prepared for careers as registered dietitian nutritionists.
2. Graduates are prepared to advocate for equitable and sustainable nutritional health among families and communities.

Admission Requirements

Bradley University Nutrition and Dietetics undergraduates may enroll in the 4+1 BS/MS program while completing their bachelor's degree. Acceptance into the program will be based upon the following requirements and procedures:

Admission into the 4+1 option of the Master of Science in Nutrition and Dietetics Program requires a GPA of 3.0, although conditional admission is an option in some cases. Acceptance will also be based upon the program application.

Bradley University undergraduate Nutrition and Dietetics majors can apply to the program during their junior year. If accepted, students will begin taking graduate classes simultaneously during their senior year and will formally apply to graduate their senior year. Individual student plans may vary and will be evaluated in consultation with academic advisors. In general, students will be required to have completed the MS program prerequisites prior to enrollment in the 4+1 program during fall of their senior year:

- Completion of FCS core classes in Nutrition and Dietetics BS program
- FCS 102, 103, FCS 171, FCS 202, FCS 204, FCS 271, FCS 305, FCS 311, FCS 341, FCS 410
- Completion of all required supporting courses in Nutrition and Dietetics BS program

Graduation Requirements

Undergraduates will apply for graduation for their bachelor's degree the semester that they will achieve 120 credit hours and meet all BS requirements, and receive their BS degrees at Commencement. Following graduation with the BS degree, students will be considered graduate students. Students who are admitted to the 4+1 BS/MS program will have up to 9 graduate hours taken during the final year of the bachelor's degree dual counted for the BS and MS degrees.

Students must successfully complete all 36 hours of graduate coursework and supervised experiential learning requirements including documentation of attainment of competencies through evaluations and assignments, as well as a comprehensive case study assessment to graduate with the MS degree.

Course of Study

The Master of Science in Nutrition and Dietetics program requires 30 credit hours of required courses and 6 credit hours of electives for a total of 36 hours.

Required Courses (30 hrs)

- FCS 501 Community Nutrition Intervention - 3 hrs
- FCS 502 Foundations of Dietetic Practice - 1 hr
- FCS 505 Food Development - 1 hr
- FCS 507 Nutrition Assessment and Counseling - 3 hrs
- FCS 508 Advanced Food Service Management - 3 hrs
- FCS 511 Advanced Medical Nutrition Therapy I - 3 hrs
- FCS 512 Advanced Medical Nutrition Therapy II - 3 hrs
- FCS 514 Food Security and Food Systems - 3
- FCS 541 Research Methods - 3 hrs
- FCS 695 Supervised Experiential Learning in Food Service - 2 hrs
- FCS 696 Supervised Experiential Learning in Community Dietetics - 2 hrs
- FCS 697 Supervised Experiential Learning in Clinical Dietetics - 3 hrs
- Elective Courses (6 hrs)
  - Approved options for electives include (pending availability)
    - ENC 540 Human Growth and Development across the Lifespan - 3 hrs
    - ENC 586 Counseling Diverse Populations - 3 hrs
    - ENC 607 Neurocounseling: Bridging Brain and Behavior - 3 hrs
    - ENC 620 Introduction to Counseling: Professional Orientation - 2 hrs
    - ENC 622 Counseling Ethics and Law - 1 hr
    - ENC 623 Pre-Practicum in Counseling - 3 hrs
    - ENC 624 Theories and Techniques of Counseling - 3 hrs
    - FCS 510 Topics in Global Wellness - 3 hrs (Study abroad in London - additional costs apply)
    - FCS 513 Cultural Influences in Food and Nutrition - 3 hrs
    - FCS 586 Supervised Research in Family and Consumer Sciences – 1-6 hrs
    - FCS 595 Supervised Experiential Learning – 1-3 hrs
    - NPL 580 Financial Leadership in Nonprofit Leadership – 3 hrs
    - NPL 581 Topics in Nonprofit Leadership – 3 hrs
    - NPL 582 Grant Writing in Nonprofit Leadership – 3 hrs
    - NPL 583 Supervision and Employee Engagement in Nonprofit Leadership – 3 hrs
    - NPL 605 Legal and Social Change – 3 hrs
    - NPL 606 Digital Media Applications for the Nonprofit Leader – 3 hrs
    - NPL 610 Survey in Nonprofit Leadership – 3 hrs
    - NPL 612 Institutional Planning and Evaluation – 3 hrs
    - NPL 673 Effective Leadership in Nonprofit Organizations – 3 hrs
    - NUR 533 International Health and Nursing - 3 hrs.

This is the official catalog for the 2023-2024 academic year. This catalog serves as a contract between a student and Bradley University. Should changes in a program of study become necessary prior to the next academic year every effort will be made to keep students advised of any such changes via the Dean of the College or Chair of the Department concerned, the Registrar's Office, u.Achieve degree audit system, and the Schedule of Classes. It is the responsibility of each student to be aware of the current program and graduation requirements for particular degree programs.

FAMILY AND CONSUMER SCIENCES AND NONPROFIT LEADERSHIP COURSES

FCS 501 - Community Nutrition Intervention *(3 hours)*

This course aims to give students the skills to design and evaluate an evidence-based nutrition intervention program. Students will learn about behavior change theory, conducting a needs assessment, designing a program including intervention strategies, and evaluating a program's effectiveness. Prerequisite: Enrollment in MS in Nutrition and Dietetics Program or consent of instructor

FCS 502 - Foundations of Dietetic Practice *(1 hour)*

An orientation to the Master of Science in Nutrition and Dietetics program and an introduction to the profession of dietetics, as well as professional development for practice. Topics include the history of the profession, legal and ethical consideration, cultural humility, interdisciplinary healthcare teams, mentorship, and professional career development. Prerequisite: Enrollment in the MS program in Nutrition and Dietetics

FCS 505 - Food Development *(1 hour)*

Hands-on application of food science principles to modify foods to meet nutritional requirements. Prerequisite: FCS 305 or Enrollment in MS in Nutrition and Dietetics Program

FCS 507 - Nutrition Counseling and Assessment *(3 hours)*

This course will focus on motivational interviewing techniques. Nutritional assessment will be centered around the nutrition care process with an emphasis on nutrition focused physical examinations. Prerequisite: FCS 411 or FCS 511 or concurrent enrollment

FCS 508 - Advanced Food Service Management *(3 hours)*

Advanced application of theories, principles, and functions of management to a food service system operation. Emphasis on advanced qualitative and quantitative evaluation of food service systems operations. Prerequisite: Enrollment in MS Nutrition and Dietetics Program or consent of instructor

FCS 510 - Topics in Global Wellness *(3 hours)*

Designed to provide global cultural experiences that focus on nutrition and wellness. Emphasis is placed on the health and wellness systems of different cultures, including complementary and alternative medicine (CAM).

FCS 511 - Medical Nutrition Therapy I *(3 hours)*

Biochemical and physiological principles underlying dietary modification in the prevention and treatment of various conditions with an emphasis on integrated supervised experiential learning activities. Prerequisite: Admission into MS program in Nutrition and Dietetics

FCS 512 - Medical Nutrition Therapy II *(3 hours)*

Biochemical and pathophysiological rationale and therapeutic dietary modifications for various disease conditions with an emphasis on integrated supervised experiential learning activities. Prerequisite: B or better in FCS 511

FCS 513 - Cultural Influences in Food and Nutrition *(3 hours)*

This course explores the cultural influence of food and nutrition with particular attention to the impact that food patterns have on nutritional status and health. Prerequisite: Enrollment in MS Nutrition and Dietetics Program or consent of instructor

FCS 514 - Food Security and Food Systems *(3 hours)*

Causes and consequences of food insecurity on the health and well-being of individuals and families, as well as the nutritional and political implications these may pose in the local, national and global food systems. Prerequisite: FCS 202 or 303 or enrollment in MS Nutrition and Dietetics Program

FCS 541 - Research Methods *(3 hours)*

Introduction to concepts, methods, and strategies for research. Topics include article database search, literature review, the nature of scientific research, research idea conceptualization, formulation of hypotheses and research questions, research proposals, and Institutional Review Board (IRB) requirements. Prerequisite: Enrollment in the MS in Nutrition and Dietetics program, or MA in Nonprofit Leadership program, or consent of instructor.

FCS 585 - Topics in Family & Consumer Sciences *(1-6 hours)*

Topics of special interest which may vary each time course is offered. Topic stated in current Schedule of Classes. Prerequisite: senior or graduate standing, and consent of instructor.

FCS 586 - Supervised Research in Family and Consumer Sciences *(1-6 hours)*

Graduate student research in Family and Consumer Sciences under faculty supervision. May be repeated up to a total of 6 credit hours. Prerequisite: Graduate standing in FCS; consent of instructor.

FCS 595 - Supervised Experiential Learning *(1-3 hours)*

Professional experiential learning supervised by an approved preceptor for a minimum of 100 contact hours. May be repeated up to a total of 3 credit hours. Prerequisite: Graduate standing in FCS; consent of instructor.

FCS 695 - Supervised Experiential Learning in Food Service Management *(2 hours)*

In this course, students will work directly with approved preceptors in the food service setting for a minimum of 200 hours. Satisfactory/Unsatisfactory. Prerequisite: B or better in FCS 508

FCS 696 - Supervised Experiential Learning in Community Dietetics *(2 hours)*

In this course, students will work directly with approved preceptors in the community setting for a minimum of 200 hours. Satisfactory/Unsatisfactory. Prerequisite: B or better in FCS 501

FCS 697 - Supervised Experiential Learning in Clinical Dietetics *(3 hours)*

In this course, students will work directly with approved preceptors in the clinical setting for a minimum of 300 hours. Satisfactory/Unsatisfactory. Prerequisite: B or better in FCS 507, B or better in FCS 511, B or better in FCS 512

FCS 699 - Thesis Research *(0-6 hours)*

Design and conduct a nutrition/wellness themed-research project. May be repeated for a maximum of six semester hours. Prerequisite: Enrollment in the DI-MS program or consent of program director; FCS 641

NPL 580 - Financial Leadership in Nonprofit Organizations *(3 hours)*

Provides students with a comprehensive overview of financial management related to nonprofit 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.

NPL 581 - Topics in Nonprofit Leadership *(1-3 hours)*

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.

NPL 582 - Grant Writing in Nonprofit Leadership *(3 hours)*

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.

NPL 583 - Supervision and Employee Engagement in Nonprofit Leadership *(3 hours)*

Focuses on the recruitment, selection, and engagement of employees within the context of mission in nonprofit organizations.

NPL 605 - Legal and Social Change *(3 hours)*

Analysis of the effects of legal and social change on communities and nonprofit organizations; focus on selected issues of legal and social change with diverse populations.

NPL 606 - Digital Media Applications for the Nonprofit Leader *(3 hours)*

This course focuses on the ever-evolving digital media tools, technologies, applications, and best practices utilized in nonprofit leadership. The design and development of innovative digital strategies using the latest digital tools to achieve specific organizational goals will be emphasized.

NPL 610 - Survey in Nonprofit Leadership *(3 hours)*

An introduction to the roles and responsibilities of administrators in nonprofit organizations. Trends in nonprofit 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.

NPL 612 - Strategic Planning in Nonprofit Organizations *(3 hours)*

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

NPL 673 - Effective Leadership in Nonprofit Organizations *(3 hours)*

Concepts of leadership, organizational theory, and decision making presented from multiple perspectives; focus on the practice of educational administration and nonprofit leadership.

NPL 686 - Field Experiences in Administration *(0-6 hours)*

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: Departmental consent

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NURSING

Rachel Borton, PhD, MSN, FNP-FPA, NRCME

Chairperson of Nursing; Assistant Professor

Accredited by Commission on Collegiate Nursing Education (CCNE), 655 K Street NW, Washington DC 20001 (202) 887-6791

ccneaccreditation.org

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

Bradley University offers a variety of online graduate nursing programs including Doctor of Nursing Practice (DNP), Master of Science in Nursing (MSN) (including an RN-MSN entry point), and Post- Master's Certificate (PMC). Five specialty areas are available: Administration/Leadership, Family Nurse Practitioner (FNP), Psychiatric Mental Health Nurse Practitioner (PMHNP), Adult-Gerontology Primary Care Nurse Practitioner (AGPCNP), and Adult- Gerontology Acute Care Nurse Practitioner (AGACNP). Graduate requirements for the MSN Program must be fulfilled within five years of enrollment while DNP Program requirements must be fulfilled within seven years of enrollment. The student must maintain an academic average of 3.0 (4.0 scale) to be in "good standing". A grade of "B", or better, must be earned in all NUR courses and a "C", or better, in all other coursework applied toward graduation requirements.

*Online program.

Program Descriptions (By Specialty Track)

Administration/Leadership

MSN Nursing Administration (online)

This 30 (BSN entry) - 39 (ADN/Diploma/RN with a Non-nursing Baccalaureate Entry) semester hour specialty in the MSN program prepares graduates for first-line management as executives in a variety of health care settings. Students complete 300 hours of practicum with a nurse manager/executive preceptor. ADN/Diploma/RN and non-nursing Baccalaureate entry students complete an additional 50 practicum hours in the community health setting. Graduates with a major in nursing administration are prepared for first-line management as executives in a variety of health care settings, and for future doctoral study. At the completion of the program, graduates are eligible to write the various nurse executive or leader certifications administered by the American Nurses Credentialing Center (ANCC) or the American Organization for Nursing Leadership (AONL).

DNP Leadership (online)

This 36-40 semester hour specialty track in the DNP Program prepares licensed registered nurses with a master's degree for advanced leadership roles in diverse settings. Role preparation is focused on improvement of healthcare outcomes of patients, populations, and systems. Students complete 300 hours of practicum with a practice mentor in the development and implementation of their DNP project. A minimum of 1,000 clinical hours is required to earn a DNP degree (AACN). Clinical hours that the student completed for completion of the master's degree are credited toward fulfillment of the 1,000 clinical hours DNP Leadership graduates are eligible to write the various nurse executive or leader certification examinations offered by the ANCC or the AONL.

Capstone Project in Nursing

Students in the MSN Nursing Administration track must complete a scholarly project in nursing to meet program requirements. This major scholarly paper must identify an issue or problem in the profession of nursing and propose a plan to investigate with potential resolution.

Family Nurse Practitioner

RN to MSN Family Nurse Practitioner (FNP) (online)

ADN/Diploma/RN with a non-nursing baccalaureate degree entry.

This 59-semester hour specialty track in the MSN program prepares graduates as family nurse practitioners (FNP). Students complete a total of 750 hours of clinical practicum in various population-focused and/or specialty areas supervised by qualified preceptors (NTF Criterion). The goal of the program is to prepare graduates for advanced practice nursing with individuals and families throughout the lifespan and across the health continuum. Upon completion of the program, graduates are eligible to write the FNP specialty certification examination administered by the American Academy of Nurse Practitioners (AANP) or American Nurses Credentialing Center (ANCC).

BSN to MSN Family Nurse Practitioner (FNP) (online)

This 50 (BSN entry) semester hour specialty track in the MSN program prepares graduates as family nurse practitioners (FNPs). Students complete a total of 700 hours of clinical practicum in various population-focused and/or specialty areas supervised by qualified preceptors (NTF Criterion). The goal of the program is to prepare graduates for advanced practice nursing with individuals and families throughout the lifespan and across the health continuum. Upon completion of the program, graduates are eligible to write the FNP specialty certification examination administered by the American Academy of Nurse Practitioners (AANP) or American Nurses Credentialing Center (ANCC).

DNP Family Nurse Practitioner FNP (online)

This (BSN entry) 71-semester hour specialty track in the DNP program prepares licensed registered nurses with a BSN as family nurse practitioners (FNP) at the doctoral level. The goal of the program is to prepare graduates for advanced practice nursing with individuals and families throughout the lifespan and across the health continuum. Students complete a total of 1000 hours of clinical in various population-focused and/or specialty areas supervised

by qualified preceptors. A DNP project must be completed to fulfill degree requirements. Upon completion of the program, graduates are eligible to write the FNP specialty certification examination administered by the American Nurses credentialing Center (ANCC) or the American Academy of Nurse Practitioners (AANP).

Family Nurse Practitioner (FNP)

Post-Masters Certificate (online)

This 26-35-semester hour specialty certificate prepares licensed registered nurses with a MSN from an accredited nursing program as an advanced practice nurse with FNP specialization The curriculum consists of the same FNP specialty theory and practicum courses as the MSN FNP program. FNP Certificate students complete a total of 700 hours of clinical in various population-focused and/or specialty areas supervised by qualified preceptors (NTF Criterion). The goal of the program is to prepare licensed master's prepared nurses for advanced practice nursing with individuals and families throughout the lifespan and across the health continuum. Upon completion of the program, graduates are eligible to write the FNP specialty certification examination administered by the American Nurses Credentialing Center (ANCC) or the American Academy of Nurse Practitioners (AANP).

Psychiatric Mental Health Nurse Practitioner

RN - MSN Psychiatric Nurse Practitioner (PMHNP) (online)

ADN/Diploma/RN with a non-nursing baccalaureate degree entry.

This 60-semester hour specialty track in the MSN program prepares graduates as psychiatric/mental health nurse practitioners (PMHNP). Students complete a total of 650 clinical practicum hours supervised by qualified preceptors. The goal of the program is to prepare graduates with the knowledge and skills necessary to deliver psychiatric/mental health advanced practice nursing across the lifespan in various mental health care settings. Upon completion of the program, graduates are eligible to write the PMHNP specialty certification examination administered by the American Nurses Credentialing Center (ANCC).

BSN - MSN Psychiatric Nurse Practitioner (PMHNP) (online)

This BSN to MSN 51-semester hour specialty track in the MSN program prepares graduates as psychiatric/mental health nurse practitioners (PMHNP). Students complete a total of 600 clinical practicum hours supervised by qualified preceptors. The goal of the program is to prepare graduates with the knowledge and skills necessary to deliver psychiatric/mental health advanced practice nursing across the lifespan in various mental health care settings. Upon completion of the program, graduates are eligible to write the PMHNP specialty certification examination administered by the American Nurses Credentialing Center (ANCC).

DNP Psychiatric Nurse Practitioner (PMHNP) (online)

This (BSN entry) 74-semester hour specialty track in the DNP program prepares graduates as psychiatric/mental health nurse practitioners at the doctoral level. Students complete a total of 600 clinical practicum hours across the lifespan supervised by qualified preceptors within a variety of mental health care settings.f The additional clinical

hours required to achieve the minimum 1,000 clinical hours (AACN) are completed during enrollment in the DNP project courses. A DNP project must be completed to fulfill degree requirements. The goal of the program is to prepare graduates with a doctoral degree who possess the knowledge and skills necessary to deliver psychiatric/mental health advanced practice nursing across the lifespan in various mental health care settings. Upon completion of the program, graduates are eligible to write the PMHNP specialty certification examination administered by the American Nurses Credentialing Center (ANCC).

Psychiatric Nurse Practitioner Certificate (PMHNP-C) (online)

This 27-36 semester hour specialty certificate is for licensed registered nurses with an earned MSN from an accredited nursing program. Students complete a total of 600 clinical practicum hours supervised by qualified preceptors. The goal of the program is to prepare graduates with the knowledge and skills necessary to deliver psychiatric/mental health advanced practice nursing across the lifespan in various mental health care settings. Upon completion of the program, graduates are eligible to write the PMHNP specialty certification examination American Nurses Credentialing Center (ANCC).

Adult Gerontology Primary Care Nurse Practitioner

RN-MSN Adult Gerontology Primary Care Nurse Practitioner (AGPCNP) (Online)

This 56-semester hour specialty track in the MSN program prepares graduates as Adult Gerontology Primary Care Nurse practitioners (AGPCNP). Students complete a total of 600 clinical hours in a variety of primary care/outpatient settings with qualified preceptor supervision. The goal of the program is to prepare graduates for advanced practice nursing with adolescents, adults and geriatric populations. Upon completion of the program, graduates are eligible to write the AGPCNP specialty certification examination administered by the American Nurses Credentialing Center (ANCC) or the American Academy of Nurse Practitioners (AANP).

BSN-MSN Adult Gerontology Primary Care Nurse Practitioner (AGPCNP) (Online)

This 47-semester hour specialty track in the MSN program prepares graduates as Adult Gerontology Primary Care Nurse Practitioners (AGPCNP). Students complete a total of 600 clinical hours in a variety of primary care/outpatient settings with qualified preceptor supervision. The goal of the program is to prepare graduates for advanced practice with adolescents, adults and geriatric populations. Upon completion of the program, graduates are eligible to write the AGPCNP specialty certification examination administered by the American Nurses Credentialing Center (ANCC) or the American Academy of Nurse Practitioners (AANP).

DNP Adult Gerontology Primary Care Nurse Practitioner (AGPCNP) (online)

This 70-semester hour (BSN entry) specialty track in the DNP program prepares graduates as Adult Gerontology Primary Care Nurse Practitioners (AGPCNP) at the doctorate level. Students must complete a total of 1000 clinical hours with 600 clinical hours in a variety of acute care settings with qualified preceptor supervision and the additional clinical hours in the doctoral project courses. A DNP project must be completed to fulfill degree requirements. The goal of the program is to prepare graduates for advanced practice with adolescents, adults and geriatric populations.

Upon completion of the program, graduates are eligible to write the AGPCNP specialty certification examination administered by the American Nurses Credentialing Center (ANCC) or the American Academy of Nurse Practitioners (AANP)

Adult Gerontology Primary Care Nurse Practitioner (AGPCNP)
Post-Master's Certificate (online)

This 33-semester hour specialty certificate prepares licensed registered nurses with an earned MSN from an accredited nursing program as AGPCNP advanced practice nurses. Students complete a total of 600 clinical hours in a variety of primary care/outpatient settings with qualified preceptor supervision. The goal of the program is to prepare graduates for advanced practice nursing care with adolescents, adults and geriatric populations. Upon completion of the program, graduates are eligible to write the AGPCNP specialty certification examination administered by the American Nurses Credentialing Center (ANCC) or the American Academy of Nurse Practitioners (AANP).

Adult Gerontology Acute Care Nurse Practitioner

RN- MSN Adult Gerontology Acute Care Nurse Practitioner (AGACNP) (online)

This 56-semester hour specialty track is in the MSN program prepares graduates as Adult Gerontology Acute Care Nurse practitioners (AGACNP). Students complete a total of 600 clinical hours in a variety of acute care settings with qualified preceptor supervision. The goal of the program is to prepare graduates for advanced practice nursing care with acutely ill adults and geriatric populations. Upon completion of the program, graduates are eligible to write the AGACNP specialty certification examination administered by the American Nurses Credentialing Center (ANCC).

BSN - MSN Adult Gerontology Acute Care Nurse Practitioner (AGACNP) (online)

 This 47-semester hour specialty track in the MSN program prepares graduates as Adult Gerontology Acute Care Nurse Practitioners (AGACNP). Students complete a total of 600 clinical hours in a variety of acute care settings with qualified preceptor supervision. The goal of the program is to prepare graduates for advanced practice nursing care with acutely ill adults and geriatric populations. Upon completion of the program, graduates are eligible to write the AGACNP American Nurses Credentialing Center (ANCC).

DNP Adult Gerontology Acute Care Nurse Practitioner (AGACNP) (online)

This 70-semester hour specialty track in the DNP program prepares graduates as Adult Gerontology Acute Care Nurse Practitioners (AGACNP) at the doctoral level.   Students complete a total of 1000 clinical hours in with 600 clinical hours in a variety of acute care settings with qualified preceptor supervision and the additional clinical hours in the doctoral project courses. A DNP project must be completed to fulfill degree requirements. The goal of the program is to prepare graduates for advanced practice nursing care with acutely ill adults and geriatric populations. Upon completion of the program, graduates are eligible to write the AGACNP specialty certification examination administered by the American Nurses Credentialing Center (ANCC)

Adult Gerontology Acute Care Nurse Practitioner (AGACNP) Post-Master's Certificate (online)

This 33-semester hour specialty certificate prepares licensed registered nurses with an earned MSN from an accredited nursing program preparation as an AGACNP advanced practice nurse. Students complete a total of 600 clinical hours in a variety of acute care settings with qualified preceptor supervision. The goal of the program is to prepare graduates for advanced practice nursing care with acutely ill adults and geriatric populations. Upon completion of the program, graduates are eligible to write the AGACNP specialty certification examination administered by the American Nurses Credentialing Center (ANCC).

Online Programs

Bradley University is a SARA-approved institution (SARA=State Authorization Reciprocity Agreements).

Indiana

This institution is authorized by:
The Indiana Board of Proprietary Education
101 W. Ohio Street, Suite 670
Indianapolis, IN 46204-1984

Louisiana

Bradley University is currently licensed by the Board of Regents of the State of Louisiana. Licenses are renewed by the State Board of Regents every two years. Licensed institutions have met minimal operational standards set forth by the state, but licensure does not constitute accreditation, guarantee the transferability of credit, nor signify that programs are certifiable by any professional agency or organization.

Maryland

Bradley University is registered with:
Maryland Higher Education Commission
6 N. Liberty Street 10th Floor
Baltimore, MD 21201

Minnesota

Bradley University is registered as a private institution with the Minnesota Office of Higher Education pursuant to sections 136A.61 to 136.71. Registration is not an endorsement of the institution. Credits earned at the institution may not transfer to all other institutions.

Washington

Bradley University is approved by the Washington State Nursing Care Quality Assurance Commission to provide practice experiences in Washington State for MSN/FNP, MSN/Nurse Administrator, MSN/Nurse Educator, and post MSN/FNP certificate, ADN-MSN/FNP and DNP companion programs. For more information, go to the following website: http://www.doh.wa.gov/LicensesPermitsandCertificates/NursingCommission/NursingPrograms.aspx

State laws governing distance education programs may limit Bradley University's ability to offer online opportunities to students. If you wish to enroll in one of our online degree programs and reside outside of Illinois, please inquire to determine if we have acquired permission to offer online courses in your state.

Admission (By Specialty Track/Program)

Applicants must meet all admission requirements of Graduate Education. In addition the Department of Nursing requires:

Administration/Leadership

MSN Nursing Administration

ADN/Diploma/RN with Non-nursing Baccalaureate Degree Entry

1. Applicants must have an RN degree from a CNEA or ACEN accredited Diploma or Associate's Degree nursing program, or with a non-nursing baccalaureate degree.
2. Proof of a current unencumbered nursing license.
3. A nursing grade point average of 3.0 based on a 4.0 scale.

BSN Entry

1. Applicants must have a BSN degree from a CNEA, ACEN, or CCNE accredited nursing program.
2. Proof of a current unencumbered nursing license.
3. A nursing grade point average of 3.0 based on a 4.0 scale.

DNP Leadership (online)

1. Applicants must have an MSN degree from a CNEA, ACEN or CCNE accredited nursing program. Those with a non-nursing master's degree must possess a baccalaureate degree in nursing from a CNEA, ACEN, or CCNE accredited nursing program.
2. Proof of a current unencumbered nursing license.
3. A nursing grade point average of 3.0 based on a 4.0 scale
4. Professional Portfolio - The portfolio is to include a professional resume and documentation with description of supervised clinical clock hours in the master's degree program.

Family Nurse Practitioner

MSN Family Nurse Practitioner

ADN/Diploma/RN with Non-nursing Baccalaureate Degree Entry

1. Applicants must have an RN degree from a CNEA or ACEN accredited Diploma or Associate's Degree nursing program, or with a non-nursing baccalaureate degree.
2. Proof of a current unencumbered nursing license.
3. A nursing grade point average of 3.0 based on a 4.0 scale.

BSN Entry

1. Applicants must have a BSN degree from a CNEA, ACEN, or CCNE accredited nursing program.
2. Proof of a current unencumbered nursing license.
3. A nursing grade point average of 3.0 based on a 4.0 scale.

DNP FNP (online)

1. Applicants must have a BSN degree from a CNEA, ACEN, or CCNE accredited nursing program.
2. Proof of a current unencumbered nursing license.
3. A nursing grade point average of 3.0 based on a 4.0 scale.

Post-Masters FNP Certificate (online)

1. Applicants must have an MSN degree from a CNEA, ACEN, or CCNE accredited nursing program.
2. Proof of a current unencumbered nursing license.

Psychiatric Mental Health Nurse Practitioner

MSN Psychiatric Mental Health Nurse Practitioner

ADN/Diploma/RN with Non-nursing Baccalaureate Degree Entry

1. Applicants must have an RN degree from a CNEA or ACEN accredited Diploma or Associate's Degree nursing program, or with a non-nursing baccalaureate degree.
2. Proof of a current unencumbered nursing license.
3. A nursing grade point average of 3.0 based on a 4.0 scale.

BSN Entry

1. Applicants must have a BSN degree from a CNEA, ACEN, or CCNE accredited nursing program.
2. Proof of a current unencumbered nursing license.
3. A nursing grade point average of 3.0 based on a 4.0 scale.

DNP PMHNP (online)

1. Applicants must have a BSN degree from a CNEA, ACEN, or CCNE accredited nursing program.
2. Proof of a current unencumbered nursing license.
3. A nursing grade point average of 3.0 based on a 4.0 scale.

PMHNP Post-Master's Certificate (online)

1. Applicants must have an MSN degree from a CNEA, ACEN, or CCNE accredited nursing program.
2. Proof of a current unencumbered nursing license.

Adult Gerontology Primary Care Nurse Practitioner

MSN Adult Gerontology Primary Care Nurse Practitioner

ADN/Diploma/RN with Non-nursing Baccalaureate Degree Entry

1. Applicants must have an RN degree from a CNEA or ACEN accredited Diploma or Associate's Degree nursing program, or with a non-nursing baccalaureate degree.
2. Proof of a current unencumbered nursing license.
3. A nursing grade point average of 3.0 based on a 4.0 scale.

BSN Entry

1. Applicants must have a BSN degree from a CNEA, ACEN, or CCNE accredited nursing program.
2. Proof of a current unencumbered nursing license.
3. A nursing grade point average of 3.0 based on a 4.0 scale.

DNP AGPCNP (online)

1. Applicants must have a BSN degree from a CNEA, ACEN, or CCNE accredited nursing program.

2. Proof of a current unencumbered nursing license.

3. A nursing grade point average of 3.0 based on a 4.0 scale.

AGPCNP Post-Master's Certificate (online)

1. Applicants must have an MSN degree from a CNEA, ACEN, or CCNE accredited nursing program.

2. Proof of a current unencumbered nursing license.

Adult Gerontology Acute Care Nurse Practitioner

MSN Adult Gerontology Acute Care Nurse Practitioner

ADN/Diploma/RN with Non-nursing Baccalaureate Degree Entry

1. Applicants must have an RN degree from a CNEA or ACEN accredited Diploma or Associate's Degree nursing program, or with a non-nursing baccalaureate degree.

2. Proof of a current unencumbered nursing license.

3. A nursing grade point average of 3.0 based on a 4.0 scale.

BSN Entry

1. Applicants must have a BSN degree from a CNEA, ACEN, or CCNE accredited nursing program.

2. Proof of a current unencumbered nursing license.

3. A nursing grade point average of 3.0 based on a 4.0 scale.

DNP AGACNP (online)

1. Applicants must have a BSN degree from a CNEA, ACEN, or CCNE accredited nursing program.

2. Proof of a current unencumbered nursing license.

3. A nursing grade point average of 3.0 based on a 4.0 scale.

AGACNP Post-Master's Certificate (online)

1. Applicants must have an MSN degree from a CNEA, ACEN, or CCNE accredited nursing program.

2. Proof of a current unencumbered nursing license.

3. A nursing grade point average of 3.0 based on a 4.0 scale.

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

Capstone Project in Nursing

Students in the MSN Nursing Administration track n a must complete a scholarly project in nursing to meet program requirements. This major scholarly paper must identify an issue or problem in the profession of nursing and propose a plan to investigate with potential resolution.

Comprehensive Assessment

All students are required to take a comprehensive assessment prior to graduation with the exception of post master's certificate tracks.

DNP Project

All students in the DNP program are required to plan, implement, evaluate, and disseminate a DNP project. The DNP project is guided by evidence-based practice or quality improvement processes focused on system or population changes that positively influence healthcare outcomes through direct or indirect patient care.

Curriculum Tracks (By Specialty Tracks/Program)

*The curriculum is subject to continuous review and evaluation, which may necessitate revision of courses and requirements.

Administration/ Leadership

MSN Nursing Administration – (online)

ADN/Diploma/RN with a Non-nursing Baccalaureate Degree Entry - 39 semester hours

- ENC 510 Statistical Procedures - 3 hrs.
- NUR 300 Conceptual Bases for Professional Nursing - 3 hrs.
- NUR 303 Research in Nursing - 3 hrs.
- NUR 404 Community Health Nursing Theory (2)
- NUR 407 RN-MSN Practicum (1)
- NUR 501 Nursing Theories: Analysis and Development - 3 hrs.
- NUR 526 Evidence Based Practice - 3 hrs.
- NUR 615 Nursing Informatics - 3 hrs.
- NUR 630 Nursing Administration Theory - 3 hrs.
- NUR 631 Nursing Administration Practicum I - 3 hrs.
- NUR 632 Nursing Administration Theory II - 3 hrs.
- NUR 633 Nursing Administration Practicum II - 3 hrs.
- NUR 640 Healthcare Policy - 3 hrs.
- NUR 697 Capstone Project in Nursing – 3 hrs.

BSN Degree Entry - 30 semester hours

- ENC 510 Statistical Procedures – 3 hrs.
- NUR 501 Nursing Theories: Analysis and Development - 3 hrs.
- NUR 526 Evidence Based Practice - 3 hrs.
- NUR 615 Nursing Informatics - 3 hrs.
- NUR 630 Nursing Administration Theory - 3 hrs.
- NUR 631 Nursing Administration Practicum I - 3 hrs.
- NUR 632 Nursing Administration Theory II - 3 hrs.
- NUR 633 Nursing Administration Practicum II - 3 hrs.
- NUR 640 Healthcare Policy - 3 hrs.
- NUR 697 Capstone Project in Nursing – 3 hrs.

DNP Leadership – 36-40 semester hours (online)

- ECO 605 Healthcare Economics and Finance – 3 hrs.
- NUR 700 Theoretical Foundations of Nursing Science - 3 hrs.
- NUR 703 Health Promotion in Populations - 3 hrs.
- NUR 705 Research Design and Statistical Methods - 3 hrs.

- NUR 720 Evidence Based Practice - 3 hrs.
- NUR 735 Leadership in Advanced Nursing Practice - 3 hrs.
- NUR 740 Healthcare Policy and Ethics in Advanced Practice Nursing - 3 hrs.
- NUR 752 Advanced Health Informatics – 3 hrs
- NUR 840 DNP Clinical Practice - 0-4 hrs. (14 hours maximum)
- NUR 841 DNP Project I - 3 hrs.
- NUR 842 DNP Project II - 3 hrs.
- NUR 843 DNP Project III - 3 hrs.
- NUR 844 DNP Project IV - 3 hrs.

Family Nurse Practitioner

MSN FNP (online)

BSN Entry - 50 semester hours

- ENC 510 Statistical Procedures - 3 hrs.
- BIO 526 Advanced Pathophysiology - 3 hrs.
- NUR 501 Nursing Theories: Analysis and Development - 3 hrs.
- NUR 526 Evidence Based Practice - 3 hrs.
- NUR 600 Advanced Health Assessment - 3 hrs.
- NUR 615 Health Informatics - 3 hrs.
- NUR 640 Healthcare Policy - 3 hrs.
- NUR 651 Advanced Pharmacology I - 3 hrs.
- NUR 676 Primary Care Acute Conditions Across the Lifespan I - 6 hrs.
- NUR 677 Primary Care Chronic Conditions Across the Lifespan II - 6 hrs.
- NUR 678 Primary Care Across the Lifespan III - 6 hrs.
- NUR 679 Primary Care Immersion IV - 6 hrs.
- NUR 690 Professional Aspects of Advanced Nursing Practice – 2 hrs.

ADN/Diploma/RN with a Non-nursing Baccalaureate Degree entry– 59 semester hours (online)

- BIO 526 Advanced Pathophysiology - 3 hrs.
- ENC 510 Statistical Procedures - 3 hrs.
- NUR 300 Conceptual Bases for Professional Nursing - 3 hrs.
- NUR 303 Research in Nursing - 3 hrs.
- NUR 404 Community Health Nursing Theory (2)
- NUR 407 RN-MSN Practicum (1)
- NUR 501 Nursing Theories: Analysis and Development - 3 hrs.
- NUR 526 Evidence Based Practice - 3 hrs.
- NUR 600 Advanced Health Assessment - 3 hrs.
- NUR 615 Health Informatics - 3 hrs.
- NUR 640 Healthcare Policy - 3 hrs.
- NUR 651 Advanced Pharmacology I - 3 hrs.
- NUR 676 Primary Care Acute Conditions Across the Lifespan I - 6 hrs.
- NUR 677 Primary Care Chronic Conditions Across the Lifespan II - 6 hrs.
- NUR 678 Primary Care Across the Lifespan III - 6 hrs.
- NUR 679 Primary Care Immersion IV - 6 hrs.
- NUR 690 Professional Aspects of Advanced Nursing Practice – 2 hrs.

DNP Family Nurse Practitioner – 71 semester hours (online)

- BIO 526 Advanced Pathophysiology - 3 hrs.
- ECO 605 Healthcare Economics and Finance – 3 hrs.
- NUR 600 Advanced Health Assessment - 3 hrs.
- NUR 651 Advanced Pharmacology I - 3 hrs.
- NUR 676 Primary Care Acute Conditions Across the Lifespan I - 6 hrs.
- NUR 677 Primary Care Chronic Conditions Across the Lifespan II - 6 hrs.
- NUR 678 Primary Care Across the Lifespan III - 6 hrs.
- NUR 679 Primary Care Immersion IV - 6 hrs.
- NUR 690 Professional Aspects of Advanced Nursing Practice – 2 hr.
- NUR 700 Theoretical Foundations of Nursing Science - 3 hrs.
- NUR 703 Health Promotion in Populations - 3 hrs.
- NUR 705 Research Design and Statistical Methods - 3 hrs.
- NUR 720 Evidence Based Practice - 3 hrs.
- NUR 735 Leadership in Advanced Nursing Practice - 3 hrs.
- NUR 740 Healthcare Policy and Ethics in Advanced Practice Nursing - 3 hrs.
- NUR 752 Advanced Health Informatics – 3 hrs
- NUR 841 DNP Project I - 3 hrs.
- NUR 842 DNP Project II - 3 hrs.
- NUR 843 DNP Project III - 3 hrs.
- NUR 844 DNP Project IV - 3 hrs.

Post-Masters FNP Certificate – 26 - 35 semester hours (online)

- *BIO 526 Advanced Pathophysiology - 3 hrs.
- *NUR 600 Advanced Health Assessment - 3 hrs.
- *NUR 651 Advanced Pharmacology I - 3 hrs.
- NUR 676 Primary Care Acute Conditions Across the Lifespan I - 6 hrs.
- NUR 677 Primary Care Chronic Conditions Across the Lifespan II - 6 hrs.
- NUR 678 Primary Care Across the Lifespan III - 6 hrs.
- NUR 679 Primary Care Immersion IV - 6 hrs.
- NUR 690 Professional Aspects of Advanced Nursing Practice (2)

*may be waived if completed within the past 5 years with an earned grade of B or better from an accredited MSN program.

Psychiatric Mental Health Nurse Practitioner

BSN - MSN Psychiatric Nurse Practitioner (PMHNP) (online)

- BIO 526 Advanced Pathophysiology - 3 hrs.
- ENC 510 Statistical Procedures - 3 hrs.
- NUR 501 Nursing Theories: Analysis and Development - 3 hrs.
- NUR 526 Evidence Based Practice - 3 hrs.
- NUR 600 Advanced Health Assessment - 3 hrs.
- NUR 615 Health Informatics - 3 hrs.
- NUR 640 Healthcare Policy - 3 hrs.
- NUR 651 Advanced Pharmacology I - 3 hrs.
- NUR 680 PNP Roles- 3 hrs.
- NUR 682 Psychopharmacology and Neurophysiology for the PNP- 3 hrs.

- NUR 684 Advanced Psychiatric Interviewing and Differential Diagnosis- 3 hrs.
- NUR 685 PNP Continuum of Care Across the Lifespan and Practicum I- 6 hrs.
- NUR 686 PNP Continuum of Care Across the Lifespan and Practicum II- 6 hrs
- NUR 687 PNP Specialty Focus Practicum- 4 hrs.
- NUR 688 Professional Aspects of the PNP- 2 hours

RN - MSN Psychiatric Nurse Practitioner (PMHNP) (online)

- BIO 526 Advanced Pathophysiology - 3 hrs.
- ENC 510 Statistical Procedures - 3 hrs.
- NUR 501 Nursing Theories: Analysis and Development - 3 hrs.
- NUR 526 Evidence Based Practice - 3 hrs.
- NUR 300 Conceptual Bases for Professional Nursing - 3 hrs.
- NUR 303 Research in Nursing - 3 hrs.
- NUR 404 Community Health Nursing Theory- 2 hrs.
- NUR 407 RN-MSN Practicum- 1 hr.
- NUR 600 Advanced Health Assessment - 3 hrs.
- NUR 615 Health Informatics - 3 hrs.
- NUR 640 Healthcare Policy - 3 hrs.
- NUR 651 Advanced Pharmacology I - 3 hrs.
- NUR 680 PNP Roles- 3 hrs.
- NUR 682 Psychopharmacology and Neurophysiology for the PNP- 3 hrs.
- NUR 684 Advanced Psychiatric Interviewing and Differential Diagnosis- 3 hrs.
- NUR 685 PNP Continuum of Care Across the Lifespan and Practicum I- 6 hrs.
- NUR 686 PNP Continuum of Care Across the Lifespan and Practicum II- 6 hrs
- NUR 687 PNP Specialty Focus Practicum III - 4 hrs.
- NUR 688 Professional Aspects of the PNP- 2 hours

DNP Psychiatric Nurse Practitioner (PMHNP) (online)

- BIO 526 Advanced Pathophysiology - 3 hrs.
- ECO 605 Healthcare Economics and Finance – 3 hrs.
- NUR 600 Advanced Health Assessment - 3 hrs.
- NUR 651 Advanced Pharmacology I - 3 hrs.
- NUR 680 PNP Roles- 3 hrs.
- NUR 682 Psychopharmacology and Neurophysiology for the PNP- 3 hrs.
- NUR 684 Advanced Psychiatric Interviewing and Differential Diagnosis- 3 hrs.
- NUR 685 PNP Continuum of Care Across the Lifespan and Practicum I- 6 hrs.
- NUR 686 PNP Continuum of Care Across the Lifespan and Practicum II- 6 hrs
- NUR 687 PNP Specialty Focus Practicum III - 4 hrs.
- NUR 688 Professional Aspects of the PNP- 2 hours
- NUR 700 Theoretical Foundations of Nursing Science - 3 hrs.
- NUR 703 Health Promotion in Populations - 3 hrs.
- NUR 705 Research Design and Statistical Methods - 3 hrs.
- NUR 720 Evidence Based Practice - 3 hrs.
- NUR 735 Leadership in Advanced Nursing Practice - 3 hrs.
- NUR 740 Healthcare Policy and Ethics in Advanced Practice Nursing - 3 hrs.
- NUR 752 Advanced Health Informatics – 3 hrs
- NUR 840 DNP Clinical Practice 0-4 hrs.
- NUR 841 DNP Project I - 3 hrs.

- NUR 842 DNP Project II - 3 hrs.
- NUR 843 DNP Project III - 3 hrs.
- NUR 844 DNP Project IV - 3 hrs.

Psychiatric Nurse Practitioner Certificate (PNP-C) (online)

- *BIO 526 Advanced Pathophysiology - 3 hrs
- *NUR 600 Advanced Health Assessment - 3 hrs.
- *NUR 651 Advanced Pharmacology I - 3 hrs
- NUR 680 PNP Roles- 3 hrs.
- NUR 682 Psychopharmacology and Neurophysiology for the PNP- 3 hrs.
- NUR 684 Advanced Psychiatric Interviewing and Differential Diagnosis- 3 hrs.
- NUR 685 PNP Continuum of Care Across the Lifespan and Practicum I- 6 hrs.
- NUR 686 PNP Continuum of Care Across the Lifespan and Practicum II- 6 hrs
- NUR 687 PNP Specialty Focus Practicum- 4 hrs.
- NUR 688 Professional Aspects of the PNP- 2 hrs.

*may be waived if completed within the past 5 years with an earned grade of B or better from an accredited MSN program.

Adult Gerontology Primary Care Nurse Practitioner

RN-MSN Adult Gerontology Primary Care Nurse Practitioner (online)

- NUR 300 Nursing Theory - 3 hrs
- NUR 303 Research in Nursing - 3 hours
- NUR 404 Community Health Nursing Theory - 2 hrs
- NUR 407 RN - MSN Practicum - 1 hr
- BIO 526 Advanced Pathophysiology - 3 hrs.
- ENC 510 Statistical Procedures - 3 hrs.
- NUR 501 Nursing Theories: Analysis and Development - 3 hrs.
- NUR 526 Evidence Based Practice - 3 hrs.
- NUR 300 Conceptual Bases for Professional Nursing - 3 hrs.
- NUR 303 Research in Nursing - 3 hrs.
- NUR 404 Community Health Nursing Theory- 2 hrs.
- NUR 407 RN-MSN Practicum- 1 hr.
- NUR 600 Advanced Health Assessment - 3 hrs.
- NUR 615 Health Informatics - 3 hrs.
- NUR 640 Healthcare Policy - 3 hrs.
- NUR 651 Advanced Pharmacology I - 3 hrs.
- NUR 655 Diagnostic Reasoning - 3 hrs.
- NUR 666 Management of Adolescents, Adults and Geriatrics I - 6 hrs.
- NUR 667 Management of Adolescents, Adults and Geriatrics II - 6 hrs
- NUR 668 Management of Adolescents, Adults and Geriatrics III - 6 hrs
- NUR 690 Professional Aspects of Advanced Practice Nursing - 2 hrs

BSN - MSN Adult Gerontology Primary Care Nurse Practitioner (Online)

- BIO 526 Advanced Pathophysiology - 3 hrs.
- ENC 510 Statistical Procedures - 3 hrs.
- NUR 501 Nursing Theories: Analysis and Development - 3 hrs.
- NUR 526 Evidence Based Practice - 3 hrs.

- NUR 300 Conceptual Bases for Professional Nursing - 3 hrs.
- NUR 303 Research in Nursing - 3 hrs.
- NUR 404 Community Health Nursing Theory- 2 hrs.
- NUR 407 RN-MSN Practicum- 1 hr.
- NUR 600 Advanced Health Assessment - 3 hrs.
- NUR 615 Health Informatics - 3 hrs.
- NUR 640 Healthcare Policy - 3 hrs.
- NUR 651 Advanced Pharmacology I - 3 hrs.
- NUR 655 Diagnostic Reasoning - 3 hrs
- NUR 666 Management of Adolescents, Adults and Geriatrics I - 6 hrs.
- NUR 667 Management of Adolescents, Adults and Geriatrics II - 6 hrs
- NUR 668 Management of Adolescents, Adults and Geriatrics III - 6 hrs
- NUR 690 Professional Aspects of Advanced Practice Nursing - 2 hrs

DNP Adult Gerontology Primary Care Nurse Practitioner (online)

- BIO 526 Advanced Pathophysiology - 3 hrs.
- NUR 600 Advanced Health Assessment - 3 hrs.
- ECO 605 Healthcare Economics and Finance – 3 hrs.
- NUR 651 Advanced Pharmacology I - 3 hrs.
- NUR 655 Diagnostic Reasoning - 3 hrs
- NUR 666 Management of Adolescents, Adults and Geriatrics I - 6 hrs.
- NUR 667 Management of Adolescents, Adults and Geriatrics II - 6 hrs
- NUR 668 Management of Adolescents, Adults and Geriatrics III - 6 hrs
- NUR 690 Professional Aspects of Advanced Practice Nursing - 2 hrs
- NUR 700 Theoretical Foundations of Nursing Science - 3 hrs.
- NUR 703 Health Promotion in Populations - 3 hrs.
- NUR 705 Research Design and Statistical Methods - 3 hrs.
- NUR 720 Evidence Based Practice - 3 hrs.
- NUR 735 Leadership in Advanced Nursing Practice - 3 hrs.
- NUR 740 Healthcare Policy and Ethics in Advanced Practice Nursing - 3 hrs.
- NUR 752 Advanced Health Informatics – 3 hrs
- NUR 840 DNP Clinical Practice 0-4 hrs.
- NUR 841 DNP Project I - 3 hrs.
- NUR 842 DNP Project II - 3 hrs.
- NUR 843 DNP Project III - 3 hrs.
- NUR 844 DNP Project IV - 3 hrs

Adult Gerontology Primary Care Nurse Practitioner Post-Master's Certificate (online)

- BIO 526 Advanced Pathophysiology - 3 hrs.*
- NUR 600 Advanced Health Assessment - 3 hrs.*
- NUR 651 Advanced Pharmacology I - 3 hrs.*
- NUR 655 Diagnostic Reasoning - 3 hrs
- NUR 666 Management of Adolescents, Adults and Geriatrics I - 6 hrs.
- NUR 667 Management of Adolescents, Adults and Geriatrics II - 6 hrs
- NUR 668 Management of Adolescents, Adults and Geriatrics III - 6 hrs
- NUR 690 Professional Aspects of Advanced Practice Nursing - 2 hrs

***may be waived if completed within the past 5 years with an earned grade of B or better from an accredited MSN program.**

Adult Gerontology Acute Care Nurse Practitioner

RN-MSN Adult Gerontology Acute Care Nurse Practitioner (online)

- NUR 300 Nursing Theory - 3 hrs
- NUR 303 Research in Nursing - 3 hours
- NUR 404 Community Health Nursing Theory - 2 hrs
- NUR 407 RN - MSN Practicum - 1 hr
- BIO 526 Advanced Pathophysiology - 3 hrs.
- ENC 510 Statistical Procedures - 3 hrs.
- NUR 501 Nursing Theories: Analysis and Development - 3 hrs.
- NUR 526 Evidence Based Practice - 3 hrs.
- NUR 300 Conceptual Bases for Professional Nursing - 3 hrs.
- NUR 303 Research in Nursing - 3 hrs.
- NUR 404 Community Health Nursing Theory- 2 hrs.
- NUR 407 RN-MSN Practicum- 1 hr.
- NUR 600 Advanced Health Assessment - 3 hrs.
- NUR 615 Health Informatics - 3 hrs.
- NUR 640 Healthcare Policy - 3 hrs.
- NUR 651 Advanced Pharmacology I - 3 hrs.
- NUR 655 Diagnostic Reasoning - 3 hrs.
- NUR 656 Management of Acutely ill Adults and Geriatric Patients I - 6 hrs.
- NUR 657 Management of Acutely ill Adults and Geriatric Patients II - 6 hrs.
- NUR 658 Management of Acutely ill Adults and Geriatric Patients III - 6 hrs.
- NUR 690 Professional Aspects of Advanced Practice Nursing - 2 hrs

BSN - MSN Adult Gerontology Acute Care Nurse Practitioner (Online)

- BIO 526 Advanced Pathophysiology - 3 hrs.
- ENC 510 Statistical Procedures - 3 hrs.
- NUR 501 Nursing Theories: Analysis and Development - 3 hrs.
- NUR 526 Evidence Based Practice - 3 hrs.
- NUR 300 Conceptual Bases for Professional Nursing - 3 hrs.
- NUR 303 Research in Nursing - 3 hrs.
- NUR 404 Community Health Nursing Theory- 2 hrs.
- NUR 407 RN-MSN Practicum- 1 hr.
- NUR 600 Advanced Health Assessment - 3 hrs.
- NUR 615 Health Informatics - 3 hrs.
- NUR 640 Healthcare Policy - 3 hrs.
- NUR 651 Advanced Pharmacology I - 3 hrs.
- NUR 655 Diagnostic Reasoning - 3 hrs
- NUR 656 Management of Acutely ill Adults and Geriatric Patients I - 6 hrs.
- NUR 657 Management of Acutely ill Adults and Geriatric Patients II - 6 hrs.
- NUR 658 Management of Acutely ill Adults and Geriatric Patients III - 6 hrs.
- NUR 690 Professional Aspects of Advanced Practice Nursing - 2 hrs

DNP Adult Gerontology Acute Care Nurse Practitioner (online)

- BIO 526 Advanced Pathophysiology - 3 hrs.
- NUR 600 Advanced Health Assessment - 3 hrs.
- ECO 605 Healthcare Economics and Finance – 3 hrs.

- NUR 651 Advanced Pharmacology I - 3 hrs.
- NUR 655 Diagnostic Reasoning - 3 hrs
- NUR 656 Management of Acutely ill Adults and Geriatric Patients I - 6 hrs.
- NUR 657 Management of Acutely ill Adults and Geriatric Patients II - 6 hrs.
- NUR 658 Management of Acutely ill Adults and Geriatric Patients III - 6 hrs.
- NUR 690 Professional Aspects of Advanced Practice Nursing - 2 hrs
- NUR 700 Theoretical Foundations of Nursing Science - 3 hrs.
- NUR 703 Health Promotion in Populations - 3 hrs.
- NUR 705 Research Design and Statistical Methods - 3 hrs.
- NUR 720 Evidence Based Practice - 3 hrs.
- NUR 735 Leadership in Advanced Nursing Practice - 3 hrs.
- NUR 740 Healthcare Policy and Ethics in Advanced Practice Nursing - 3 hrs.
- NUR 752 Advanced Health Informatics – 3 hrs
- NUR 840 DNP Clinical Practice 0-4 hrs.
- NUR 841 DNP Project I - 3 hrs.
- NUR 842 DNP Project II - 3 hrs.
- NUR 843 DNP Project III - 3 hrs.
- NUR 844 DNP Project IV - 3 hrs

Adult Gerontology Acute Care Nurse Practitioner Post-Master's Certificate (online)

- BIO 526 Advanced Pathophysiology - 3 hrs.*
- NUR 600 Advanced Health Assessment - 3 hrs.*
- NUR 651 Advanced Pharmacology I - 3 hrs.*
- NUR 655 Diagnostic Reasoning - 3 hrs
- NUR 656 Management of Acutely ill Adults and Geriatric Patients I - 6 hrs.
- NUR 657 Management of Acutely ill Adults and Geriatric Patients II - 6 hrs.
- NUR 658 Management of Acutely ill Adults and Geriatric Patients III - 6 hrs.
- NUR 690 Professional Aspects of Advanced Practice Nursing - 2 hrs

may be waived if completed within the past 5 years with an earned grade of B or better from an accredited MSN program.

NURSING COURSE DESCRIPTIONS

NUR 501 - Nursing Theories: Analysis and Development *(3 hours)*

Analysis of theoretical models. Emphasis on assessment and implications of models for advanced professional nursing practice and research. Prerequisite: Nursing major.

NUR 505 - Leadership in the Health Care System *(3 hours)*

Leadership theory: role of the nurse as a leader, colleague, and consultant in health care systems. Prerequisite: Nursing major.

NUR 510 - Legal and Ethical Issues in Healthcare *(3 hours)*

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 major

NUR 526 - Evidence Based Practice *(3 hours)*

Allows the learner to explore theories related to the generation of evidence, Research Utilization (RU), and Evidence Based Practice (EBP). Issues from practice areas are identified, developed, and refined into a researchable project. Prerequisite: Nursing majors only

NUR 530 - Advanced Health Assessment,Pathophysiology, & Pharmacology *(3 hours)*

Pathophysiological processes of selected disease conditions that are commonly encountered in nursing practice settings are examined. Principles of pharmacology as they apply to these selected disease conditions are investigated. Health assessment findings of these selected disease conditions are analyzed. Prerequisite: Nursing majors only

NUR 533 - International Health and Nursing *(3 hours)*

Study of health care systems and nursing in a foreign country in selected hospitals, health care settings, and universities. Establishing health care professional and research networks. Cross-listed as NUR 433. Not open to students with credit in NUR 433.

NUR 600 - Advanced Health Assessment *(3 hours)*

Systematic method for collecting data used in holistic health assessment of persons throughout the lifespan and in various healthcare settings. Emphasis is placed on interviewing techniques for history taking and advanced physical assessment skills. Prerequisite: Nursing major

NUR 615 - Health Informatics *(3 hours)*

Introduces the learner to concepts in health informatics and provides the foundation for practice in the healthcare technology field. Explores healthcare data, clinical information management systems, security, personal productivity

applications, consumer informatics, legal issues, and professional skills, knowledge, and certifications related to health informatics. Prerequisite: Nursing major

NUR 625 - DNP Practice Seminar I *(1 hour)*

Provides for a student-initiated endeavor culminating in a scholarly proposal. The project will provide an opportunity for leadership in healthcare policy resulting in safe and effective nursing and healthcare practice. An emphasis on healthcare financing, regulation, and/or delivery is required. Students will choose a clinical setting to assess the needs of healthcare providers, consumers, and stakeholders in the development of the proposal. Student will choose and collaborate with a faculty project advisor and committee of scholars and experts in the field. Prerequisite: DNP Major

NUR 630 - Nursing Administration I (Theory) *(3 hours)*

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. Prerequisite: Nursing major Corequisite: NUR 631 or consent fo department chair

NUR 631 - Nursing Administration I (Practicum) *(3 hours)*

Practicum applying concepts, theories, and principles from NUR 630. Use of relevant research findings. Advanced practice in management. Prerequisite: Nursing major Corequisite: NUR 630 or consent of department chair.

NUR 632 - Nursing Administration II (Theory) *(3 hours)*

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. Prerequisite: Nursing major Corequisite: NUR 633 or consent of department chair

NUR 633 - Nursing Administration II (Practicum) *(3 hours)*

Practicum applying advanced concepts, theories, and principles from NUR 632. Use of management skills such as staffing, budgeting, and developing positive public relations. CoRequisite: NUR 632 or consent of department chair.

NUR 638 - Principles of FNP Practice I: Acute/Chronic *(3 hours)*

Basic principles and concepts of the advanced nurse practitioner's roles and responsibilities in caring for adult clients with select acute and chronic illness. Prerequisite: Family Nurse Practitioners majors only

NUR 639 - Healthcare Clinical Practicum I *(3 hours)*

This practicum course focuses on the delivery of advanced nursing care to adult clients with acute and chronic disorders. Various practicum settings with diverse populations will be utilized for practicum experiences. Prerequisite: Family Nurse Practitioners major

NUR 640 - Healthcare Policy *(3 hours)*

Explores health policy development and implementation and its impact on healthcare regulation, delivery, and finance. There is a focus on wellness and promotion of health for local, national, and worldwide health initiatives. Students will define healthcare provider roles in health promotion, healthcare delivery, and quality improvement through activities related to health policy reform and finance. Prerequisite: Nursing major

NUR 642 - Principles of FNP Practice II: Acute/Chronic *(3 hours)*

Basic principles and concepts of advanced nurse practitioner's roles and responsibilities of caring for adult clients with acute and chronic disorders. Prerequisite: Family Nurse Practitioners major

NUR 643 - Healthcare Clinical Practicum II *(3 hours)*

This practicum course focuses on the delivery of advanced nursing care to adult clients with acute and chronic disorders. Various practicum settings with diverse populations will be utilized for practicum experiences. Prerequisite: Family Nurse Practitioners majors only

NUR 644 - Principles of FNP Practice III: Women's Health *(3 hours)*

Basic principles and concepts of the advanced nurse practitioner's roles and responsibilities in caring for women from adolescence through adulthood. Prerequisite: Family Nurse Practitioners majors only

NUR 645 - Healthcare Clinical Practicum III Women's Health *(3 hours)*

This practicum course focuses on the delivery of advanced nursing care to women from adolescence through adulthood. Various practicum settings with diverse populations will be utilized for practicum experiences. Prerequisite: Family Nurse Practitioner majors only

NUR 646 - Principles of FNP Practice IV: Children *(3 hours)*

Basic principles and concepts of the advanced nurse practitioner's roles and responsibilities in caring for infants, children, and adolescents. Prerequisite: Family Nurse Practitioners majors only

NUR 647 - Healthcare Clinical Practicum IV Children *(3 hours)*

This practicum course focuses on the delivery of advanced nursing care to infants, children, and adolescents. Various practicum settings with diverse populations will be utilized for practicum. Prerequisite: Family Nurse Practitioners majors only

NUR 648 - Principles of FNP Practice V: Aging Adult Populations *(3 hours)*

Basic principles and concepts of the advanced nurse practitioner's roles and responsibilities in caring for the aging adult clients. Prerequisite: Family Nurse Practitioners majors only

NUR 649 - Healthcare Clinical Practicum V Aging Adult *(3 hours)*

This practicum course focuses on the delivery of advanced nursing care to aging adult clients. Various practicum settings with diverse populations will be utilized for practicum experiences. Prerequisite: Family Nurse Practitioners majors only

NUR 651 - Advanced Pharmacology I *(3 hours)*

Provides the student with the knowledge and skills to assess, diagnose, and pharmacologically manage the treatment of common health problems in a safe, high-quality, and cost-effective manner. Prerequisite: Nursing major

NUR 652 - Advanced Pharmacology II *(3 hours)*

Students study and apply general principles of pharmacokinetics, pharmacodynamics, and pharmacotherapeutics of medications used in areas of advanced practice nursing specialties. Further in-depth study will focus on the pharmacologic selection of client populations exhibiting various coexisting disease and pathophysiologies. Prerequisite: Nursing major; NUR 651

NUR 655 - Diagnostic Reasoning *(3 hours)*

This course focuses on application of content from advanced health assessment by teaching diagnostic reasoning skills needed to assess and manage the care of clients across the continuum. Evaluation of diagnostic studies to formulate differential diagnoses and thereafter develop and/or update clinical treatment plans for clients will be integrated into course content

NUR 656 - Management of Acutely Ill Adults and Geriatrics I *(6 hours)*

This course focuses on the clinical foundation of advanced practice management of adolescents, adults, and geriatric clients with acute and chronic health problems. Emphasis is placed on diagnosis and management. Students utilize clinical practice guidelines to ensure safe evidence-based care. The clinical focus(provided in a variety of direct patient care settings) is on the role of the acute care nurse practitioner working with a multidisciplinary team across settings to facilitate and accelerate the patient's return to optimal health. Students will register for 6 semester hours, completing 200 clinical hours at selected facilities under the guidance of the clinical preceptor. Prerequisite: BIO 526, NUR 600, NUR 651

NUR 657 - Management of Acutely Ill Adults and Geriatrics II *(6 hours)*

This course continues the focus on the clinical foundation of advanced practice nursing management of adolescents, adults, and geriatric clients with acute and chronic health problems. Emphasis is placed on the diagnosis and management. Students utilize clinical practice guidelines to ensure safe evidence-based care. The clinical focus (provided in a variety of direct patient care settings) is on the role of the acute care nurse practitioner working with a multidisciplinary team across settings to facilitate and accelerate the patient's return to optimal health. Students will register for 6 semester hours, completing 200 clinical hours at selected facilities under the guidance of the clinical preceptor. Prerequisite: BIO 526, NUR 651, NUR 600, NUR 656

NUR 658 - Management of Acutely Ill Adults and Geriatrics III *(6 hours)*

This course continues the focus on the clinical foundation of advanced practice nursing management of adolescents, adults, and geriatric clients with acute and chronic health problems. Emphasis is placed on the diagnosis and management. Students utilize clinical practice guidelines to ensure safe evidence-based care. The clinical focus (provided in a variety of direct patient care settings) is on the role of the acute care nurse practitioner working with a multidisciplinary team across settings to facilitate and accelerate the patient's return to optimal health. Students will register for 6 semester hours, completing 200 clinical hours at selected facilities under the guidance of the clinical preceptor. Prerequisite: BIO 526, NUR 600, NUR 651, NUR 656, NUR 657

NUR 660 - Seminar in Nursing Education *(3 hours)*

Application of educational theories and techniques for the nurse educator. Prerequisite: Nursing major

NUR 661 - Nursing Education Practicum I *(3 hours)*

Application of nursing educational theories, principles, and techniques in the classroom and clinical settings. Prerequisite: Nursing major; concurrent enrollment in NUR 660

NUR 662 - Nursing Education Practicum II *(3 hours)*

Application of nursing educational theories, principles, and techniques in the staff development setting. Prerequisite: Nursing major; NUR 661 Corequisite: NUR 660, NUR 661 or consent of department chair.

NUR 666 - Management of Adolescents, Adults, and Geriatrics I *(6 hours)*

This course focuses on the evaluation, diagnosis, and comprehensive care management of primary care needs of adolescents, adults and geriatric clients. The clinical component focuses on the role of nurse practitioners in primary care settings including comprehensive physical assessment, formulation of differential diagnoses, and evidenced-based management plans for acute and chronic illnesses as well as health promotion, health restoration, and disease prevention strategies. Interdisciplinary clinical experiences and collaborative practice are emphasized. Students will register for 6 semester hours, completing 200 clinical hours at selected facilities under the guidance of the clinical preceptor. Prerequisite: BIO 526, NUR 651, NUR 600

NUR 667 - Management of Adolescents, Adults and Geriatrics II *(6 hours)*

This course continues to focus on the evaluation, diagnosis, and comprehensive care management of primary care needs of adolescents, adults and geriatric clients. The clinical component focuses on the role of nurse practitioners in primary care settings including comprehensive physical assessment, formulation of differential diagnoses, and evidenced-based management plans for acute and chronic illnesses as well as health promotion, health restoration, and disease prevention strategies. Interdisciplinary clinical experiences and collaborative practice are emphasized. Students will register for 6 semester hours, completing 200 clinical hours at selected facilities under the guidance of the clinical preceptor. Prerequisite: BIO 526, NUR 651, NUR 600, NUR 666

NUR 668 - Management of Adolescents, Adults, & Geriatrics III *(6 hours)*

This course continues to focus on the evaluation, diagnosis, and comprehensive care management of primary care needs of adolescents, adults and geriatric clients. The clinical component focuses on the role of nurse practitioners in primary care settings including comprehensive physical assessment, formulation of differential diagnoses, and evidenced-based management plans for acute and chronic illnesses as well as health promotion, health restoration, and disease prevention strategies. Interdisciplinary clinical experiences and collaborative practice are emphasized. Students will register for 6 semester hours, completing 200 clinical hours at selected facilities under the guidance of the clinical preceptor. Prerequisite: BIO 526, NUR 651, NUR 600, NUR 666, NUR 667

NUR 676 - Primary Care Acute Conditions Across the Lifespan I *(6 hours)*

This practicum course focuses on the delivery of advanced nursing care to clients with acute disorders across various practicum settings. Diverse populations will be utilized for practicum experiences. Students will register for 6 semester hours, completing 50 clinical hours at selected facilities under the guidance of the clinical preceptor. This practicum is established to further develop competency in the areas but not limited to: history taking, assessing, developing differential diagnoses, and evidence-based treatment. Prerequisite: BIO 526, NUR 600

NUR 677 - Primary Care Chronic Conditions Across the Lifespan II II *(6 hours)*

This practicum course focuses on the delivery of advanced nursing care to clients with chronic disorders in practicum settings. Various practicum settings with diverse populations will be utilized for practicum experiences. Students will register for 6 semester hours, completing 150 clinical hours at selected facilities under the guidance of the clinical preceptor. This practicum is established to further develop competency in the areas but not limited to: history taking, assessing, developing differential diagnoses, and evidence-based treatment. Prerequisite: NUR 676

NUR 678 - Primary Care Across the Lifespan III *(6 hours)*

This practicum course focuses on the delivery of advanced nursing care to women from adolescence through adulthood and infants, children, and adolescents in practicum settings. Various practicum settings with diverse populations will be utilized for practicum experiences. Students will register for 6 semester hours, completing 200 clinical hours at selected facilities under the guidance of the clinical preceptor. This practicum is established to further develop competency in the areas but not limited to: history taking, assessing, developing differential diagnoses, and evidence-based treatment. Prerequisite: NUR 677

NUR 679 - Primary Care Immersion IV *(6 hours)*

This practicum course focuses on the delivery of advanced nursing care to clients across the lifespan with acute and chronic disorders in practicum settings. Various practicum settings with diverse populations will be utilized for practicum experiences. Students will register for 6 semester hours, completing 300 clinical hours at selected facilities under the guidance of the clinical preceptor. This practicum is established to further develop competency in the areas but not limited to: history taking, assessing, developing differential diagnoses, and evidence-based treatment. Prerequisite: NUR 678

NUR 680 - Psychiatric Mental Health Nurse Practitioner (PMHNP) Roles Roles *(3 hours)*

This course provides an overview of PMHNP roles with an emphasis on the provision of ethical, evidence- based, and person-centered care in a variety of settings, including clinical practice, academia and population health. The course will emphasize utilization of communication technology to address health care inequities and gaps through telemedicine. Students will examine the importance of interprofessional collaboration and teamwork, as well as professional development, leadership, and personal wellness. Prerequisite: NUR 600, NUR 651 and BIO 526 Corequisite: NUR 682, NUR 684

NUR 682 - Psychopharmacology and Neurophysiology for the PMHNP *(3 hours)*

This course provides the opportunity to deepen the learner's understanding of neurophysiology as it relates to the underpinnings of psychiatric disease and related treatments. The learner will develop the skills necessary to utilize psychopharmacology to manage the treatment of common psychiatric health problems in a safe, high-quality, and cost-effective manner. Prerequisite: BIO 526, NUR 600, NUR 651 Corequisite: NUR 680, NUR 684

NUR 684 - Advanced Psychiatric Interviewing and Differential Diagnosis *(3 hours)*

This practicum and theory course focuses on the development of advanced psychiatric interviewing skills necessary to assess clients across the lifespan. Students will register for 3 semester hours completing 50 clinical simulation hours under the guidance of the practicum instructor. This practicum and theory course is established to further develop competency in the areas but not limited to: history taking, assessing, developing differential diagnoses, and interprofessional collaboration. Students are able to develop the skills to begin diagnosing psychiatric disorders in a culturally sensitive, evidence-based manner. Prerequisite: BIO 526, NUR 600, NUR 651 Corequisite: NUR 680, NUR 682

NUR 685 - PMHNP Continuum of Care Across the Lifespan and Practicum I *(6 hours)*

This practicum and theory course focuses on the delivery of advanced nursing care to clients with acute and chronic psychiatric disorders across various settings. Diverse populations will be utilized for practicum experiences. Students

will register for 6 semester hours, completing 150 clinical hours at selected facilities under the guidance of the clinical preceptor. This practicum and theory course is established to further develop competency in the areas but not limited to: history taking, assessing, developing differential diagnoses, and evidence-based treatment, including psychotherapeutic interventions. Prerequisite: BIO 526, NUR 680, NUR 682, NUR 684

NUR 686 - PMHNP Continuum of Care Across the Lifespan and Practicum II *(6 hours)*
This practicum and theory course focuses on the delivery of advanced nursing care to clients with acute and chronic psychiatric disorders across various practicum settings. Diverse populations will be utilized for practicum experiences. Students will register for 6 semester hours, completing 250 practicum hours at selected facilities under the guidance of the clinical preceptor. This practicum and theory course is established to further develop competency in the areas but not limited to: history taking, assessing, developing differential diagnoses, and evidence-based treatment, including psychotherapeutic interventions. Prerequisite: NUR 685

NUR 687 - PMHNP Sub-Specialty Focus and Practicum III *(4 hours)*
This practicum and theory course focuses on special considerations in the delivery of advanced nursing care to clients across the various PMHNP sub-specialty settings, including forensics, consult liaison, child/ adolescent, and geriatric psychiatry. Diverse populations will be utilized for practicum experiences. Students will register for 4 semester hours, completing 150 practicum hours at selected facilities under the guidance of the clinical preceptor. This practicum and theory course is established to further develop competency in the areas but not limited to: history taking, assessing, developing differential diagnoses, and evidence-based treatment, including psychotherapeutic interventions. Prerequisite: NUR 686

NUR 688 - Professional Aspects of the PMHNP *(2 hours)*
Designed for the psychiatric/mental health nurse to explore the professional aspects and challenges associated with advanced practice nursing, including legal, regulatory and reimbursement issues. Tailored to meet the needs of PMHNPs entering practice including a focus upon organizational, systems, and population strategies. Prerequisite: NUR 686

NUR 689 - Independent Research *(1-6 hours)*
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 690 - Professional Aspects of Advanced Nursing Practice *(1-2 hours)*
Designed for the nurse to explore the professional aspects and challenges associated with advanced practice nursing. Tailored to meet the needs of a variety of specialties including a focus upon organizational, systems, and population strategies. Prerequisite: Nursing major

NUR 697 - Capstone Project in Nursing *(0-3 hours)*
A student-initiated endeavor that culminates in a scholarly project, which synthesizes advanced practice knowledge and skills to address a current nursing practice issue related to chosen advanced practice field of study. May be repeated for a maximum of three semester hours. Prerequisite: Nursing major

NUR 699 - Topics in Advanced Healthcare Practice *(1 hour)*

This course will explore emerging topics relevant to the students seeking and/or collaborating with individuals seeking advanced practice healthcare degrees. Focusing on interdisciplinary concepts and subject matter, this course will help students gain competence and grow professionally in ways that may be applied to their specific field or practice areas. May be repeated for a maximum of 3 credit hours. Prerequisite: Graduate Student Standing.

NUR 700 - Theoretical Foundations of Nursing Science *(3 hours)*

Provides a theoretical analysis of nursing and the natural and social sciences for application as frameworks for research, practice, education, and quality healthcare delivery. Prerequisite: DNP Major

NUR 703 - Health Promotion in Populations *(3 hours)*

Focuses on core concepts in health and health promotion for groups, communities, and populations. There are two inter-related goals for this course. (1) Provide students with a basic understanding of the principles and determinants of population health with an emphasis on the tools provided by basic epidemiology for understanding health in populations. (2) Provide students with a comprehensive understanding of the steps needed to develop, implement, and evaluate population-based health promotion and illness prevention programs. Prerequisite: Nursing Majors only or consent of instructor

NUR 705 - Research Design and Statistical Methods *(3 hours)*

Examination of research study design/methodology and application and interpretation of descriptive and inferential statistical methods appropriate for critical appraisal of evidence. Use of analytic software for data management and preliminary analysis prepares students to assess quantitative and qualitative data, understand research methodology, and critically evaluate research findings. Prerequisite: Admission to the NUR DNP Program or approval by the lead instructor.

NUR 720 - Methods in Evidence Based Practice *(3 hours)*

Introduces the learner to theories related to Research Utilization (RU) and Evidence-based Practice (EBP) and provides opportunities to explore issues and refine questions related to quality and cost-effective healthcare delivery for the best client outcomes. Methods to collect evidence, plan changes for the transformation of practice, and evaluate quality improvement methods will be discussed. Emphasis on best practice based on evidence and preferences of the client. Prerequisite: DNP Major

NUR 725 - DNP Practice Seminar II *(2 hours)*

Provides for a student-initiated endeavor culminating in implementation of a scholarly proposal. The project will provide an opportunity for leadership in healthcare policy resulting in safe and effective nursing and healthcare practice. Students will refine their proposals and implement their projects in the chosen clinical setting to meet the needs of healthcare providers, consumers, and stakeholders by assuring safe and cost-effective care. Students will demonstrate leadership in the practice setting and serve in the role of educator, consultant, and change agent. Prerequisite: DNP Major

NUR 730 - Ethics in Advanced Practice Nursing *(3 hours)*

Provides participants with opportunities to critically analyze ethical issues that arise in practice, research, education, and administration and their intersection with one's personal values. Discussions will also include the legal

obligations which freq Prerequisite: DNP Majors only

NUR 735 - Leadership in Advance Nursing Practice *(3 hours)*

Emphasizes organizational and system leadership strategies for the advanced practice nurse with an emphasis on productivity in emerging practice environment. Improvement of health outcomes, patient safety, and inter-professional collaboration will be included. Prerequisite: Doctor of Nursing Practice majors only

NUR 740 - Healthcare Policy and Ethics in Advanced Practice Nursing *(3 hours)*

This course examines the political and ethical decisions and issues that shape the organization, financing, and implementation of health care services and delivery systems at the local, national and global levels. Students will have opportunities to critically analyze ethical, social and political issues that affect the provision of healthcare practice, research, education, and administration and how each intersects with one's personal values. Students will define the APNs role in health promotion, healthcare delivery, and quality improvement through activities related to health policy reform. Health policy development and implementation and its impact on healthcare regulation, delivery and finance will also be explored. Prerequisite: Admission to the NUR DNP Program or approval by the lead instructor.

NUR 752 - Advanced Health Informatics *(3 hours)*

This course examines the current trends in health informatics and data analytic methods. It provides opportunities for the advanced practice nurse (APN) to apply theoretical concepts of informatics to individual and aggregate level health information. Emphasis is placed on the APN's leadership role in the use of health information to improve health care delivery and outcomes. Prerequisite: DNP Major

NUR 826 - DNP Practice Seminar III-A *(1.5 hours)*

Provides for a student-initiated endeavor culminating in implementation, evaluation, and dissemination of a scholarly project. The project will provide opportunities for leadership and advocacy in healthcare policy development. Students will implement, evaluate, and disseminate their project in the chosen clinical setting to meet the needs of healthcare providers, consumers, and stakeholders in assuring safe and cost-effective care. Students will demonstrate leadership in the dissemination of project findings through publication and presentation. Prerequisite: DNP Major

NUR 827 - DNP Practice Seminar III -B *(1.5 hours)*

Provides for a student-initiated endeavor culminating in implementation, evaluation, and dissemination of a scholarly project. The project will provide opportunities for leadership and advocacy in healthcare policy development. Students will implement, evaluate, and disseminate their project in the chosen clinical setting to meet the needs of healthcare providers, consumers, and stakeholders in assuring safe and cost-effective care. Students will demonstrate leadership in the dissemination of project findings through publication and presentation. Prerequisite: DNP Major

NUR 840 - DNP Clinical Practice *(1-4 hours)*

Designed for the nurse to complete practicum hours required to achieve the practice doctorate. Tailored to meet the needs of a variety of specialty areas depending upon the educational backgrounds of participants. Students enrolled

in this course will implement professional and leadership roles of the practice doctorate in their specialty areas. May be repeated for a maximum of 15 semester hours. Prerequisite: Doctor of Nursing Practice majors only

NUR 841 - DNP Project I *(3 hours)*

This course, the first of a four-course series, provides the DNP student with mentored opportunities to plan, implement, and evaluate a multifaceted DNP project built upon the DNP Essentials. Each course builds on the knowledge, skills, and practice expertise of the DNP student and culminates in the completion of the DNP project. The focus of this course is on the identification and planning components of the written DNP project proposal. Students will register for 3 semester hours, completing 50 practicum hours in which the DNP student will seek opportunities, with the guidance of their mentor, to hone skills within the DNP Essentials. Prerequisite: NUR 705, NUR 720, NUR 735

NUR 842 - DNP Project II *(3 hours)*

This course, the second of a four-course series, provides the DNP student with mentored opportunities to plan, implement, and evaluate a multifaceted DNP project built upon the DNP Essentials. Each course builds on the knowledge, skills, and practice expertise of the DNP student and culminates in the completion of the DNP project. The focus of this course is on the completion of a written DNP project proposal and the application and approval of Institutional Review Board or Committee on the Use of Human Subjects in Research of the DNP project. Students will register for 3 semester hours, completing 50 practicum hours in which the DNP student will seek opportunities, with the guidance of their mentor, to hone skills within the Prerequisite: NUR 841

NUR 843 - DNP Project III *(3 hours)*

This course, the third course in a four-course series, provides the DNP student with mentored opportunities to plan, implement, and evaluate a multifaceted DNP project built upon the DNP Essentials Each course builds on the knowledge, skills, and practice expertise of the DNP student, culminating in the completion of the DNP project. The focus of this course is on project implementation and evaluation of the DNP project. Students will register for 3 semester hours, completing 125 practicum hours in which the DNP student will seek opportunities, with the guidance of their mentor, to hone skills within the DNP Essentials. Prerequisite: NUR 842

NUR 844 - DNP Project IV *(3 hours)*

This course, the fourth course in a four course series, provides the DNP student with mentored opportunities to plan, implement, and evaluate a multifaceted DNP project built upon the DNP Essentials. Each course builds on the knowledge, skills and practice expertise of the DNP student, culminating in the completion of the DNP project paper. The DNP project culminates in a final oral presentation and dissemination of the DNP project course. Students will register for 3 semester hours, completing 75 practicum hours in which the DNP student will seek opportunities, with the guidance of their mentor, to hone skills within the DNP Essentials. Prerequisite: NUR 843

Department concerned, the Registrar's Office, u.Achieve degree audit system, and the Schedule of Classes. It is the responsibility of each student to be aware of the current program and graduation requirements for particular degree programs.

DOCTORATE OF OCCUPATIONAL THERAPY (DROT) PROGRAM (ONLINE)

Program Description

The Post-Professional Doctorate of Occupational Therapy (DrOT) Program prepares occupational therapists for leadership and scholarship in academic communities and/or healthcare organizations. The program has two tracks. The first track is for occupational therapists that have already completed a master's program in any field of study (MS to DrOT). For these students, the Post-Professional Doctorate of Occupational Therapy consists of 33 credit hours. For students with a Bachelor's in Occupational Therapy who do not possess a master's degree, they will be enrolled in the second track which includes completing three additional courses they complete in the Post-Professional Occupational Therapy Doctorate Program (BSOT to DrOT). For these students, the Post-Professional Occupational Therapy Doctorate consists of 42 credit hours. This program is offered in a synchronous online format.

All graduates will be able to:

1. Critically appraise evidence-based practice strategies to maximize target population outcomes.
2. Disseminate information to the occupational therapy body of knowledge through design and implementation of evidence-based practice scholarship.
3. Implement strategies to address the ethics, policies, and laws that impact the practice of occupational therapy in the dynamic health care environment.

Program Objectives

1. Critically appraise evidence-based practice strategies to maximize target population outcomes.
2. Disseminate information to the occupational therapy body of knowledge through design and implementation of evidence-based practice scholarship.
3. Implement strategies to address the ethics, policies, and laws that impact the practice of occupational therapy in the dynamic health care environment.

Scholarly Project

All students in the DrOT program are required to plan, implement, evaluate, and disseminate a scholarly project. The DrOT project is guided by evidence-based practice or quality improvement processes that focus on changes that positively influence healthcare outcomes through direct or indirect patient care with a focus on the student's identified area of expertise.

Admission

Students must have graduated from an accredited college or university with a final GPA standing of 3.0 (B) or greater in undergraduate or graduate occupational therapy work undertaken, whichever degree is the highest held. Students must show evidence of passing the OTR NBCOT examination.

Students who do not meet minimum requirements but have reason to believe that they can succeed in and benefit from graduate study will be considered on an individual basis and, if appropriate, admitted conditionally. Specific requirements for different admission statuses are given below. The Admissions Office will provide comprehensive application criteria, including a complete list of the admission requirements for the specific graduate program in response to an application request. Online applications may be submitted through the university website. All application materials, including transcripts, become part of the records of Bradley University and may not be returned to the applicant for any reason.

Degree-Seeking student's admission is decided following receipt of the following materials:

1. A completed application form and required documents
2. Official transcripts of all previous undergraduate and graduate work
3. A reflective essay of 2 double-spaced pages indicating the student's reasons for pursuing a graduate degree and the relationship of graduate study to any professional goals
4. Two letters of recommendation unless otherwise noted in program admission requirements. Recommendation forms for each degree are available either online or from the Graduate School Office. Persons writing the recommendations should not be related to the applicant.
5. Minimum of Bachelors of Science in Occupational Therapy
6. Current state licensure as an Occupational Therapist in good standing
7. Minimum of 1-year work experience as an Occupational Therapist
8. No GRE required

Curriculum Tracks

Required Courses for MS to DrOT

- OTD 801 Professional Engagement in OT 3 hrs.
- OTD 803 Evidence-based Clinical Inquiry in OT 3 hrs
- OTD 811 Research Methods- Quantitative 3 hrs.
- OTD 813 Research Methods- Qualitative 3 hrs.
- OTD 821 Practice and Research Ethics 3 hrs.
- OTD 823 Educational Principles in OT 3 hrs.
- OTD-831 OT Professional Advocacy 3 hrs.
- OTD 833 Advanced Practice Trends in OT 3 hrs.
- OTD 841 Management Strategies in OT 3 hrs.
- OTD 843 EBP Project 1- Discovery and Design 3 hrs.
- OTD 845 EBP Project 2- Implementation 3 hrs.

Total: 33 hrs.

Required Courses for BS to DrOT

- OTD 685 Introduction to Occupational Science 3 hrs.
- OTD 690 Interprofessional Education 3 hrs.
- OTD 695 Assessment and Evaluation 3 hrs.
- OTD 801 Professional Engagement in OT 3 hrs.
- OTD 803 Evidence-based Clinical Inquiry in OT 3 hrs.
- OTD 811 Research Methods- Quantitative 3 hrs.
- OTD 813 Research Methods- Qualitative 3 hrs.
- OTD 821 Practice and Research Ethics 3 hrs.
- OTD 823 Educational Principles in OT 3 hrs.
- OTD-831 OT Professional Advocacy 3 hrs.
- OTD 833 Advanced Practice Trends in OT 3 hrs.
- OTD 841 Management Strategies in OT 3 hrs.
- OTD 843 EBP Project 1- Discovery and Design 3 hrs.
- OTD 845 EBP Project 2- Implementation 3 hrs.

Total: 42 hrs.

Sample Course Sequence

Track 1: MS to DrOT, 33 credit hours

Semester 1

- OTD 801 Professional Engagement in OT (first 7 weeks) 3 hrs.
- OTD 803 Evidence-based Clinical Inquiry in OT (second 7 weeks) 3 hrs

Semester 2

- OTD 811 Research Methods- Quantitative (first 7 weeks) 3 hrs.
- OTD 813 Research Methods- Qualitative (second 7 weeks) 3 hrs.

Semester 3

- OTD 821- Practice and Research Ethics (first 7 weeks) 3 hrs.
- OTD 823- Educational Principles in OT (second 7 weeks) 3 hrs.

Semester 4

- OTD-831- OT Professional Advocacy (first 7 weeks) 3 hrs.
- OTD 833- Advanced Practice Trends in OT (second 7 weeks) 3 hrs.

Semester 5

- OTD 841- Management Strategies in OT (first 7 weeks) 3 hrs.
- OTD 843- EBP Project 1- Discovery and Design (second 7 weeks) 3 hrs.

Semester 6

- OTD 845- EBP Project 2- Implementation (first 7 weeks) 3 hrs.

Track 1 Total: 33 hrs.

Track 2: BS to DrOT, 42 credit hours

Semester 1

- OTD 685 Introduction to Occupational Science (first 7 weeks) 3 hrs.
- OTD 690 Interprofessional Education (second 7 weeks) 3 hrs.
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Semester 2

- OTD 695 Assessment and Evaluation (first 7 weeks) 3 hrs.
- OTD 801 Professional Engagement in OT (second 7 weeks) 3 hrs.

Semester 3

- OTD 803 Evidence-based Clinical Inquiry in OT (first 7 weeks) 3 hrs.
- OTD 811 Research Methods- Quantitative (second 7 weeks) 3 hrs.

Semester 4

- OTD 813 Research Methods- Qualitative (first 7 weeks) 3 hrs.
- OTD 821- Practice and Research Ethics (second 7 weeks) 3 hrs.

Semester 5

- OTD 823- Educational Principles in OT (first 7 weeks) 3 hrs.
- OTD-831- OT Professional Advocacy (second 7 weeks) 3 hrs.

Semester 6

- OTD 833- Advanced Practice Trends in OT (first 7 weeks) 3 hrs.
- OTD 841- Management Strategies in OT (second 7 weeks) 3 hrs.

Semester 7

- OTD 843- EBP Project 1- Discovery and Design (first 7 weeks) 3 hrs.
- OTD 845- EBP Project 2- Implementation (second 7 weeks) 3 hrs.

Track 2 Total: 42 hrs.

Program Completion Requirements

To successfully complete the program, students must have achieved a final minimum cumulative GPA of 3.0 or higher. If a student receives less than a C in a course, the student is required to retake the course at his or her expense. If a student receives 2 "C" grades or less in more than 2 courses, the student will be dismissed from the program. The Plan of Study varies based on students' term of entry (e.g., spring, summer or fall). Students can complete the program in as little as six semesters by following a prescribed Plan of Study based on the admitted track. No final comprehensive exam is required for graduation.

Policy for Readmission

DrOT students who leave in good standing may apply for readmission to the program. Students who do not enroll in courses in their degree program for more than three consecutive semesters (fall, spring, summer) and have not been granted a leave of absence will be required to reapply for admission and undergo re-evaluation by the Admissions Committee of the program in which they are seeking readmission, in order to determine whether they may continue in the program. All courses must be completed within 5 years of the initial date of enrollment to obtain the degree.

This is the official catalog for the 2023-2024 academic year. This catalog serves as a contract between a student and Bradley University. Should changes in a program of study become necessary prior to the next academic year every effort will be made to keep students advised of any such changes via the Dean of the College or Chair of the Department concerned, the Registrar's Office, u.Achieve degree audit system, and the Schedule of Classes. It is the responsibility of each student to be aware of the current program and graduation requirements for particular degree programs.

OCCUPATIONAL THERAPY COURSES

OTD 685 - Introduction to Occupational Science *(3 hours)*

This course examines the relationship between environment, occupations, and context on occupational performance. Students will be able to define key concepts and theoretical models influencing occupational engagement across the lifespan. Prerequisite: Admission to DrOT Program

OTD 690 - Introduction to Interprofessional Education *(3 hours)*

This course overviews fundamentals of interprofessional education in various settings. Students develop communication strategies for effective interprofessional collaboration. Cultural influences and team dynamics are also examined in this course. Prerequisite: Admission to DrOT Program

OTD 695 - Assessment and Evaluation *(3 hours)*

This course addresses the occupational therapy evaluation selection process for evidence-based assessment. Students analyze standardized and non-standardized assessment based on psychometrics and testing procedures. Students refine documentation to effectively convey skilled services through assessment data analysis. Prerequisite: Admission to DrOT Program

OTD 701 - Occupational Therapy Foundations of Practice *(3 hours)*

This course offers the historical and philosophical perspectives of occupational therapy. Students learn theories and frameworks for individual, group and societal demands. Students gain an introductory knowledge of occupational therapy guiding principles that influence trends in practice and identify the connections between theory and practice. Prerequisite: Admission into the OTD Program.

OTD 703 - Occupational Engagement Principles *(3 hours)*

In this course, students are introduced to the meaning of occupation and use in current practice areas based on healthcare trends identified by American Occupational Therapy Association (AOTA). Students also learn guiding principles of activity analysis in addition to the domain and process of practice. Students develop skills to select purposeful activities based on occupational performance. Prerequisite: Admission to the OTD Program

OTD 705 - Clinical Inquiry for Occupational Therapy Evidence Based Practice *(3 hours)*

This course introduces a basic understanding of research, defining practice-based questions and understanding the evidence as it relates to practice. Students will develop skills in identifying research questions, use of search engine databases and other resources to critically analyze literature. The course will focus on creating a deeper understanding of evidence and its impact on occupational therapy practice. Prerequisite: Admission to OTD program

OTD 706 - Social Determinants of Health and Wellness *(3 hours)*

In this course, students explore the history of policy influence on disability, health service delivery, and social service delivery. Students examine the impact cultural assumptions and differences have on health and wellness promotion.

Students analyze the effects of social determinants of health and wellness using evidence-based approaches to effectively communicate the role of occupational therapy. Prerequisite: OTD 701, OTD 703, OTD 705

OTD 707 - Occupational Engagement for Cognitive Perceptual Conditions *(3 hours)*
In this course, students develop the foundational skills to assess and treat cognition and visual perception disorders using standardized and non-standardized assessment. Students will also explore evidence-based intervention strategies to facilitate occupational engagement considering client factors, context and environment, and performance skills. Prerequisite: OTD 701, OTD 703, OTD 705

OTD 708 - Research Methods *(0-3 hours)*
In this course, common quantitative, qualitative, and mixed methods research methodologies seen in occupational therapy practice will be presented. Students will develop Institutional Review Board (IRB) proposals and study designs. Students develop skills in participant selection, data collection tools, application, and interpretation of necessary statistics through the study design. Students also learn to report study outcomes and findings. Prerequisite: OTD 701, OTD 703, OTD 705

OTD 709 - Occupational Therapy Evaluation and Assessment *(3 hours)*
This course addresses the occupational therapy evaluation process using various forms of assessment. Students develop a foundation of observation, standardized and non-standardized assessment, assessment psychometric, and testing procedures. Ability to analyze assessment data and write a cogent evaluation report will be covered. Prerequisite: OTD 701, OTD 703, OTD 705

OTD 711 - Occupational Therapy Ethics and Advocacy *(3 hours)*
This course focuses on application of the AOTA Code of Ethics. Students will identify and analyze ethical dilemmas in practice and research settings and discuss the legal implications on the ethical dilemmas. Students will also be able to discuss the importance of advocacy skills to promote the profession. Students develop awareness of various diversity factors that impede access to health services for individuals, populations, and societies. Students will gain knowledge in multiple methods of advocacy including information systems, health and public policy, political activism, professional networks, and social change initiatives. Prerequisite: OTD 701, OTD 703, OTD 705

OTD 713 - Pathophysiology and Occupational Engagement *(3 hours)*
In this course, students examine common pathophysiological conditions encountered in occupational therapy practice. Students identify functional implications of pathophysiological conditions on occupational performance. Conditions covered in this course include cardiac, pulmonary, infectious disease, sensory systems, and other categories of conditions. Students will also have an overview of lab tests and pharmacology that impacts developing a plan of care. Prerequisite: OTD 701, OTD 703, OTD 705

OTD 715 - Occupational Engagement for the Orthopedic Population *(5 hours)*
In this course, students explore orthopedic conditions and the impact on occupational engagement. Students will apply assessments and evidence-based interventions using various frames of reference. Course content will include an introduction to biophysical agent modalities, fabrication and application of orthotics and prosthetics. Students will

learn methods for improving functional performance of clients with orthopedic diagnoses through the use of restoration, compensation, and adaptive techniques. Prerequisite: OTD 701, OTD 703, OTD 705, OTD 707, OTD 709, OTD 711, OTD 713

OTD 717 - Occupational Engagement for the Mental Health Population *(5 hours)*

In this course, students explore mental health conditions and the impact on occupational engagement. This course discusses common mental health conditions, assessments and evidence-based interventions related to psychosocial deficits using social and psychological theories and frameworks. Group dynamics will be explored across the lifespan. Prerequisite: OTD 701, OTD 703, OTD 705, OTD 707, OTD 709, OTD 711, OTD 713

OTD 719 - Occupational Engagement for the Neurologic Population *(5 hours)*

In this course, students explore neurologic conditions and the impact on occupational engagement. Students will apply assessments and evidence-based interventions using various frames of reference. Students will learn to address motor skills, sensory-perceptual, emotional regulation, cognitive, dysphagia, communication and social skills. This course focuses on improving functional performance of clients with neurologic diagnoses through the use of restoration, compensation, and adaptive techniques. Prerequisite: OTD 701, OTD 703, OTD 705, OTD 707, OTD 709, OTD 711, OTD 713

OTD 721 - Occupational Therapy Fieldwork Level 1a *(3 hours)*

Fieldwork seminar focuses on guided learning experiences in various health care and/or community settings. Students directly observe and interact with clients engaging in occupations. Students will apply therapeutic use of self and group dynamics to the populations observed. The learning experience is enhanced by psychosocial practice specific assignments. Students must complete the required hours in the designated setting. Seminar portion of the class allows students to share their experiences and begin to apply professional reasoning. Prerequisite: OTD 701, OTD 703, OTD 705, OTD 707, OTD 709, OTD 711, OTD 713

OTD 723 - Occupational Therapy Practice Trends *(3 hours)*

In this course, the traditional, non-traditional, and emerging practice settings are explored. Students will learn how practice is influenced by various stakeholders in each setting. Practice settings discussed include inpatient, outpatient, skilled nursing, home health, palliative/hospice, community-based, and emerging practice areas as established by AOTA. Students will learn to provide client-centered occupational therapy services across a wide variety of settings. Prerequisite: OTD 715, OTD 717, OTD 719, OTD 721

OTD 725 - Capstone Exploration *(2 hours)*

In this course, students focus is on discovering advanced practice areas of individual professional interest under the guidance of a faculty mentor. Students appraise the literature and explore resources needed to develop a successful capstone project. Students are introduced to project management and networking to develop the design of an individual capstone project. Prerequisite: OTD 715, OTD 717, OTD 719, OTD 721

OTD 727 - OT Research Implementation *(3 hours)*

Students participate in the development and implementation of a research study under the direct supervision of a faculty member. This course focuses on the research process from data collection strategies to reporting outcomes in

a scholarly manner. Students disseminate the information to contribute to the body of occupational therapy knowledge. Prerequisite: OTD 715, OTD 717, OTD 719, OTD 721

OTD 729 - Occupational Engagement for Children and Youth *(5 hours)*

This course focuses on the use of a variety of theoretical frameworks, evaluation tools and intervention strategies to improve occupational performance in the pediatric population. Students apply neurophysiological principles and various strategies to positively impact clients from infant through adolescent stages. Students learn to provide client-centered occupational therapy services across the continuum of care related to the pediatric population. Prerequisite: OTD 715, OTD 717, OTD 719, OTD 721, OTD 723, OTD 725, OTD 727

OTD 731 - Leadership and Management in Rehab *(3 hours)*

In this course, leadership and management strategies are applied through program development. Students explore concepts in budgeting, marketing, and entrepreneurship. Students gain knowledge in outcomes assessment, case management, quality assurance and personnel management. Prerequisite: OTD 715, OTD 717, OTD 719, OTD 721, OTD 723, OTD 725, OTD 727

OTD 733 - Educational Principles in Rehab *(3 hours)*

In this course, learning theories and pedagogy in clinical and academic practice are explored. Students will identify strategies to be effective in educational pursuits in a multitude of practice settings. Students are introduced to basic principles for curriculum design and development. Educational method for education of clients, caregivers, and interprofessional colleagues will be explored. Prerequisite: OTD 715, OTD 717, OTD 719, OTD 721, OTD 723, OTD 725, OTD 727

OTD 735 - Occupational Engagement for Assistive Technology *(5 hours)*

This course focuses on assessment and evidence-based interventions to address the challenges related to assistive technology. Students learn to provide client-centered occupational therapy services to individuals throughout the lifespan and across the continuum of care. Assistive technology in the context of environment and occupation using technology to enhance occupational performance at home, work, school, and the community is explored. Assistive and adaptive technology, ergonomics, community mobility, driving, and use of universal design are utilized to meet individual and population needs. Prerequisite: OTD 715, OTD 717, OTD 719, OTD 721, OTD 723, OTD 725, OTD 727

OTD 737 - Occupational Engagement for Productive Aging *(5 hours)*

This course focuses on assessment and evidence-based interventions to address the challenges related to productive aging. Students learn to provide client-centered occupational therapy services to the older adult population across the continuum of care. Aging in place and older adult community mobility are addressed. Students compare typical versus atypical aging and the effects on occupational performance. Prerequisite: OTD 729, OTD 731, OTD 733, OTD 735

OTD 739 - OT Fieldwork Level 1b *(3 hours)*

Fieldwork seminar focuses on guided learning experiences in various health care and/or community settings. Students directly observe and interact with clients engaging in occupations. Students will apply therapeutic use of self and group dynamics to the populations observed. The learning experience is enhanced by physical disability

related assignments. Students must complete the required hours in the designated setting. Seminar portion of the class allows students to share their experiences and begin to apply professional reasoning. Prerequisite: OTD 729, OTD 731, OTD 733, OTD 735

OTD 741 - Advanced Occupational Therapy Clinical Reasoning *(3 hours)*

In this course, students integrate knowledge gained from practice and research courses to design and implement reflective intervention plans for complex cases. Students discuss the nature of clinical and professional reasoning, types of reasoning, and application to practice. Theories related to assessment and intervention will be revisited to challenge students thought processes and elevate skills for a complex practice environment, including billing and reimbursement systems. Case studies and other real-life experiences will be used to promote the reflective processes involved in clinical and professional reasoning.

OTD 743 - Capstone Development *(2 hours)*

In this course, students design individual capstone projects with faculty mentor consultation. The culminating evidence-based project relates to synthesis and application of advanced knowledge and approaches. The projects will focus on at least one of the following: clinical practice skills, education, research skills, administration, leadership, program and policy development, advocacy, and/or theory development. Projects will also demonstrate knowledge translation concepts by applying evidence to practice. Students will learn the process for obtaining funding opportunities and application of project management principles. Prerequisite: OTD 729, OTD 731, OTD 733, OTD 735

OTD 745 - Occupational Therapy Clinical Competency *(2 hours)*

In this course, students demonstrate various skills, assessments, and interventions through simulations to assess competency prior to participating in level 2 fieldwork experiences. This course focuses on safe client handling techniques and plan of care development skills in a simulated work environment. Prerequisite: OTD 729, OTD 731, OTD 733, OTD 735

OTD 747 - Fieldwork Level 2a *(6 hours)*

A 12-week, full-time clinical placement in a hospital, clinic or community-based setting providing the student with experience in designated areas of occupational therapy, under the direct supervision of a licensed occupational therapist. Students will participate in discussion boards on the University LMS at various points during the experience. Prerequisite: OTD 737, OTD 739, OTD 741, OTD 743, OTD 745

OTD 749 - Fieldwork Level 2b *(6 hours)*

A 12-week, full-time clinical placement in a hospital, clinic or community-based setting providing the student with experience in designated areas of occupational therapy, under the direct supervision of a licensed occupational therapist. Students will participate in discussion board on the University LMS at various points during the experience. Prerequisite: OTD 737, OTD 739, OTD 741, OTD 743, OTD 745

OTD 751 - Capstone Implementation *(8 hours)*

In this course, students continue building on the work in previous capstone courses that results in the execution and evaluation of the designed project. Project details, including time and duration, requirements for the project are

determined by the ACOTE section D standards. The project is defined by written objectives and assessment measures approved by the faculty advisor and the Doctoral Capstone Coordinator. Prerequisite: OTD 747, OTD 749

OTD 751 - Capstone Implementation *(7 hours)*

In this course, students continue building on the work in previous capstone courses that results in the execution and evaluation of the designed project. Project details, including time and duration, requirements for the project are determined by the ACOTE section D standards. The project is defined by written objectives and assessment measures approved by the faculty advisor and the Doctoral Capstone Coordinator. Prerequisite: OTD 747, OTD 749

OTD 753 - Licensure Preparation *(1 hour)*

This online course prepares students for practice through an understanding of licensure and certification requirements in a variety of states and in the US. Prerequisite: OTD 747, OTD 749

OTD 801 - Professional Engagement in OT *(3 hours)*

The focus of this course is to assist practicing occupational therapists in defining their personal career goals and creating a plan to achieve those goals. Students will refine self-reflection skills and leverage various resources for advancement. Students will explore concepts related to emotional intelligence and career mapping to develop the career plan. Prerequisite: Admission to the DrOT Program

OTD 803 - Evidence-based Clinical Inquiry in OT *(3 hours)*

This course introduces evidence-based practice methods with skill development through developing practice-based questions, use of search engine databases and other resources. Students are introduced to appraising the quality of evidence. A deeper understanding of evidence and its impact on occupational therapy practice is a primary focus. Prerequisite: OTD 801

OTD 811 - Research Methodology- Quantitative Methods *(3 hours)*

This course overviews common quantitative research methodologies seen in occupational therapy research. Students learn selection, application, and interpretation of basic correlational and inferential statistics through the design of quantitative studies and data collection tools. Students design quantitative studies and data collection tools while learning to analyze and disseminate study outcomes. Students learn to develop IRB proposals and study designs for quantitative studies. Prerequisite: OTD 803

OTD 813 - Research Methodology- Qualitative Methods *(3 hours)*

This course overviews the common qualitative and mixed method research methodologies seen in occupational therapy research. Students design qualitative studies and data collection tools while learning to analyze and disseminate study outcomes. Students learn to develop IRB proposals and study designs for qualitative and mixed method research. Prerequisite: OTD 803

OTD 821 - Practice and Research Ethics *(3 hours)*

This course provides an overview of the ethical and legal considerations of conducting research and practice. Students will identify and problem-solve ethical dilemmas in a variety of practice settings and assess legal implications to practice based on the ethical dilemmas. Students apply knowledge related to research ethics based on CITI training. Prerequisite: OTD 801

OTD 823 - Educational Principles in OT *(3 hours)*

This course engages students in examining educational principles in everyday practice. Students will deepen the knowledge of various educational pedagogies and learning styles to be effective in educational pursuits in a multitude of practice settings. Students learn how various teaching strategies are informed by pedagogy and learning styles. Basic principles for curriculum design and development will be introduced. Prerequisite: OTD 801

OTD 831 - OT Professional Advocacy *(3 hours)*

This course addresses cultural competency and advocacy skills in order to facilitate occupational therapy services for underserved populations. Students develop awareness of diversity factors and social determinants of health that impede access to health services for individuals, populations, and societies. Students will gain knowledge in multiple methods of advocacy including grant writing, information systems, health and public policy, political activism, professional networks, and social change initiatives. Prerequisite: OTD 801

OTD 833 - Advanced Practice Trends in OT *(3 hours)*

In this course, students develop the skills to identify emerging practice areas based on current healthcare trends identified by American Occupational Therapy Association (AOTA) emerging practice areas and niches. To advance the profession, students gain skills in assessing needs and developing action plans for occupational therapy services in various settings. Students learn a systematic approach to addressing population and societal needs through expanding occupational therapy practice. Prerequisite: OTD 801

OTD 841 - Management Strategies in OT *(3 hours)*

In this course, leadership and management strategies are applied through analysis of program development and evaluation. Students gain expertise in outcomes assessment, case management, business planning, personnel management, and emotional intelligence. Students gain knowledge in basic budgeting and marketing through entrepreneurship. Prerequisite: OTD 801

OTD 843 - Evidence-based Project Discovery and Design *(3 hours)*

In this course, students explore and design individualized evidence-based projects in advanced practice areas based on professional interests under the guidance of a faculty advisor. Students complete a thorough evidence review and explore resources needed to contribute to the success of the project. The culminating project relates research to practice and synthesis of advanced knowledge and skills using knowledge translation. Synthesis and application of advanced knowledge and evidence-based approaches may include clinical practice, education, research, technology, leadership/ administration, advocacy, or entrepreneur opportunities. Prerequisite: OTD 801, OTD 811, OTD 813

OTD 845 - Evidence-based Project Implementation *(3 hours)*

Students implement the previously designed evidence-based project during this course. The overall goal of advancing the occupational therapy body of knowledge and scholarly dissemination of the information is emphasized. Elements of the project include strategy implementation, outcomes evaluation, and presentation of the final product. The project has written objectives and assessment measures approved by the faculty advisor. Prerequisite: OTD 801, OTD 811, OTD 813, OTD 843

This is the official catalog for the 2023-2024 academic year. This catalog serves as a contract between a student and Bradley University. Should changes in a program of study become necessary prior to the next academic year every effort will be made to keep students advised of any such changes via the Dean of the College or Chair of the Department concerned, the Registrar's Office, u.Achieve degree audit system, and the Schedule of Classes. It is the responsibility of each student to be aware of the current program and graduation requirements for particular degree programs.

PHYSICAL THERAPY

Dr. Melissa Peterson,

Chair and Professor, Department of Physical Therapy and Health Science

The Doctor of Physical Therapy Program at Bradley University is accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE), 1111 North Fairfax Street, Alexandria, Virginia 22314; telephone: 703-706-3245; email: accreditation@apta.org; website: www.capteonline.org.

Mission

The mission of the Department of Physical Therapy and Health Science is to develop versatile and ethical individuals in a student-focused environment that prepares our graduates to lead, educate, advocate and serve in an interdisciplinary health care environment. The mission of the Kinesiology and Health Science program is to develop undergraduate students who will be prepared to enter graduate programs and careers in healthcare-related fields. The mission of the Doctor of Physical Therapy program is to develop graduate students as autonomous practitioners. The Department achieves this mission through excellence in teaching, research and scholarship, and service to the broader community.

Vision

The Department will strive to build a community of excellence in teaching, research, service and experiential learning which will prepare students to work ethically and effectively in a global society.

Doctor Of Physical Therapy

Admission Requirements

In addition to meeting admission requirements for Graduate Education, requirements for entry into the Doctor of Physical Therapy (DPT) program include the following:

- Completion of a baccalaureate degree with a Health Science or Kinesiology and Health Science major from Bradley University with a "C" or higher in all required courses OR
- Completion of a baccalaureate degree with the following courses completed with a "C" or higher:
- Chemistry - 1 year chemistry sequence for science majors (eg. 6-8 semester hours) with laboratory experience
- Physics - 1 year physics sequence for science majors (eg. 6-8 semester hours) with laboratory experience
- Biology/Zoology - 6-8 semester hours with content that includes an introduction to cell biology, biochemistry, and genetics
- Anatomy - 3-4 semester hours of vertebrate, mammalian, human, or comparative anatomy that includes a laboratory experience
- Physiology - 3-4 semester hours of vertebrate, mammalian, or human physiology (a two-semester sequence of combined anatomy and physiology will meet the anatomy and physiology requirement)
- Statistics - 3 semester hours of statistics

The following courses are highly recommended:

1. Kinesiology, biomechanics, or additional courses in human anatomy
2. Exercise physiology, pathophysiology, or additional courses in physiology
3. Upper division psychology and sociology courses
4. Medical Terminology

In addition, an applicant should have:

1. Minimum 3.0 grade point average in all mathematics and science courses taken.
2. Minimum 3.0 grade point average for all courses taken.
3. GRE scores submitted to Bradley.
4. TOEFL score of 600 or higher, TSE of 50 or higher, and TWE of 4.5 or higher for non-native English speaking applicants.
5. Skills in computer literacy, communication (written and verbal), medical terminology, and teaching.

Applicants must apply through the Physical Therapy Centralize Application Service (PTCAS http://www.ptcas.org/home.aspx). Your submission of courses to PTCAS (verified by official transcripts) will be used to determine if you have required courses or course equivalents. See the department website for further instructions (http://bradley.edu/academic/departments/pths/graduate/dpt/application.dot)

No grade lower than a C is acceptable in the required courses.

In order to begin the DPT program the requirements for a Baccalaureate degree must be met with the verification of the Baccalaureate degree being awarded four weeks after the start of the class.

Volunteer hours are not required, however 100 hours of exposure to physical therapy is recommended. Applicants should spend time observing a variety of physical therapy settings to facilitate his or her career decision.

Other Requirements

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

- professional liability insurance (renewable annually)
- immunity to rubeola (measles) by one of the following: - a rubeola (measles) immunization received in 1990 or later, or - written verification from a physician of having had the disease, or - birth date prior to 1957
- immunity to rubella (German measles) by one of the following: - written verification of having had the immunization, or - written verification rubella titer greater than 1:10
- written verification of immunity to Hepatitis B virus
- written verification of tuberculin test results (renewable annually)
- CPR certification (renewable annually)
- Criminal background check, if required by clinical site.

Contact the Department for the most current requirements

Admission is competitive for a limited number of spaces in the class.

Course Of Study

Summer I

- PT 612 Functional Anatomy I (Summer Session I) 3 hrs.
- PT 614 Gross Anatomy I (Summer Session I) 3 hrs.
- PT 622 Functional Anatomy II (Summer Session II) 3 hrs.
- PT 624 Gross Anatomy II (Summer Session II) 3 hrs.
  12 hrs.

Fall I

- PT 600 PT Professional Seminar 0 hrs.
- PT 630 Foundations of Physical Therapy 4 hrs.
- PT 636 Musculoskeletal Physical Therapy I 4 hrs.
- PT 640 Clinical Science I 3 hrs.
- PT 646 Research Methods 2 hrs.
  13 hrs.

Spring I

- PT 600 PT Professional Seminar 0 hrs.
- PT 655 Experiential Learning 1 hr.
- PT 662 Neurological Physical Therapy I 4 hrs.
- PT 666 The Research Process 2 hrs.
- PT 670 Human Development Throughout the Lifespan 3 hrs.
- PT 680 Clinical Science II 2 hrs.
- PT 686 Supervised Research 1 hr.
  13 hrs.

Summer II

- PT 710 Clinical Education II (8 Weeks)
  8 hrs.

Fall II

- PT 600 PT Professional Seminar 0 hrs.
- PT 655 Experiential Learning 1 hr.
- PT 716 Supervised Research II 1 hr.
- PT 720 Teaching and Learning Theory in PT 3 hrs.
- PT 730 Neurological Physical Therapy II 4 hrs.
- PT 740 Clinical Science III 2 hrs.
  11 hrs.

Spring II

- PT 600 PT Professional Seminar 0 hrs.
- PT 655 Experiential Learning 1 hr.
- PT 700 Musculoskeletal Physical Therapy II 4 hrs.
- PT 766 Research III 1 hr.
- PT 770 Applied Exercise Principles 3 hrs.
- PT 790 Cardiovascular/Pulmonary/Integumentary Physical Therapy 4 hrs.
  13 hrs.

Summer III

- PT 800 Clinical Education III (8 Weeks)
  8 hrs.

Fall III

- PT 600 PT Professional Seminar 0 hrs.
- PT 655 Experiential Learning 1 hr.
- PT 810 Health and Wellness 3 hrs.
- PT 816 Supervised Research IV 1 hr.
- PT 820 Physical Therapy Administration and Professional Issues 3 hrs.
- PT 830 Physical Therapy Differential Diagnosis 4 hrs.
- PT 840 Independent Study (Optional) 1-6 hrs.
  12-18 hrs.

Spring III

- PT 850 Clinical Education IV (10 Weeks) 10 hrs.
- PT 860 Clinical Education V (10 Weeks) 10 hrs.
  20 hrs.

Electives

- PT 760 Independent Study (1-6 hrs.)
- PT 761 Advanced Dry Needling Lower Quarter Integration (2 hrs.)
- PT 762 Advance Dry Needling Upper Quarter Integration (2 hrs.)

Total required: 110 hrs.

PHYSICAL THERAPY COURSE DESCRIPTIONS

P T 600 - Physical Therapy Professional Seminar *(0 hours)*

A forum for students in all stages of the curriculum. Faculty, clinicians, and students will lead discussions and provide presentations on a variety of topics, including areas of current research, professional practice issues, and issues pertaining to clinical education. Satisfactory/unsatisfactory. Prerequisite: Physical therapy majors only

P T 612 - Functional Anatomy I *(3 hours)*

A lecture and laboratory study of human movement and applied kinesiology along with the introduction of physical therapy techniques to assess components of human movement. Prerequisite: Physical therapy majors only

P T 614 - Gross Anatomy I *(3 hours)*

Cadaveric dissection and study of the musculoskeletal, vascular, and peripheral nervous systems of the extremities. Prerequisite: Physical therapy majors only

P T 622 - Functional Anatomy II *(3 hours)*

A lecture and laboratory study of human movement and applied kinesiology along with introduction of physical therapy techniques to assess components of human movement. Prerequisite: Physical therapy majors only

P T 624 - Gross Anatomy II *(3 hours)*

Cadaveric dissection and study of the structures of the nervous, cardiovascular, pulmonary, gastrointestinal, genitoutinary, and integumentary systems. Prerequisite: Physical therapy majors only

P T 630 - Foundations of Physical Therapy *(4 hours)*

An introduction to clinical applications in physical therapy. Topics covered in this course include basic physical therapy examination procedures, professional documentation and communication, therapeutic exercise, physical agents and mechanical modalities, and patient care skills. Prerequisite: Physical therapy majors only

P T 636 - Musculoskeletal Physical Therapy I *(4 hours)*

The study and application of orthopaedic basic science in the examination, evaluation, and management of dysfunctions and disabilities of the appendicular skeleton. Prerequisite: Physical therapy majors only

P T 640 - Clinical Science I *(3 hours)*

The anatomical, biomechanical, physiological, and histological basis of the normal and pathological musculoskeletal system, along with specialized examination, assessment, and intervention strategies for the musculoskeletal system. Prerequisite: Physical therapy majors only

P T 646 - Research Methods *(2 hours)*

Research design, methods, and ethical implications; exploration of research topics with review of appropriate literature; and introduction to components of the research proposal. Prerequisite: Physical Therapy majors only.

P T 655 - Experiential Learning *(1 hour)*

Students will work collaboratively with department faculty and fellow students to provide physical therapy services to individuals from within the community. Client interview, assessment and treatment progression, and discharge planning will be emphasized. Students will gain experience in supervising students with less experience, including the provision of constructive feedback. Prerequisite: Physical Therapy majors only.

P T 662 - Neurological Physical Therapy I *(4 hours)*

The study and application of neurological basic science in the examination, evaluation, and management of dysfunctions and disabilities in physical therapy patient care. Prerequisite: Physical therapy majors only

P T 666 - The Research Process *(2 hours)*

A course composed of lecture/discussion on the scientific basis and evidence supporting the use of various exercise techniques, as well as practical application and hands-on experience performing and completing these exercise techniques and applications correctly. Therapeutic, training, and performance enhancement approaches to exercise will be addressed. Prerequisite: Physical Therapy majors only.

P T 670 - Human Development Throughout the Lifespan *(3 hours)*

A multi-system analysis of the many facets of individual development from conception to death. Prerequisite: Physical therapy majors only.

P T 680 - Clinical Science II *(2 hours)*

The anatomical, physiological, and histological basis of the normal and pathological neuromuscular system, and foundations of pharmacology as it relates to intervention strategies for patients with neuromuscular impairments. Prerequisite: Physical therapy majors only.

P T 686 - Supervised Research I *(1 hour)*

Development of a research product under the guidance of a research advisor. Prerequisite: Physical therapy majors only.

P T 700 - Musculoskeletal Physical Therapy II *(4 hours)*

The study and application of orthopaedic basic science in the examination, evaluation, and management of dysfunctions and disabilities of the axial skeleton. Prerequisite: Physical therapy majors only.

P T 710 - Clinical Education I *(8 hours)*

The first of four full-time supervised clinical experiences requiring utilization of communication skills and teaching interpersonal and evaluative skills. This course provides the opportunity to advance physical therapy procedures and to continue to develop professional socialization. Satisfactory/unsatisfactory. Prerequisite: Physical therapy majors only.

P T 716 - Supervised Research II *(1 hour)*

Data collection and preliminary statistical analysis of the student research report. Prerequisite: Physical Therapy majors only.

P T 720 - Teaching and Learning Theory in Physical Therapy *(3 hours)*

Discussion and application of teaching and learning theories as related to the classroom and clinical setting, including student clinical education, staff inservice, and patient education. Prerequisite: Physical therapy majors only.

P T 730 - Neurological Physical Therapy II *(4 hours)*

Applied neurological examination, evaluation, and intervention theories and strategies in physical therapy patient care. Prerequisite: Physical therapy majors only

P T 740 - Clinical Science III *(2 hours)*

The management of a variety of disorders resulting in physical, emotional, and cognitive impairments and their physical therapy implications. Prerequisite: Physical therapy majors only.

P T 760 - Independent Study *(0-6 hours)*

Individual study and investigations through selected readings, discussions, and/or written assignments. May be repeated for a maximum of six semester hours. Prerequisite: Physical Therapy majors; non-majors by permission of the Department of Physical Therapy and Health Science chair.

P T 761 - Advanced Dry Needling Lower Quarter Integration *(2 hours)*

This lecture and laboratory course is designed to provide the students with the abilities to appropriately and safely integrate dry needling intervention as it relates to orthopedic physical therapy practice. The focus of this course is the examination and evaluation techniques, as well as the application of dry needling for a variety of musculoskeletal disorders involving the lower quarter. Prerequisite: P T 636

P T 762 - Advanced Dry Needling Upper Quarter Integration *(2 hours)*

This lecture and laboratory course is designed to provide the students with the advanced abilities to appropriately and safely integrate dry needling intervention as it relates to orthopedic physical therapy practice. The focus of this course is the examination and evaluation techniques, as well as the application of dry needling for a variety of musculoskeletal disorders involving the upper quarter. Prerequisite: P T 761

P T 766 - Supervised Research III *(1 hour)*

Data analysis and interpretation; presentation of preliminary research findings to peers and internal and external constituents. Prerequisite: Physical Therapy majors only.

P T 770 - Applied Exercise Principles *(3 hours)*

A course composed of lecture/discussion on the scientific basis and evidence supporting the use of various exercise techniques, as well as practical application and hands-on experience performing and completing these exercise techniques and applications correctly. Therapeutic, training, and performance enhancement approaches to exercise will be addressed. Prerequisite: Physical therapy majors only.

P T 790 - Cardiovascular, Pulmonary, and Integumentary PT *(4 hours)*

The anatomical, physiological, and histological basis of the normal and pathological cardiac, pulmonary, vascular, and integumentary systems. Normal and abnormal metabolic processes and their physical therapy implications.

P T 800 - Clinical Education II *(8 hours)*

The second of four full-time supervised clinical experiences offering the opportunity for continued development of clinical management of patients in one of a variety of clinical settings. This course allows for continued professional socialization and growth as well as further development of professional behaviors. Satisfactory/unsatisfactory. Prerequisite: Physical therapy majors only.

P T 810 - Health and Wellness *(3 hours)*

Physical therapy implications of common health issues in a variety of physical therapy clients, and the role of screening and prevention in dealing with these issues. Prerequisite: Physical therapy majors only.

P T 816 - Supervised Research IV *(1 hour)*

Emphasis of this course is on final revisions of poster and platform presentations for dissemination at the state and national level, grant writing for conference-related travel, and preparation of manuscript for submission to a peer-reviewed journal. Prerequisite: Physical Therapy majors only.

P T 820 - Physical Therapy Administration and Professional Issues *(3 hours)*

Overview of the utilization of health care policies, community resources, program development, professional issues and administrative principles encountered in providing health care in today's settings. Prerequisite: Physical therapy majors only.

P T 830 - Physical Therapy Differential Diagnosis *(4 hours)*

The curriculum's capstone course that emphasizes the role of the physical therapist in managing the patient with multi-system dysfunctions. Prerequisite: Physical therapy majors only.

P T 850 - Clinical Education III *(10 hours)*

The third of four full-time supervised clinical experiences offering the opportunity for continued development of clinical management of patients in one of a variety of clinical settings. Allows for continued professional socialization and growth as well as further development of professional behaviors. Satisfactory/unsatisfactory. Prerequisite: Physical therapy majors only.

P T 860 - Clinical Education IV *(10 hours)*

The last of four full-time, supervised clinical experiences or second half of the final clinical education experience requiring utilization of advanced communication skills and teaching interpersonal and evaluative skills. Students have the opportunity to further develop clinical management of patients in a different clinical setting. Furthermore, continued professional socialization and growth as well as continued development of professional behaviors are expected. Satisfactory/unsatisfactory. Prerequisite: Physical therapy majors only.

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Department concerned, the Registrar's Office, u.Achieve degree audit system, and the Schedule of Classes. It is the responsibility of each student to be aware of the current program and graduation requirements for particular degree programs.

CATERPILLAR COLLEGE OF ENGINEERING AND TECHNOLOGY

Krishnanand (Kris) Y. Maillacheruvu, Interim Dean

Julie Reyer, Associate Dean

The Caterpillar College of Engineering and Technology offers programs leading to:

- Master of Science in Civil Engineering
- Master of Science in Electrical Engineering
- Master of Science in Industrial Engineering
- Master of Science in Manufacturing Engineering
- Master of Science in Mechanical Engineering

Students majoring in engineering are required to complete from 30 to 33 semester hours of coursework, depending on the program they are pursuing. Students should consult the department graduate program coordinator for a plan of study prior to registration.

For international graduates (unless from an English speaking country), a minimum TOEFL score on the Paper Based Test (PBT) is a 550, the Computer Based Test (CBT) equivalent score of 213, or the internet-based TOEFL (iBT) equivalent score of 79. The GRE is required by some departments and suggested for others.

A minimum undergraduate last-60-hour grade point average of 3.0 on a 4.0 scale is needed for unconditional admission. However, some programs may have other requirements for unconditional admission. Prospective graduate students who have a GPA below 3.0 or a TOEFL score below 550 may be admitted conditionally. TOEFL and GRE scores are taken into consideration for admission and when making assistantship award decisions.

Special Academic Programs

To participate in the following programs, students must have authorization to work in the United States. Eligibility of nonimmigrant (F-1) students is defined on an individual basis according to regulations set forth by the Bureau of Citizenship and Immigration Services (BCIS) and the Bureau of Immigration and Customs Enforcement (BICE), formerly referred to as INS—the Immigration and Naturalization Service. For clarification of eligibility, contact the Multicultural Student Services Office or consult the BCIS Web site at www.immigration.gov.

Practicum

Graduate students enrolled in chemistry, civil engineering, computer science, electrical engineering, industrial engineering, manufacturing engineering, mechanical engineering, and physics may have an opportunity for employment for 10-20 hours per week in a practicum program that partners industry and the university. Generally, the

practicum is on-site work in an industrial setting. Students are assigned technically challenging projects with a near-term economic significance. Participating students will be enrolled in EGT 500 for zero credit hours.

Internship

Engineering internships provide engineering students an opportunity to participate in a full-time internship semester and/or summer away from campus providing career-related work experience. Participating graduate students will enroll in EGT 510 for zero credit hours. While on a full-time internship assignment, students are considered to have full-time student status, making normal progress toward a degree in a recognized University program, and are entitled to all student privileges at the University. Also while on a full-time internship assignment, students may register for additional hours of classroom study upon departmental approval.

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COLLEGE OF ENGINEERING AND TECHNOLOGY COURSE DESCRIPTIONS

EGT 500 - Graduate Engineering Practicum *(0 hours)*

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 hours)*

Full-time internship away from campus for engineering and technology students to gain academic or career-related work experience in industry. May be repeated only with consent of internship coordinator and internship faculty advisor. Satisfactory/Unsatisfactory. Prerequisite: 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.

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CIVIL ENGINEERING

Dr. Kerrie Schattler,

Chair,

Graduate Program Coordinator

Graduate Faculty: Professors Elhouar, Khodair, Lee, Maillacheruvu, Schattler (Chair); Associate Professors Hossain, Spelman; Assistant Professors Ashraf, Ghannad, Soltani, Terreno; Associate Professor in Residence Willis; Assistant Professors in Residence George, Li.

The Department of Civil Engineering and Construction offers graduate programs leading to a Master of Science in Civil Engineering (MSCE), with emphasis in areas of civil engineering, and/or construction management. The MSCE degree program 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 students with the broad scope necessary for a fruitful and successful career in the practice of civil engineering and construction management.

You can earn a graduate degree in civil engineering through our traditional MSCE program, or through our combined 4+1 programs for our undergraduate students interested in pursuing graduate degrees:

- Master of Science in Civil Engineering MSCE
- 4 + 1 Bachelor of Science in Civil Engineering (BSCE) / MSCE
- 4 + 1 Bachelor of Science in Construction (BSC) / MSCE

MSCE Mission and Objectives

Offer an MSCE program that provides unique opportunities for students to synthesize advanced quantitative and qualitative knowledge in the interfaces of civil engineering, construction management, and business practices. To achieve our mission, our department has adopted the following objectives:

1. Student Driven Scholarship - Offer a graduate program that encourages student and faculty collaborations in research through thesis mentoring, assistantships, and partnerships with industry, state /federal agencies with an emphasis on student scholarship.
2. Business Focused Collaborations - Offer a graduate program that evolves and continues to integrate business practice and construction management into graduate education in civil engineering.
3. Practice Based Engineering - Offer a graduate program that provides opportunities to advance communication skills, learn quantitative and qualitative methods, and gain insights into globalization and sustainability.

Master of Science in Civil Engineering

Admission

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 required prerequisites are met, and stated conditions are satisfied. Students are not required to take the Graduate Record Examination (GRE) for admission into the MSCE program. Details on admission requirements and categories of admission can be found in the Graduate Catalog under the Admissions section.

Graduation Requirements

Student may study in any one or more areas of emphasis: construction management, structural, environmental/water resources, or transportation engineering. Students have the opportunity of selecting a thesis or a non-thesis option. A total of 30 hours are required for the MSCE degree. The thesis option requires 6 semester hours of CE 699 (Thesis) and 24 hours of coursework. The non-thesis option requires 30 hours of coursework.

In addition to the Graduate Education requirements, 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 must take a minimum of 18 semester hours from the department, in CE and/or CON designated courses. Students may take up to 12 semester hours from other related departments, per the approved Elective Courses listed below, subject to consent and approval of the Department offering the course.
3. Students should work with the CEC Graduate Coordinator to create a course plan by the end of the first semester, which lists the courses required for degree completion. Courses not on the approved plan may not be counted towards the MSCE degree.
4. Graduate students are required to pass a comprehensive examination during the last semester of their study. Students seeking the thesis option are required to make an oral defense of their thesis and submit their written thesis document instead.
5. Admission of undergraduate students into 500-level courses requires that the students have the necessary prerequisites and a minimum average of 2.75/4.0 overall GPA.

Graduate Course Areas

Courses in the MSCE graduate program are offered in the areas of: construction management, structural engineering, environmental/water resources engineering, and transportation engineering. Selected courses from other engineering and science departments, the college of business, and computer science may be taken as Elective Courses per the approved list below, subject to consent and approval of the respective departments. The MSCE program's flexibility provides graduate students with a wide variety of means to prepare for their future careers.

1. **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 Building Information Modeling, advanced construction scheduling and estimating, contract administration, productivity analysis, total quality management (TQM), green and sustainable construction, and many other areas that affect the profession. Courses in Construction Management include:
   - CON 520 - Advanced Construction Practice (3 hours)
   - CON 522 - Advanced CADD (3 hours)
   - CON 524 - Building Information Modeling (3 hours)
   - CON 526 - Advanced Construction Estimating (3 hours)

- CON 528 - Advanced Construction Scheduling (3 hours)
- CON 529 - Advanced Construction Contracts (3 hours)
- CON 536 - TQM Principles (3 hours)
- CON 537 - Construction Simulation (3 hours)
- CON 540 - Project and Company Management (3 hours)

2. **Structural Engineering** The structural graduate courses provide a strong theoretical and applied background suitable for both practice and research. The faculty teaching in this area employ experimental, numerical, and analytical techniques in coursework and research such as: behavior and design of reinforced concrete, analysis and design of steel structures, structural durability, analysis and design of bridges, finite element analysis, computational mechanics, structural stability, seismic analysis and design, sustainable technologies in concrete, 3D printing and the use of novel materials in extraterrestrial applications. Students are given the opportunity to utilize a spectrum of computer facilities, including networked personal computers and workstations, equipped with structural design and finite elements software packages. The well-equipped concrete laboratory provides state-of- the-art research tools, data acquisition systems, and universal and compression testing machines. The new state-of-the-art structural laboratory has a strong floor and strong wall, MTS actuators, overhead crane and is designed for small and large scale testing. Courses in Structural Engineering include:
   - C E 508 - Advanced Soil Mechanics (3 hours)
   - C E 515 - Advanced Foundation Engineering (3 hours)
   - C E 520 - Advanced Numerical Methods (3 hours)
   - C E 560 - Advanced Structural Analysis (3 hours)
   - C E 562 - Advanced Steel Design (3 hours)
   - C E 565 - Advanced Concrete Design (3 hours)
   - C E 567 - Prestressed Concrete Design (3 hours)
   - C E 570 - Advanced Mechanics of Materials (3 hours)
   - C E 575 - Structural Dynamics (3 hours)
   - C E 577 - Seismic Design (3 hours)
   - C E 670 - Theory of Elasticity (3 hours)

3. **Environmental/Water Resources Engineering** Graduate courses in this area meet the growing need for professionals who are well educated in the science and engineering of treatment processes, pollutant transport and our society's impact and reliance on the environment. Coursework and research in this area also address the need for more informed decision-making with respect to environmental risks, sustainability, and the global nature of today's challenges. Funded research from Caterpillar Inc., local water and wastewater municipalities 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, physiochemical treatment, and management models of environmental policies and systems. Courses in environmental /water resources engineering include:
   - C E 520 - Advanced Numerical Methods (3 hours)
   - C E 541 - Pollution Modeling (3 hours)
   - C E 542 - Advanced Water Treatment (3 hours)
   - C E 543 - Advanced Wastewater Treatment (3 hours)
   - C E 546 - Groundwater Hydrology (3 hours)
   - C E 555 - Sustainability and Environmental Regulations (3 hours)
   - C E 558 - Solid Waste Management (3 hours)
   - C E 650 - Site Remediation (3 hours)
   - C E 655 - Environmental Management Modeling (3 hours)

4. **Transportation Engineering** The transportation industry and the motoring public rely on transportation systems that can move people and goods safely and efficiently. Graduate courses in transportation focus on the planning, design, operation, maintenance, rehabilitation, performance, and evaluation of transportation systems that provide optimal economic and sustainable societal benefits. Specific graduate courses include urban transportation planning, geometric highway design, traffic signal systems, highway safety, traffic flow theory, transportation economics, pavement materials, pavement design and

analysis, and infrastructure asset management. Funded research from the Federal Highway Administration, the Illinois Center for Transportation, state and local governmental agencies, and organizations, such as the Illinois Asphalt Pavement Association (IAPA), provides opportunities for graduate students to participate in the research of highway and work zone safety, traffic engineering operations, asset management systems, asphalt pavement technologies, and the use of sustainable technologies in infrastructure. Courses in transportation engineering include:

- C E 580 - Highway Safety (3 hours)
- C E 582 - Traffic Flow Theory (3 hours)
- C E 583 - Geometric Highway Design (3 hours)
- C E 584 - Urban Transportation Planning (3 hours)
- C E 585 - Pavement Management Systems (3 hours)
- C E 586 - Advanced Pavement Design (3 hours)
- C E 587 - Traffic Signal Design (3 hours)
- C E 588 - Transportation Economics (3 hours)

The civil engineering and construction *course description*s can be found in the Graduate Catalog (https://www.bradley.edu/academic/gradcat/20232024/egt-civilcourses.dot).

Elective Courses

A maximum of 12 semester hours may be taken from the following list, in consultation with the CEC Graduate Coordinator, subject to consent and approval by the respective department offering the course:

- College of Business Courses - Any 500 or 600 level business course that the student satisfies the prerequisite for, subject to consent and approval by the College of Business. This includes courses under the designations of Business (BUS), Accounting (ATG), Economics (ECO), Finance (FIN), Management (ML, MIS, IB, ENT, BLW), Marketing (MTG), and Quantitative Methods (QM).
- Computer Science and Information Systems Courses - Any 500 or 600 level computer science and information system course that the student satisfies the prerequisite for, subject to consent and approval by the Computer Science and Information Systems department. This includes courses under the designation of Computer Information System (CIS) and Computer Science (CS).
- CHM 516 - Environmental Chemistry (3 hours)
- IME 501 - Engineering Cost Analysis (3 hours)
- IME 511 – Probability and Statistics for Analytics (3 hours)
- IME 512 – Regression and Experimental Design (3 hours)
- IME 514 - Introduction to Operations Research (3 hours)
- IME 515 - Linear Programming and Extensions (3 hours)
- IME 522 - Manufacturing Quality Control (3 hours)
- IME 524 - Six Sigma Theory and Methodologies (3 hours)
- IME 526 - Reliability Engineering (3 hours)
- IME 586 - Logistics & Supply Chain Systems (3 hours)
- IME 587 - Occupational Safety and Health (3 hours)
- M E 509 - Solar Engineering (3 hours)
- M E 536 - Industrial Pollution Prevention (3 hours)
- M E 537 - Building Energy Management (3 hours)
- M E 556 - Mechanics of Composite Materials (3 hours)
- M E 577 - Finite Element Methods in Engineering (3 hours)

Engagement and Service Graduate students have numerous opportunities to develop leadership skills through professional activities such as the student chapters of the American Society of Civil Engineers (ASCE), Associated General Contractor (AGC) and the Mechanical Contractors Association of America (MCAA). 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 service and outreach projects such as habitat for humanity, building pocket parks and playgrounds, Illinois River Sweep and others to strengthen their leadership abilities. Opportunities also exist for students to present their work in research at symposiums and conferences.

The CEC department is supported by an industrial advisory board composed of successful civil engineers and construction leaders. Advisory board members are very active as speakers and outside professional contacts for our students. The university-wide job fair has attracted many companies interested in hiring civil engineers and construction managers. The Smith Career Center is an additional robust resource for students in their job search.

4 +1 BSCE / MSCE Program

Bachelor of Science in Civil Engineering /Master of Science in Civil Engineering Program

Admission

Bradley University Civil Engineering undergraduates may enroll in the 4 + 1 BSCE/MSCE program while completing their bachelor's degree and meet the following requirements:

Students will be considered for the BSCE/MSCE program during the spring of the student's junior year (preferred date: April 1) or in fall of the student's senior year, at the latest. Students will not be admitted to the program after the first day of spring semester of their senior year. The student must follow the application procedures consistent with application to Graduate Education and the Civil Engineering Graduate Program with the following exceptions. The student:

- does not need to have completed the bachelor's degree to be admitted to the program
- has a 3.0 overall GPA or greater,
- has a minimum of 79 hours completed at the time of admission to the program if admitted before completion of junior year, or 95 hours if admitted at the beginning of the senior year,
- does not need to submit letters of recommendation, essays, transcripts, or GRE scores.

Graduation Requirements

Students admitted to the graduate program pursuing an MSCE degree as an undergraduate student as stipulated above will need to complete 30 semester hours of graduate course work (with 9 hours dual counted in the BSCE program). A minimum of 18 hours will be in CE and/or CON designated courses (with a minimum of 6 hours of CE graduate courses required); the remaining hours may include courses from other related departments, per the approved Elective Courses list. Students are required to pass a comprehensive examination during the last semester of their graduate program.

Undergraduates will apply for graduation for their bachelor's degree in the semester that they will achieve a minimum of 128 approved semester hours and complete all undergraduate degree requirements. Following graduation with the BSCE degree, students are considered graduate students. Students who are admitted to the BSCE/MSCE program will have up to 9 graduate hours taken during the final year of the bachelor's degree dual counted for the BSCE and MSCE degrees. In the student's senior year of their undergraduate program, they will take:

- 2 graduate courses, 6 hours of 500-level Civil Engineering courses, and
- 1 graduate course, 3 hours of 500-level courses in Civil Engineering, or Construction, or graduate level approved elective course.

In the remaining two semesters in the MSCE program, the graduate student will take:

- 12 hours of graduate courses in the first semester of Year 5
- 9 hours of graduate courses in the second semester of Year 5, plus the comprehensive exam

4 + 1 BSC / MSCE Program

Bachelor of Science in Construction / Master of Science in Civil Engineering

Admission

Bradley University Construction undergraduates may enroll in the 4 + 1 BSC/MSCE program while completing their bachelor's degree and meet the following requirements:

Students will be considered for the BSC/MSCE program during the spring of the student's junior year (preferred date: April 1) or in fall of the student's senior year, at the latest. Students will not be admitted to the program after the first day of spring semester of their senior year. The student must follow the application procedures consistent with application to Graduate Education and the Civil Engineering Graduate Program with the following exceptions. The student:

- does not need to have completed the bachelor's degree to be admitted to the program,
- has a 3.0 overall GPA or greater,
- has a minimum of 79 hours completed at the time of admission to the program if admitted before completion of junior year, or 94 hours if admitted at the beginning of the senior year,
- does not need to submit letters of recommendation, essays, transcripts, or GRE scores.

Graduation Requirements

Students admitted to the graduate program pursuing an MSCE degree as an undergraduate as stipulated above will need to complete 30 semester hours of graduate course work with 9 hours dual counted in the BSC program. A minimum of 18 hours will be in CON designated courses; the remaining hours may include courses from other related departments, per the approved Elective Courses list. Students are required to pass a comprehensive examination during the last semester of their graduate program.

Undergraduates will apply for graduation for their bachelor's degree in the semester that they will achieve a minimum of 126 approved semester hours and complete all undergraduate degree requirements. Following graduation with the BSC degree, students are considered graduate students. Students who are admitted to the BSC/MSCE program will have up to nine graduate hours taken during the final year of the bachelor's degree dual counted for the BSC and MSCE Degrees. In the student's senior year of their undergraduate program, they will take:

- 2 graduate courses, 6 hours of 500-level Construction courses, and
- 1 graduate course, 3 hours of 500-level courses in Business Management.

In the remaining two semesters in the MSCE program, the graduate student will take:

- 12 hours of graduate courses in the first semester of Year 5
- 9 hours of graduate courses in the second semester of Year 5, plus the comprehensive exam

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This is the official catalog for the 2023-2024 academic year. This catalog serves as a contract between a student and Bradley University. Should changes in a program of study become necessary prior to the next academic year every effort will be made to keep students advised of any such changes via the Dean of the College or Chair of the Department concerned, the Registrar's Office, u.Achieve degree audit system, and the Schedule of Classes. It is the responsibility of each student to be aware of the current program and graduation requirements for particular degree programs.

CIVIL ENGINEERING AND CONSTRUCTION COURSE DESCRIPTIONS

C E 508 - Advanced Soil Mechanics *(3 hours)*

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. Prerequisite: C E 350; or graduate standing.

C E 515 - Advanced Foundation Engineering *(3 hours)*

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: C E 422; or graduate standing.

C E 520 - Advanced Numerical Methods *(3 hours)*

Selected numerical methods and applications chosen to meet current needs for solving problems in civil engineering. Prerequisite: C E 210; or graduate standing.

C E 541 - Pollution Modeling *(3 hours)*

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. Prerequisite: C E 360; or graduate standing.

C E 542 - Advanced Water Treatment *(3 hours)*

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: C E 360; or graduate standing.

C E 543 - Advanced Wastewater Treatment *(3 hours)*

Application of concepts from microbiology and biology to environmental engineering systems. Detailed integrated design of waste water treatment. Microbiology of waste water treatment processes and soil bioremediation processes. Interaction between biogeochemical phenomena and microbial processes in an environmental engineering context. Prerequisite: C E 360; or graduate standing.

C E 546 - Groundwater Hydrology *(3 hours)*

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. Prerequisite: C E 260, or graduate standing.

C E 555 - Sustainability and Environmental Regulations *(3 hours)*

Sustainability as it is expressed in environmental regulations and policies for conventional and hazardous wastes in air, water, and groundwater. Toxicological, risk assessment, risk-based engineering, and regulatory aspects for the sustainable management of all types of waste. Prerequisite: C E 360 or CON 352; or graduate standing.

C E 558 - Solid Waste Management *(3 hours)*

Sources, composition, and properties of solid waste. Transport of solid wastes and design of transfer stations. Separation, transformation, and recycling of waste materials. Landfill siting. Leachate generation, collection, and removal systems. Liner system design. Landfill settlement and stability analysis. Accelerated treatment of solid waste. Methane recovery from landfills. Closure, restoration, and rehabilitation of landfills. Case studies. Prerequisite: C E 350 or CON 320; or graduate standing.

C E 560 - Advanced Structural Analysis *(3 hours)*

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. Prerequisite: C E 210 and C E 359; or graduate standing.

C E 562 - Advanced Steel Design *(3 hours)*

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: C E 442; or graduate standing.

C E 565 - Advanced Concrete Design *(3 hours)*

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: C E 365; or graduate standing.

C E 567 - Prestressed Concrete Design *(3 hours)*

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. Prerequisite: C E 365; or graduate standing.

C E 570 - Advanced Mechanics of Materials *(3 hours)*

Two- and three-dimensional stress and strain at a point; two-dimensional elasticity; beams on elastic foundations; torsion of noncircular sections; curved beams; unsymmetrical bending; plastic collapse and limit analysis. Prerequisite: C E 270; or graduate standing.

C E 575 - Structural Dynamics *(3 hours)*

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. Prerequisite: C E 210 and C E 359; or graduate standing.

C E 577 - Seismic Design *(3 hours)*

Theory, analysis, and design of building structures under earthquake loading. Application of current codes and standards related to steel, concrete, masonry, and wood structures. Prerequisite: C E 365 and C E 442; or graduate standing.

C E 580 - Highway Safety *(3 hours)*

Safety aspects of streets and highways; planning, implementation, and evaluation of highway safety improvement projects and programs. Highway risk analysis and risk management systems. Prerequisite: C E 310 and C E 480; or graduate standing.

C E 582 - Traffic Flow Theory *(3 hours)*

Traffic flow theories and applications in the design, development and operation of transportation systems, macroscopic and microscopic models of traffic flow, mathematical distributions of traffic events, car following theory, shock wave analysis, queuing analysis. Prerequisite: C E 480 and C E 310; or graduate standing.

C E 583 - Geometric Highway Design *(3 hours)*

Application of standards, theory, and practice in design of streets and highways. Design of streets and highways including cross section elements, shoulder, and roadside features. Prerequisite: C E 480; or graduate standing.

C E 584 - Urban Transportation Planning *(3 hours)*

Planning and analysis of urban transportation; travel demand models including trip generation, trip distribution, mode choice and traffic assignment; land use planning, site impact analysis and traffic impact studies for proposed developments, and context sensitive solutions. Prerequisite: C E 480; or graduate standing.

C E 585 - Pavement Management Systems *(3 hours)*

Distresses in pavements, assessment of asphalt (flexible) and concrete (rigid) pavements, performance tests of pavement materials, material characterization to maintain and rehabilitate pavements, pavement maintenance and rehabilitation methods, life cycle cost analysis of pavement maintenance and rehabilitation. Prerequisite: C E 356; or graduate standing.

C E 586 - Advanced Pavement Design *(3 hours)*

Materials characterization for pavement, base, and subgrade; traffic load analysis to design pavement; structural design of flexible (asphalt), rigid (concrete) and composite pavements; pavement distress evaluation and rehabilitation. Prerequisite: C E 356; or graduate standing.

C E 587 - Traffic Signal Design *(3 hours)*

Analysis and design of traffic signals for isolated intersections and coordinated systems. Hardware, communication, and detection systems associated with signal systems. Fundamental concepts of simulation of traffic operations. Application of optimization/simulation computer software programs. Prerequisite: C E 480; or graduate standing.

C E 588 - Transportation Economics *(3 hours)*

Application of engineering economy for transportation systems; analysis of congestion costs, highway transportation costs, and road user consequences. Identification and measurement of highway benefits, concepts of value and time, and willingness to pay; discount rate and vest charge; concepts of depreciation and service life; life cycle cost analysis; evaluation of transportation alternatives and evaluation of completed projects/programs. Prerequisite: C E 393; or graduate standing.

C E 591 - Advanced Topics I *(1-3 hours)*

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

C E 592 - Advanced Topics II *(1-3 hours)*

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

C E 593 - Advanced Project I *(1-3 hours)*

Supervised individual study of civil engineering and construction projects. Prerequisite: Consent of department chair.

C E 594 - Advanced Project II *(1-3 hours)*

Supervised individual study of civil engineering and construction projects. Prerequisite: Consent of department chair.

C E 650 - Site Remediation *(3 hours)*

Preliminary studies and engineering design of various treatment technologies used for remediation of contaminated soil and groundwater. Brownfield remediation. Soil composition and behavior, development and movement of groundwater. Soil sampling and monitoring of contaminants in groundwater. Drilling techniques based on soil type. Processes affecting the distribution of inorganic and organic pollutants in the environment, exchange among soil, water, sediment, and biota. Prerequisite: C E 350 and C E 360; or graduate standing.

C E 655 - Environmental Management Modeling *(3 hours)*

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: C E 360; or graduate standing.

C E 670 - Theory of Elasticity *(3 hours)*

Stress and strain tensors; stress on arbitrary planes; principle stresses in three dimensions; equilibrium equations; strain displacement equations and compatibility conditions; transformation of stresses and strains; plane elasticity in rectangular and polar coordinates; boundary value problems; yield and failure criteria; energy principles. Prerequisite: CE 520 and CE 570.

C E 691 - Advanced Graduate Topics I *(3 hours)*

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 Prerequisite: Consent of department chair

C E 692 - Advanced Graduate Topics II *(3 hours)*

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 Prerequisite: Consent of department chair

C E 693 - Advanced Project I *(1-3 hours)*

Supervised individual study of civil engineering and construction projects. Prerequisite: Consent of department chair

C E 694 - Advanced Project II *(1-3 hours)*

Supervised individual study of civil engineering and construction projects. Prerequisite: Consent of department chair

C E 699 - Thesis *(0-6 hours)*

Research on a topic selected by the student and approved by the chair. Repeatable to a maximum of six hours total. Prerequisite: Consent of department chair

CON 520 - Advanced Construction Practice *(3 hours)*

Issues of the processes affiliated with the construction and engineering consulting profession: project delivery, conception through construction of projects, phases of design, and unique challenges. Case studies will be utilized. Prerequisite: CON 494, or graduate standing.

CON 522 - Advanced CADD *(3 hours)*

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: CON 224 or C E 224, or graduate standing.

CON 524 - Building Information Modeling *(3 hours)*

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: CON 224 or C E 224, or graduate standing.

CON 526 - Advanced Construction Estimating *(3 hours)*

Advanced techniques in taking-off quantities, pricing techniques, computer estimating, and bidding strategy models. Prerequisite: CON 326, or graduate standing.

CON 528 - Advanced Construction Scheduling *(3 hours)*

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, or graduate standing.

CON 529 - Advanced Construction Contracts *(3 hours)*

Issues in the administration and implementation of a construction contract. Coordinating and controlling the construction project under legal and ethical considerations. Prerequisite: CON 388, or graduate standing.

CON 536 - TQM Principles *(3 hours)*

Theory and analysis of the Total Quality Management system as applied within the construction industry. Case studies. Prerequisite: Q M 262 or equivalent, or graduate standing.

CON 537 - Construction Simulation *(3 hours)*

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. Prerequisite: Q M 262 or equivalent, or graduate standing.

CON 540 - Project and Company Management *(3 hours)*

Unique issues of company and project management in the construction industry not traditionally found in construction programs, such as fraud, regulatory issues, and international construction. Presentations on project and company management by renowned experts will give the student knowledge and insights on new trends, innovative procedures, practical case studies, and exposure to innovation in construction. The course will give the student knowledge of the business aspects of running a wide range of construction companies and a variety of projects. Prerequisite: CON 326 and CON 392, or graduate standing.

CON 591 - Advanced Topics I *(1-3 hours)*

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

CON 592 - Advanced Topics II *(1-3 hours)*

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

CON 593 - Advanced Project I *(1-3 hours)*

Supervised individual study of construction projects. Prerequisite: Consent of department chair.

CON 594 - Advanced Project II *(1-3 hours)*

Supervised individual study of construction projects. Prerequisite: Consent of department chair.

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ELECTRICAL AND COMPUTER ENGINEERING

Dr Yufeng Lu, Chair

Dr Jung Wang, Graduate Coordinator

Department Mission: The mission of the Electrical and Computer Engineering Department is to educate the next generation of electrical and computer engineers to meet the challenges of the future, and empower electrical engineering graduates for immediate and sustained success in their professional practice.

Program Educational Objectives: The Department of Electrical and Computer Engineering offers a graduate program leading to the degree of Master of Science in Electrical Engineering (MSEE). The goal of the MSEE program is to enhance the student's understanding of advanced concepts in core areas of modern electrical and computer engineering and to enrich the student's design and/or research skills in a specialization of the student's choice. The MSEE degree program educational objectives (PEOs) are given by

1. To graduate electrical engineers who can design experiments and conduct projects independently.
2. To graduate electrical engineers who understand and employ state-of-the-art software tools for simulation, validation, and implementation of hardware and software.
3. To graduate electrical engineers who can read technical literature, acquire new knowledge, and apply new findings into practice.
4. To educate electrical engineers who will further seek for advanced education in his/her chosen fields.

Program of Study:

Students work closely with the ECE graduate program coordinator to write a program of study best suited to their background and interests. Course sequences, design projects, and research are available in a broad range of areas such as cyber-physical systems, computer engineering, controls and robotics, Internet of Things (IoT) and networking, Machine learning and AI, RF and wireless communication, and signal processing.

Examples of specialization areas with their associated courses are listed below:

Wireless Communication, RF and Signal Processing

ECE 531 - Communication Theory I (3 hours)

ECE 532 - Communication Theory II (3 hours)

ECE 550 - Electromagnetic Theory (3 hours)

ECE 551 - Radio Frequency Circuits and Systems (3 hours)

ECE 552 - Wireless Communication Systems (3 hours)

ECE 553 - Radio Frequency Communications Laboratory (3 hours)

ECE 555 - Optical Fiber Communication (3 hours)

ECE 560 - Digital Signal Processing (3 hours)

ECE 561 - Statistical and Adaptive Signal Processing (3 hours)

ECE 566 - Real-time DSP Laboratory (3 hours)

ECE 631 - Advanced Communication Theory (3 hours)

ECE 650 - Advanced Electromagnetic Theory (3 hours)

Controls, Robotics and Mechatronics

ECE 541 - Feedback Control of Dynamic Systems (3 hours)

ECE 542 - Advanced Data-Driven Control and Applications (3 hours)

ECE 543 - Distributed Learning Control of Dynamic Systems (3 hours)

ECE 544 - Introduction to Autonomous Robotics (3 hours)

ECE 568 - Introduction to Mechatronics (3 hours)

ECE 574 - Mobile Robot Navigation and Mapping (3 hours)

ECE 630 - Random Variables and Signals (3 hours)

ECE 640 - Dynamic Systems Analysis (3 hours)

ECE 642 - Advanced Control Systems (3 hours)

ECE 643 - Optimal Control Systems (3 hours)

Power Electronics and Alternative Energy

ECE 541 - Feedback Control of Dynamic Systems (3 hours)

ECE 542 - Advanced Data-Driven Control and Applications (3 hours)

ECE 543 - Distributed Learning Control of Dynamic Systems (3 hours)

ECE 545 - Power Electronics Fundamentals (3 hours)

ECE 546 - Power Laboratory (3 hours)

ECE 640 - Dynamic Systems Analysis (3 hours)

ECE 642 - Advanced Control Systems (3 hours)

ECE 643 - Optimal Control Systems (3 hours)

Machine Learning, Computer Vision, and Digital System Design

ECE 562 - Digital Image Processing (3 hours)

ECE 563 - Medical Imaging (3 hours)

ECE 565 - Engineering Applications of Machine Learning (3 hours)

ECE 580 - Digital Systems: Communication and Interface (3 hours)

ECE 581 - Digital Systems: Design and Synthesis (3 hours)

ECE 582 - Digital Systems: High Level Synthesis and Codesign (3 hours)

ECE 583 - Digital Systems: Microprocessor Architecture and Design (3 hours)

ECE 584 - Digital Systems: Peripheral Architecture and Design (3 hours)

Internet of Thing (IoT), Networking, and Cybersecurity

ECE 570 - Embedded Data Structures and Object-Oriented Programming (3 hours)

ECE 571 - Real-time Operating Systems (3 hours)

ECE 572 - Embedded Microcontroller Linux (3 hours)

ECE 573 - Embedded TCP/IP (3 hours)

ECE 574 – Security of Industrial Automation (3 hours)

ECE 580 - Digital Systems: Communication and Interface (3 hours)

ECE 581 - Digital Systems: Design and Synthesis (3 hours)

ECE 582 - Digital Systems: High Level Synthesis and Codesign (3 hours)

In addition, Students may work on special topics in Electrical Engineering to address emerging applications, conduct a research project or work on their thesis with faculty advisor. The ECE department has excellent computer and laboratory facilities to support advanced studies in these areas.

Advanced Topics and Research

ECE 681 - Topics in Electrical Engineering (0-6 hours)

ECE 691 - Research I (0-6 hours)

ECE 699 - Thesis (0-6 hours)

For students in BSEE/MSEE 4+1 program, undergraduates will apply for graduation for their bachelor's degree in the semester that they will achieve 126 credit hours and complete all undergraduate degree requirements. Following graduation with the BSEE degree, students are considered graduate students. Students who are admitted to the BSEE/MSEE program will have up to nine graduate hours taken during the final year of the bachelor's degree dual counted for the BSEE and MSEE Degrees. In the student's graduating year of their undergraduate program, they will take:

- 9 hours of ECE graduate courses (500-level)

In the remaining two semesters (i.e., Year 5) in the MSEE program, the graduate student will take:

- 21 hours of graduate level courses
- 6 hours of approved elective graduate courses
- At least 3 hours of research experience from ECE691 or ECE699
- The comprehensive exam in the graduating semester

Degree Requirements

Students admitted to the graduate program in Electrical Engineering pursuing an MS degree in Electrical Engineering must meet the general graduation requirements of Bradley graduate programs, and need to complete 30 semester hours of graduate course work. Students work with the MSEE graduate program coordinator to identify a specialization area best suited to their background and interests.

Thesis Option

Recommended for investigating a problem in depth for a semester or more

- 18 hours of approved ECE electives
    - at least 9-hours from the student's specialization area
- 6 hours of approved elective graduate courses
- 6 hours of thesis in the student's specialization area
- Comprehensive assessment: Thesis presentation, demonstration, and Thesis

Project Option

Recommended for investigating a problem in depth for a semester

- 21 hours of approved ECE electives
  - at least 12-hours from the student's specialization area
- 6 hours of approved elective graduate courses
- 3 hours research project or design project in one of the student's specializations
- Comprehensive assessment: Project presentation, demonstration, and report

Students are required to have at least 3 hr of research experience from ECE691 or ECE699; Students may appeal the research requirement to the graduate coordinator by documenting prior experience. If approved, students will instead take a 3 hr of ECE graduate level course to meet the MSEE degree requirements.

All the courses to be counted towards the MSEE degree must be listed in the student's Graduate Program of Study. This document must be approved by the ECE graduate program coordinator before completion of their first semester in the MSEE. In addition, students may take up to 6 hours of elective approved graduate level courses from other departments. Request to Change Program of Study form is needed to change the Graduate Program of Study. This request must be filed prior to registering for courses and approved by the ECE graduate program coordinator.

Admission

MSEE Program Admission:

- Applicants must submit material described in the general admission requirements of Graduate Education.
- Successful completion of an undergraduate electrical or computer engineering or similar program is required for admission.
- Applicants must have achieved a 3.0 GPA on a 4.0 scale in the last 60 semester hours of undergraduate coursework.
- Conditional admission may be given if the student's last 60-hour GPA is below a 3.0 and above a 2.5 on a 4.0 scale. It may also be given if the student's scores on standardized tests fall below the requirement in the discipline; if the student does not have sufficient undergraduate preparation; or in 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.
- Plans of study are also available for those with non-electrical engineering or non-engineering undergraduate degrees. Further information can be obtained by contacting the ECE graduate program coordinator.

BSEE/MESS 4+1 Program Admission:

- Bradley University Electrical Engineering undergraduates may enroll in the 4 + 1 BSEE/MSEE program while completing their bachelor's degree.
- Students will be considered for the BSEE/MSEE program during the spring of the student's junior year (preferred date: April 1) or in fall of the student's senior year, at the latest.
- Students will not be admitted to the program after the first day of spring semester of their senior year.
- The student must follow the application procedures consistent with application to Graduate Education and the Electrical Engineering Graduate Program with the following exceptions. The student:
  - does not need to have completed the bachelor's degree to be admitted to the program,
  - has greater than a 3.0 GPA in the last 60 semester hours of undergraduate coursework.
  - has a minimum of 79 hours completed at time of admission to the program if admitted before completion of junior year, or 95 hours if admitted at the beginning of the senior year.
  - does not need to submit letters of recommendation, essays, transcripts, or test scores

This is the official catalog for the 2023-2024 academic year. This catalog serves as a contract between a student and Bradley University. Should changes in a program of study become necessary prior to the next academic year every effort will be made to keep students advised of any such changes via the Dean of the College or Chair of the Department concerned, the Registrar's Office, u.Achieve degree audit system, and the Schedule of Classes. It is the responsibility of each student to be aware of the current program and graduation requirements for particular degree programs.

ELECTRICAL ENGINEERING COURSE DESCRIPTIONS

E E 534 - Digital Signal Processing *(3 hours)*

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. Prerequisite: EE 302.

E E 550 - Electromagnetic Theory *(3 hours)*

Time-varying electric and magnetic fields; Maxwell's equations, electromagnetic potentials, electromagnetic boundary conditions, plane-wave propagation in unbounded conducting and non-conducting media, wave polarization, Poynting vector, reflection and transmission of waves at boundaries; radiation and antennas. Prerequisite: EE 381 or equivalent with a grade of C or better.

E E 551 - Radio Frequency Circuits and Systems *(3 hours)*

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. Prerequisite: EE 205, 206.

E E 566 - Digital Systems: Memory and Interfacing *(3 hours)*

Design of single-board computers using 32-bit processors; processor architecture and assembly language programming. Introduction to RISC processors. Prerequisite: EE 365 or consent of instructor.

E E 568 - Vhdl: Digital System Design *(3 hours)*

A structured guide to the modeling of the design of digital systems, using VHDL, a hardware description language. VHDL is designed to fill a number of needs in the design process. It allows description of the structure of a system, and the specification of the function using familiar programming language forms. As a result it allows the design of a system to be simulated and synthesized.

E E 582 - Medical Imaging *(3 hours)*

Introduction to the common methods and devices employed for medical imaging, including conventional x-ray imaging, x-ray computed tomography (CT), nuclear medicine (single photon planar imaging), single photon emission computed tomography (SPECT), and positron emission tomography (PET), magnetic resonance imaging (MRI), and ultra-sound imaging. The physics and design of systems, typical clinical applications, medical image processing, and tomographic reconstruction. Cross-listed as ME 582. Prerequisite: senior standing in engineering or consent of instructor.

E E 630 - Random Variables and Signals *(3 hours)*

Axiomatic probability; probability distributions; correlation functions; power spectral density; random processes; Markov chains and Markov processes; linear and non-linear systems with random inputs; linear mean square

estimation; Wiener and Kalman filtering; applications to signal processing problems. Prerequisite: a minimum grade of B in both EE 301 and EE 302 or equivalents; completion of a senior or graduate-level course in the area of signals and systems with a minimum grade of C.

E E 631 - Advanced Communication Theory *(3 hours)*

Continuation of Electrical Engineering 531. Prerequisite: EE 531, EE 640.

E E 640 - Dynamic Systems Analysis *(3 hours)*

Advanced techniques for analysis of electrical, mechanical, and electromechanical systems. State function concepts are emphasized with applications for determining state equations, system stability, and control. Prerequisite: EE 301 or equivalent. Completion of a senior- or graduate-level signals and systems course with a minimum grade of C.

E E 642 - Advanced Control Systems *(3 hours)*

Continuation of EE 640. Prerequisite: EE 640.

E E 681 - Research *(0-6 hours)*

Graduate research on a project selected by student and advisor. Repeatable to a maximum of 6 semester hours.

E E 699 - Thesis *(0-6 hours)*

Advanced electrical engineering research or design under the guidance of a faculty advisor. Required of students choosing thesis option. Repeatable to a maximum of 6 semester hours. Prerequisite: Consent of department chair; unconditional status.

ECE 531 - Communication Theory I *(3 hours)*

Orthogonal signal representation; review of Fourier series and Fourier transform; basic probability theory; random processes; power spectral density; Shannon's channel capacity; sampling theorem; baseband signaling; bandpass signaling; complex envelop representation of signals and systems; analog modulations; binary and M-ary digital modulations; phase locked loops, demodulation circuits; matched filter; error performance in digital communications. Cross-listed as ECE 431. Prerequisite: Graduate standing or a minimum grade of C in: ECE 206, ECE 302 or equivalents. Not open to students with credit in ECE 431.

ECE 532 - Communication Theory II *(3 hours)*

Digital communication systems; modulation; demodulation; maximum likelihood detection; trade-offs between bandwidth and power; bit error rate; channel coding techniques: block coding, convolutional coding, and iterative decoding; mutual information; channel capacity; trellis-coded modulation; synchronization. Cross-listed as ECE 432. Prerequisite: ECE 531 with a minimum grade of B or equivalent. Not open to students with credit in ECE 432.

ECE 541 - Feedback Control of Dynamic Systems *(3 hours)*

Analysis and design of linear automatic control systems for continuous-time dynamic systems using classical control theory. Fundamentals on feedback control theory. Root locus and Bode methods. Modeling and control of physical systems. Introduction to digital control. Computer-aided design and simulation. Cross listed as ECE 441. Not open to students with credits in ECE 441. Prerequisite: Graduate standing or a minimum grade of C in ECE206 and ECE22 or their equivalents;

ECE 542 - Advanced Data-Driven Control and Applications *(3 hours)*

Frequency domain and time domain design of linear/nonlinear control systems. Analysis and design of linear/nonlinear control systems for sampled-data and discrete-time systems. Classical and modern control theory methods. Modeling and data driven system identification and control of sampled-data and discrete-time systems. Micro-controller based control applications. Cross listed with ECE 442. Not open to students with credit in ECE 442. Prerequisite: Graduate standing or a minimum grade of C in ECE 441 and ECE 301.

ECE 543 - Distributed Learning Control of Dynamic Systems *(3 hours)*

The analysis and control of distributed dynamic systems, distributed learning and control issues in dynamic systems, distributed control and estimation of multiple dynamic systems, use of fundamental tools in modeling and control of linear and nonlinear dynamic systems, applications of distributed learning and control for multiple dynamic systems through case studies in multiple robot coordination and distributed power grids. Cross-listed as ECE 443. Prerequisite: Not open to students with credit in ECE 443.

ECE 544 - Introduction to Autonomous Robotics *(3 hours)*

The project-based course deals with the fundamentals on autonomous and intelligent robotics systems. It covers kinematics, manipulability, motion of robots, the basic definition, architecture, motion planning, control and navigation of autonomous robotics. Cross-listed as ECE444. Not open to students with credit in ECE 444. Prerequisite: MTH 224, ECE 205 or equivalent, ECE 221 or ECE 227, or graduate standing.

ECE 545 - Power Electronics Fundamentals *(3 hours)*

Fundamentals of power electronics. Covered topics: DC/DC converters, DC/AC converters (inverters), and AC/DC rectifiers, analysis, design, simulation and application of power electronic based systems. Cross-listed as ECE 445. Not open to students with credit in ECE 445.

ECE 546 - Power Laboratory *(3 hours)*

Experiments in transformers and rotating machines. Covered topics: electric machinery principles; brushed DC motor connections, operational characteristics, and applications; linear brushed DC motor model development, simulation, and verification; wound rotor and squirrel cage AC induction motor connections, operational characteristics, and applications; linear single-phase transformer model development and verification; power electronic H-bridge. Cross-listed as ECE 446. Not open to students with credit in ECE 446. Prerequisite: ECE 303

ECE 550 - Electromagnetic Theory *(3 hours)*

Time-varying electric and magnetic fields; Maxwell's equations, electromagnetic potentials, electromagnetic boundary conditions, plane-wave propagation in unbounded conducting and non-conducting media, wave polarization, Poynting vector, reflection and transmission of waves at boundaries; radiation and antennas.Cross-listed as ECE 450. Prerequisite: Graduate standing or a minimum grade of C in ECE 208. Not open to students with credits in ECE 450.

ECE 551 - Radio Frequency Circuits and Systems *(3 hours)*

Review of transmission lines, impedance matching and transformations, S-parameters, passive RF junctions, RF amplifier design, RF systems, and front-end design. Cross-listed as ECE 451. Prerequisite: Graduate standing or a minimum grade of C in: ECE 208, ECE 221, ECE 303 or equivalents. Not open to students with credit in ECE 451.

ECE 552 - Wireless Communication Systems *(3 hours)*

Introduction to wireless communication systems; modulation and detection; noise, attenuation; multipath and fading; sensitivity distortion, inter-modulation, and dynamic range; wireless link RF design; transmitter and receiver architectures; RF components and subsystems; selected wireless systems including multiple-access cellular systems. Cross-listed as ECE 452. Prerequisite: Graduate standing or a minimum grade of C in: ECE 206, ECE 208, ECE 303 or equivalents. Not open to students with credit in ECE 452.

ECE 553 - Radio Frequency Communications Laboratory *(3 hours)*

Radio frequency measurements of wireless system components and subsystems, time and frequency domain measurements of analog and digital signals in communication systems, computer-aided design, fabrication, and testing of microwave integrated circuit. Cross-listed as ECE 453. Prerequisite: ECE 551 with a minimum of B or equivalent. Not open to students with credit in ECE 453.

ECE 555 - Optical Fiber Communication *(3 hours)*

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: Graduate standing or a minimum grade of C in ECE 208 or equivalent.

ECE 560 - Digital Signal Processing *(3 hours)*

Design of digital filters and multirate systems. Topics include: review of discrete-time signals and systems, generalized linear phase, all-pass filters, minimum phase systems, inverse systems, FIR filter design, IIR filter design, resampling in time and frequency domain, half-band filters, polyphase filters, quadrature mirror filters and wavelets. Cross-listed as ECE 460. Prerequisite: Graduate standing or a minimum grade of C in ECE 301 or equivalent. Not open to students with credit in ECE 460.

ECE 561 - Statistical and Adaptive Signal Processing *(3 hours)*

Statistical and adaptive filtering. Topics covered: review of discrete-time signals and systems, review of random variables and processes, linear signal modeling, optimum linear filters, algorithms and structures for optimum linear filters, least-squares filtering and prediction, adaptive filters, array processing. Cross-listed as ECE 461. Prerequisite: Graduate standing or a minimum grade of C in: ECE 301, ECE 302 or equivalents. Not open to students with credit in ECE 461.

ECE 562 - Digital Image Processing *(3 hours)*

Introduction to image processing. Topics covered: digital image fundamentals, image enhancements in spatial domain, image restoration, color image processing, wavelets and multiresolution, image compression, morphological image processing, image segmentation, pattern recognition. Cross-listed as ECE 462. Prerequisite: Graduate standing or a minimum grade of C in ECE 301 or ME 273 or equivalent. Not open to students with credit in ECE 462.

ECE 563 - Medical Imaging *(3 hours)*

Introduction to the common methods and devices employed for medical imaging, including conventional x-ray imaging, x-ray computed tomography (CT), nuclear medicine (single photon planar imaging), single photon emission computed tomography (SPECT), and positron emission tomography (PET), magnetic resonance imaging (MRI), and

ultra-sound imaging. The physics and design of systems, typical clinical applications, medical image processing, and tomographic reconstruction. Cross-listed as ECE 463. Prerequisite: Graduate standing or a minimum grade of C in ECE 206 or equivalent. Not open to students with credit in ECE 463.

ECE 565 - Engineering Applications of Machine Learning *(3 hours)*

This course covers the theory, design, and engineering applications of machine learning with the emphasis on computational intelligence. Embedded hardware platforms, high-performance libraries, and high-performance architectures are used for implementation. Variants such as Deep Neural Networks and Convolutional Neural Networks are examined. Cross-listed as ECE 465. Prerequisite: Graduate standing or a minimum grade of C in ECE 302 or equivalent. Not open to students with credit in ECE 465.

ECE 566 - Real-time DSP Laboratory *(3 hours)*

Real-time digital signal processing focuses on the design and implementation of signal processing algorithms for real-world applications. Topics covered: DSP architecture, instruction set, assembly language, assembler directives, C programming, and mixed C/assembly programming for optimization. In addition, applications of FIR filtering, IIR filtering, multirate techniques and spectral analysis using a TI DSP will be covered. The laboratory will culminate with a design project of the student's choice in any of these areas: audio, controls, communications, image processing, power electronics, robotics, speech processing, and video processing. Cross-listed as ECE 466. Prerequisite: Graduate standing or a minimum grade of C in ECE 301 or equivalent. Not open to students with credit in ECE 466.

ECE 568 - Introduction to Mechatronics *(3 hours)*

Introduction to mechatronics: mechatronics overview, sensors and actuators modeling, interfacing sensors and actuators with digital systems. Cross-listed as ECE 468. Not open to students with credit in ECE 468. Prerequisite: ECE 221 or ECE 227

ECE 570 - Embedded Data Structures and Object Oriented Programming *(3 hours)*

Introduction to data structures, object-oriented programming, memory management, problems of efficiency and complexity of algorithms applicable to embedded systems. Cross-listed as ECE 470. Prerequisite: Graduate standing or a minimum grade of C in ECE 305 or proficiency in microcontroller programming in a structural computer language. Not open to students with credit in ECE 470. Instructor's consent may be required.

ECE 571 - Real-time Operating Systems *(3 hours)*

Advanced programming of small microprocessor-based systems using high-level programming languages applied to real situations: data acquisition, control, communication, small real-time operating systems. Software development for devices from a family of microcontrollers that is relevant to industrial applications. Cross-listed as ECE 471. Prerequisite: Graduate standing or a minimum grade of C in ECE 305 or high proficiency in microcontroller programming in a structural computer language. Not open to students with credit in ECE 471. Instructor's consent may be required.

ECE 572 - Embedded Microcontroller Linux *(3 hours)*

Understanding of Linux and its adoption as an embedded OS platform, including process and thread management; communication, synchronization, and deadlocks; virtual memory and file systems; overview of methods and techniques to design and create embedded systems based on the Linux kernel. The essentials of the Linux operating

system are discussed from the embedded system point of view, including selecting, configuring, cross-compiling, and installing a target-specific kernel, drivers, and subsystems; the GNU development tool chain; and tools used to build embedded Linux systems. Cross-listed as ECE 472. Prerequisite: Graduate standing or a minimum grade of C in ECE 305 or proficiency in microcontroller programming in a structural computer language. Not open to students with credit in ECE 472. Instructor's consent may be required.

ECE 573 - Embedded TCP/IP *(3 hours)*

Fundamental concepts of computer networks and network programming; computer network topologies; TCP/IP stack; IP routing and routing algorithms; client-server paradigm; lower-layers protocols: IP, UDP, and TCP; basic application-layer protocols: HTTP, SMTP, POP3, TIME, TFTP, and DHCP; Berkeley Socket API; examples of socket API for small 8-bit or 16-bit embedded microcontroller system; principles of network security. Cross-listed as ECE 473. Prerequisite: Graduate standing or a minimum grade of C in ECE305 or proficiency in microcontroller programming in a structural computer language. Not open to students with credit in ECE 473. Instructor's consent may be required.

ECE 574 - Mobile Robot Navigation and Mapping *(3 hours)*

Principles of locomotion, sensing, localization, and motion planning of mobile robots; building of and locating in probabilistic maps; cooperative localization, mapping, and exploration; cooperative object transport; multi-robot motion coordination. Cross-listed as ECE 474. Prerequisite: ECE 570 with a minimum grade of B or equivalent. Not open to students with credit in ECE 474.

ECE 575 - Security for Industrial Automation *(3 hours)*

Introductory topics in industrial automation cyber-physical systems security, fundamental security primitives specific to cyber-physical systems, and their application to a broad range of current and future security challenges. Purdue Model for ICS Security. Industrial control systems as an example instance of cyber-physical systems. Not open to students with credit in ECE 475. Prerequisite: Graduate standing or a minimum grade of C in ECE 305 or proficiency in microcontroller programming in a structural computer language. Not open to students with credit in ECE 475. Instructor's consent may be required.

ECE 580 - Digital Systems: Communication and Interface *(3 hours)*

A survey of the most commonly used peripheral devices used in embedded and programmable devices. Cross-listed as ECE 480. Prerequisite: A minimum of C in: ECE 205 and ECE 303 or equivalents, or graduate standing, or consent of the instructor. Not open to students with credit in ECE 480.

ECE 581 - Digital Systems: Design and Synthesis *(3 hours)*

A structured guide to the modeling of the design of digital systems, using VHDL, a hardware description language. VHDL is designed to fill a number of needs in the design process. It allows description of the structure of a system and the specification of the function using familiar programming language forms. As a result it allows the design of a system to be simulated and synthesized. Cross-listed as ECE 481. Prerequisite: A minimum grade of C in ECE 322 or equivalent, or graduate standing, or consent of the instructor. Not open to students with credit in ECE 481.

ECE 582 - Digital Systems: High Level Synthesis and Codesign *(3 hours)*

Provides an introduction to hardware/software (HW/SW) codesign. The codesign is a set of methodologies and techniques to support the concurrent design to effectively reduce multiple iteration and major redesigns in embedded

systems. FPGA device is an innovative platform to conduct codesign for System-on-a-Chip (SoC). Topics covered: FPGA architecture; embedded development tool flow; introduction to SoC; shared/dedicated busses; customized IP design; HW/SW interface; system performance analysis and bottleneck identification for a given HW/SW architecture; software partition; transformation between HW/SW components; hardware acceleration, FPGA codesign applications. Cross-listed as ECE 482. Prerequisite: ECE 205 with a minimum grade of C or equivalent, or graduate standing, or consent of the instructor. Not open to students with credit in ECE 482.

ECE 583 - Digital Systems: Microprocessor Architecture and Design *(3 hours)*

Architectures of CISC & RISC microprocessors: CPU, Control Unit, ALU, MMU, pipelines, etc. Design trade-offs investigated. Cross-listed as ECE 483. Prerequisite: A minimum grade of C in ECE 205 or equivalent, or graduate standing, or consent of the instructor. Not open to students with credit in ECE 483.

ECE 584 - Digital Systems: Peripheral Architecture and Design *(3 hours)*

Architecture of microprocessor systems: Evolution, external memory, Input & Output, Operating Systems, etc. Design trade-offs investigated. Cross-listed as ECE 484. Prerequisite: A minimum grade of C in ECE 205 or equivalent, or graduate standing, or consent of the instructor. Not open to students with credit in ECE 484.

ECE 630 - Random Variables and Signals *(3 hours)*

Axiomatic probability; probability distributions; correlation functions; power spectral density; random processes; Markov chains and Markov processes; linear and non-linear systems with random inputs; linear mean square estimation; Wiener and Kalman filtering; applications to signal processing problems. Prerequisite: Graduate standing or a minimum grade of B in ECE 302 or equivalent.

ECE 631 - Advanced Communication Theory *(3 hours)*

Wireless communication systems, spread spectrum systems; multiple access techniques; software-defined radios; iterative receiver design; application to engineering problems: Global Navigation Satellite Systems. Prerequisite: ECE 532 with a minimum grade of B.

ECE 640 - Dynamic Systems Analysis *(3 hours)*

Advanced techniques for analysis of electrical, mechanical, and electromechanical systems. State function concepts are emphasized with applications for determining state equations, system stability, and control. Prerequisite: Graduate standing or a minimum grade of C in ECE 441 or equivalent.

ECE 642 - Advanced Control Systems *(3 hours)*

Analysis, design and implementation of digital computer-controlled systems. Transform and state variable methods are used to analyze and design digital controllers. Introduction to discrete time optimal control, Kalman-Bucy filtering, system identification, nonlinear control, adaptive control, H-infinity control, contemporary software and hardware tools for design and rapid implementation of real-time digital controllers, and hardware-in-the-loop simulation of closed loop systems are presented. Prerequisite: A minimum grade of B in ECE640.

ECE 643 - Optimal Control Systems *(3 hours)*

Analysis and design of multivariable control systems: stability, observability and controllability, deterministic/stochastic linear optimal regulator and observers, and multivariable stability robustness. Prerequisite:

ECE 640 with a minimum grade of B.

ECE 650 - Advanced Electromagnetic Theory *(3 hours)*

Field analysis of transmission lines including planar transmission lines, rectangular and circular waveguides, electromagnetic resonators, periodic structures and filters, circuit theory for wave-guiding systems and, impedance transformation and matching. Prerequisite: A minimum grade of B in ECE 550

ECE 681 - Topics in Electrical Engineering *(0-6 hours)*

Topics of special interest which may vary each time course is offered. Topic stated in current Schedule of Classes. Repeatable to a maximum of 6 semester hours.

ECE 691 - Research I *(0-6 hours)*

Graduate research on a project selected by student and advisor. Repeatable to a maximum of 6 semester hours.

ECE 699 - Thesis *(0-6 hours)*

Advanced electrical and computer engineering research or design under the guidance of a faculty advisor. Required of students choosing thesis option. Repeatable to a maximum of 6 semester hours. Prerequisite: Consent of department chair; unconditional status.

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INDUSTRIAL ENGINEERING

Dr Joseph Chen, Chair

Dr. Fred Tayyari, Graduate Coordinator

The Department of Industrial & Manufacturing Engineering & Technology (IMET) offers a Master of Science in Industrial Engineering (MSIE) degree. The MSIE degree is a 30-hour program that strengthens your understanding of industrial systems, both in the manufacturing and service sectors, including their business and financial practices. Your training gives you tools to improve performance of organizations by improving the cost-effectiveness of their operations without compromising the quality of products and services.

The requirements for graduation are provided below in the program statements. Admission is open to applicants with engineering or science degrees. Others with sufficient mathematics preparation may be required to take up to nine hours of engineering prerequisites. Applicants without background in engineering economy and operations research may be required to take such courses to fulfill the prerequisites for the program.

Preparing You for Success

As a student in the industrial engineering graduate program, you will take courses in fundamentals of statistics, operations research and engineering economics and costs, followed by advanced courses in quantitative methods of problem solving. You will have the opportunity to conduct research in your desired field. These experiences strengthen your ability to solve systems problems and perform independent research projects, skills valuable to any organization. You have five years to complete the degree, though it typically takes three or four semesters. At the end, you are prepared to take upon responsible positions in managing industrial enterprises.

Students are not required to take the GRE test for admission into the MSIE program, but are encouraged to submit their scores if they have already taken the test. Details on admission requirements can be found in the "Admissions" link.

Making Your Mark

The MSIE graduates are employed by both manufacturing and service industries. In recent years, almost all industrial engineering graduates found jobs right after graduation. The graduates would find positions as supply chain analysts, quality engineers, production managers and systems analysts among others. Our graduates work at places such as Accenture, Caterpillar, John Deere, Kohler and, Microsoft,

Degree Requirements

A total of 30 credit hours is required for the degree and students may elect either a thesis option, project option, or course only option with written and oral assessment exams. The specific requirements for each option are as follows: A minimum grade point average of 3.00 is required for degree completion. The specific requirements for each option

are as follows:

MSIE Core Courses - 9 hrs.

IME 511 Engineering Statistical methods - 3 hrs.

IME 512 Design and Analysis of Experiments - 3 hrs.

IME 514 Introduction to Operations Research - 3 hrs.

Thesis option - 6 hrs.

- IME 699 Thesis - 6 hrs.
- Students should work with their advisor and graduate program coordinator to create a course plan by the end of the first semester. The plan lists the courses required for completion of the program. Courses not on the approved plan may not be counted towards the MSIE degree.
- Comprehensive assessment: Thesis presentation and demonstrations.

Research option - 3 hrs.

- IME 691 Research - 3 hrs.
- Students should work with their advisor and graduate program coordinator to create a course plan by the end of the first semester. The plan lists the courses required for completion of the program. Courses not on the approved plan may not be counted towards the MSIE degree.
- Comprehensive assessment: Research presentation and demonstrations

Elective Courses:

- The remainder of the required 30 credit hours must be selected from the following:
    - Any 500- or 600- level IME courses with consent of the graduate coordinator.
    - A maximum of two graduate-level courses (6 credit hours) offered in other departments with consent of the graduate coordinator.

MANUFACTURING ENGINEERING

MANUFACTURING ENGINEERING

Dr. Joseph C Chen, Caterpillar Professor

Chair and Graduate Program Coordinator

Manufacturing Engineering

The Department of Industrial & Manufacturing Engineering & Technology offers a Master of Science in Manufacturing Engineering (MS MFE) degree. This degree program responds to a wide range of manufacturing and service industry needs. The MS MFE program is designed to provide students with the knowledge to become future leaders, researchers, and facilitators in the fields of utilizing tools such as lean manufacturing and six sigma in optimizing manufacturing processes and systems. The program combines a broad intellectual horizon with the firm technical foundation necessary to meet future challenges in manufacturing and other related industries. The curriculum builds on a solid foundation of manufacturing materials, processes and systems. In conjunction with a hands-on research project, the program integrates knowledge of the science of materials and processes with the products and systems of manufacturing. The department has an excellent material science laboratory equipped with a variety of materials testing equipment as well as a state-of-the-art manufacturing processes laboratory.

The graduates from the Master of Science of Manufacturing Engineering Program at Bradley University will have successful careers based on:

- Demonstrated ability to recognize high level manufacturing business problems and implement effective solutions for improving enterprise values
- Demonstrated ability to handle expanded job responsibilities and effectively lead cross-functional teams in design, development, and improvement of products, processes, and systems.
- Demonstrated ability in advanced study and/or life-long learning in professional advancements and active participation in professional societies.

The courses listed in the following curriculum must be completed to meet the degree requirements for the Master of Science in Manufacturing Engineering with a Manufacturing Management or Production Engineering concentration.

Degree Requirements

The program offers students two options: thesis and research project options. Each of these options require a total of 30 credit hours. A minimum grade point average of 3.00 is required for degree completion. The specific requirements for each option are as follows:

Thesis Option

The Recommended for investigating a research problem in depth for at least one semester work:

- 24 hours of approval course meeting the following requirements:
    - 3 hours from either IME 511 Engineering Statistical Methods or IME 512 Design and Analysis of Experiments
    - 15 hours from the Manufacturing Engineering Technical Elective courses
    - 6 hours from graduate courses from Engineering, Math, Data Science and Analytics Program,or Computer Sciences approved by major advisor.
- 6 hours IME 699 Thesis
- Students should work with their advisor and graduate program coordinator to create a course plan by the end of the first semester. The plan lists the courses required for completion of the program. Courses not on the approved plan may not be counted towards the MSMfE degree.
- Comprehensive assessment: Thesis presentation and demonstrations.

Research Option

- 27 hours of approval course meeting the following requirements:
    - 3 hours from either IME 511 Probability & Statistics for Analytics or IME 512 Regression and Experimental Design
    - 15 hours from the Manufacturing Engineering Technical Elective courses
    - 9 hours from graduate courses from Engineering, Math, Data Science and Analytics Program, or Computer Sciences approved by major advisor.
- 3 hours IME 691 Research
- Students should work with their advisor and graduate program coordinator to create a course plan by the end of the first semester. The plan lists the courses required for completion of the program. Courses not on the approved plan may not be counted towards the MSMfE degree.
- Comprehensive assessment: Research presentation and demonstrations.

Manufacturing Engineering Technical Elective courses

- IME 501 Engineering Economy and Costs - 3 hrs.
- IME 512 Regression and Experimental Design. - 3 hrs.
- IME 522 Manufacturing Quality Control - 3 hrs.
- IME 524 Six Sigma Theory and Methodologies - 3 hrs.
- IME 531 Polymer and Ceramic Materials and Manufacturing - 3 hrs.
- IME 533 Composite Materials and Manufacturing - 3 hrs.
- IME 541 Advanced Forming Processes - 3 hrs.
- IME 543 Advanced Materials Removal Processes - 3 hrs.
- IME 553 Advanced CAM - 3 hrs.
- IME 555 Computer Integrated Manufacturing - 3 hrs.
- IME 560 Principles of Robotic Programming - 3 hrs.
- IME 563 Process Engineering - 3 hrs.
- IME 566 Advanced Facility Planning - 3 hrs.
- IME 570 Selected Topics in Industrial & Manufacturing Engineering - 3 hrs.
- IME 581 Cellular Lean Manufacturing Systems - 3 hrs.
- IME 586 Advanced Logistical Supply Chain Systems - 3 hrs.
- IME 590 Geometric Modeling - 3 hrs.
- IME 592 Tribology - 3 hrs.
- IME 595 Design for Manufacturability - 3 hrs.

Elective Courses:

- The remainder of the required 30 credit hours must be selected from the following:
    - Any 500- or 600- level IME courses with consent of the graduate coordinator.
    - A maximum of two graduate-level courses (6 credit hours) offered in other departments with consent of the graduate coordinator.

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BRADLEY University

INDUSTRIAL AND MANUFACTURING ENGINEERING AND TECHNOLOGY COURSE DESCRIPTIONS

IME 501 - Engineering Cost Analysis *(3 hours)*

Economic aspects of engineering decisions including techniques of obtaining cost data, cost allocation and product costing, break-even analysis, financial analysis, and investment market. Prerequisite: Consent of instructor. Not open to students with credit in IME 401.

IME 511 - Probability and Statistics for Analytics *(3 hours)*

Theory and application of probability and statistics. Probability, random variable, distributions, sampling distributions, Central Limit Theorem, descriptive statistics, confidence interval, and hypothesis testing with various applications from business, engineering and science. Prerequisite: Consent of instructor.

IME 512 - Regression and Experimental Design *(3 hours)*

Inferential statistical analysis for two samples; Simple and multiple regression analysis and applications; Goodness of fit test; Independence test; Experimental designs for evaluating significance of main effects and interactions of multiple variables. Cross listed with IME 412. Prerequisite: IME 311 or IME 511 or consent of instructor

IME 514 - Introduction to Operations Research *(3 hours)*

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: Consent of instructor. Not open to students with credit in IME 313 and 314.

IME 515 - Linear Programming and Extensions *(3 hours)*

Theoretical and computational aspects of linear programming and its extensions in integer programming, nonlinear programming, dynamic programming, and network analysis; application to practical problems including production planning and supply chain optimization. Prerequisite: Consent of instructor

IME 522 - Manufacturing Quality Control *(3 hours)*

Analysis of factors affecting product quality during manufacturing; process control charts; process capability studies; error of measurement; sampling plans; motivation programs; quality audit; organization. A research paper required. Cross listed with IME 422 Prerequisite: One semester of statistics or consent of instructor. Not open to students with credit in IME 422

IME 524 - Six Sigma Theory and Methodologies *(3 hours)*

Comparative study of philosophies of using quality as a business management tool, with special reference to Deming's Theory of control charts and a study of their strengths and weaknesses. Special control charts such as

CUSUM chart, median chart, moving average chart, and their application. The latest published articles used to keep up-to-date in quality technology. Prerequisite: IME 522 or consent of instructor.

IME 526 - Reliability Engineering *(3 hours)*

Specification, prediction, and evaluation of product reliability and maintainability. Use of models for failure distribution exponential, Weibull, lognormal and analytical and graphical methods for failure data analysis. Test plans and accelerated testing models. Design methods for increasing reliability and maintainability. Prerequisite: IME 511 or consent of instructor.

IME 531 - Polymer and Ceramic Materials and Processing *(3 hours)*

Recent developments and applications of polymeric and ceramic materials. Selection and design criteria, material properties, process engineering, quality considerations and failure prevention. Prerequisite: IME 331

IME 533 - Composite Material and Manufacturing *(3 hours)*

Science and technology of modern composite materials: properties, design, toughening mechanisms, fabrication methods, evaluation, mechanisms of failure, and quality assurance. Prerequisite: IME 331

IME 541 - Advanced Forming Processes *(3 hours)*

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 or consent of Instructor

IME 543 - Advanced Material Removal Processes *(3 hours)*

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. Prerequisite: IME 441

IME 545 - Advanced Joining and Fabrication *(3 hours)*

Principles of advances in joining and fabrication of engineering materials including metallic, non-metallic, and electronic. Process science and technology with emphasis on casting, welding, and micro-joining of electronic components. Physical and mathematical modeling of various processes. Prerequisite: IME 331

IME 553 - Advanced Computer Aided Manufacturing *(3 hours)*

Computer Aided Manufacturing (CAM) within the CAD/CAM and CIM contents. Computer Assisted Process Planning (CAPP), Computer Assisted Tool Design, Computer Assisted NC Programming (APT), Interactive Graphics, NC Programming, and the elements of computer control of manufacturing equipment (CNC). A semester project. Prerequisite: IME 445.

IME 555 - Computer Integrated Manufacturing *(3 hours)*

Computer Integrated Manufacturing (CIM); elements of hardware and software within the manufacturing automation environment. Islands of factory automation and their interactions, information flow and Local Area Networks within the CIM architecture, standardization of electronic data and interfaces. Prerequisite: IME 386.

IME 560 - Principles of Robotic Programming *(3 hours)*

Programming of industrial robotic manipulators with external inputs, tactile sensing and vision sensing. A design project is required. Cross-listed as ME 560. Prerequisite: graduate or senior standing in engineering or computer science.

IME 561 - Simulation of Manufacturing & Service Systems *(3 hours)*

Procedures and rationale for planning, designing, and implementing computer simulation experiments used to analyze manufacturing and service systems in engineering, business, and social sciences. Use of a 3D state-of-art simulation software tool. Research projects required. Cross listed with IME 461. Prerequisite: IME 511 or equivalent

IME 563 - Process Engineering *(3 hours)*

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. Prerequisite: IME 395, 443.

IME 566 - Advanced Facility Planning *(3 hours)*

Physical organization of work places and departments to optimize objectives such as material movement, safety, and worker satisfaction. Review of IE methods of work place design and productivity measurement and economic decision making. Computer solutions for layout problems and mathematical models for location problems. A research project is required. Cross listed with IME 466. Prerequisite: IME 386 or IME 500 or consent of instructor

IME 568 - Engineering Analytics 1 *(3 hours)*

Theoretical background of descriptive, predictive and prescriptive analytics methods and their applications to engineering. Various artificial intelligence techniques for data mining and expert system design and implementation. Computing foundations for data management and data analytics. Applications to Production Planning and Control and Inventory Management. Cross-listed with IME 468. Prerequisite: One semester of computer programming and one semester of statistics, or consent of instructor.

IME 570 - Selected Topics in Industrial & Manufacturing Engineering *(1-3 hours)*

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. Combined credit for IE 590 and IME 570 may not exceed six hours. Prerequisite: Consent of instructor.

IME 578 - Engineering Analytics 2 *(3 hours)*

Combination of machine learning theory with the hands-on practice of solving modern industry problems with an emphasis on optimization or intelligent control via data mining approaches. Topics include Fuzzy Logic, Neural Networks, Neuro-Fuzzy, and Genetic Algorithm for optimization or for intelligent control. The course uses Python as the primary language, although later projects can include R and other languages. Cross listed with IME 478. Not open to students with credit in IME 478. Prerequisite: IME 468 or IME 568

IME 581 - Cellular Lean Manufacturing Systems *(3 hours)*

This course reviews the principles and concepts required for integrated production System in order to meet customer demand in production, quality, on-time delivery, and continuously reducing manufacturing cost. Emphasis is placed on applying lean manufacturing principles, simulation techniques, and Kaizen methodologies through hands-on projects. A research paper is required. Cross listed as IME 481. Prerequisite: IME 566, or consent of instructor. Not open to students with credit in IME 481.

IME 583 - Production Planning and Control *(3 hours)*

Analysis of Service-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. A research paper is required. Cross listed as IME 483. Prerequisite: IME 386, minimum grade of C in IME 511, IME 514 or consent of instructor. Not open to students with credit in IME 483

IME 584 - Advanced Production Planning *(3 hours)*

Planning methods for converting to or creating Just-in-Time and/or group technology systems. Analytical and behavioral aspects. Prerequisite: Consent of instructor.

IME 585 - Occupational Ergonomics *(3 hours)*

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. Research projects required. Cross listed as IME 485. Prerequisite: Graduate Standing and Consent of instructor. Not open to students with credit in IME 485.

IME 586 - Logistics & Supply Chain Systems *(3 hours)*

Logistics terms and definitions; logistics as a design process; supply chain concepts, analyzing, designing and implementing logistics and supply chain systems. A research paper is required. Cross listed as IME 486. Prerequisite: Consent of instructor. Not open to students with credit in IME 486.

IME 587 - Occupational Safety and Health *(3 hours)*

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. Research projects required. Cross listed with IME 487. Prerequisite: Graduate Standing and Consent of instructor. Not open to students with credit in IME 487.

IME 590 - Geometric Modeling *(3 hours)*

Computer-based representations of the shape and spatially dependent attributes of real or conceived physical objects. Techniques and concepts needed to couple the digital computer with the techniques of geometric modeling and graphics display for analysis and viewing. Prerequisite: IME 395; MTH 223.

IME 592 - Tribology *(3 hours)*

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. Prerequisite: IME 331 or ME 351 or consent of instructor.

IME 595 - Design for Manufacturability *(3 hours)*

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; A research paper required. Cross listed with IME 495. Prerequisite: IME 341; IME 395, or equivalences. Not open to students with credit in IME 495 or IME 591.

IME 670 - Independent Study *(3 hours)*

Critical investigation and analysis in management systems design, facilities and/or process design, material selection, or industrial economics. Prerequisite: Consent of instructor.

IME 691 - Research *(0-3 hours)*

Research project or professional problem to be selected by student and advisor. May be repeated to a maximum of 3 hours credit. Beyond initial enrollment the student must register for 0 hours. Prerequisite: Unconditional graduate status, minimum GPA of 3.2 after 15 hours of graduate work, and consent of instructor

IME 699 - Thesis *(0-6 hours)*

Required of students choosing thesis option. Total of six hours to be taken; any semester after six hours, the student must register for zero hours to maintain progress. Prerequisite: Unconditional status, 3.25 GPA with at least 15 hours earned, and consent of graduate coordinator

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MECHANICAL ENGINEERING

Dr. Jeries Abou-Hanna,
Department Chair

Dr. Abdalla Elbella,
Graduate Program Coordinator

The Department of Mechanical Engineering offers opportunities for graduate study providing for advanced professional competency and leading to the degree of Master of Science in Mechanical Engineering. The main goal of the graduate program in mechanical engineering is to strengthen the ability of the student to solve complex technological problems in a creative way. To achieve this, the program of study is designed to broaden the student's knowledge, to provide for in-depth study in an area of concentration, and to complement theoretical study with relevant and significant research and/or design. The student will ordinarily concentrate in either the mechanical systems design area or in the area of energy systems/thermosciences.

To qualify for unconditional admission, applicants should have the equivalent of an undergraduate degree in mechanical engineering with a minimum last-60-hour grade point average of 3.5 on a 4.0 scale. Transcripts of all prior work at the college level and two letters of recommendation should accompany the application. Students with undergraduate degrees in related fields of science and engineering or those who do not meet the minimum grade point requirement can be admitted conditionally at the discretion of the department. Requirements for removal of conditional status will be specified in the letter of admission. For students whose primary language is not English, a TOEFL score of at least 550 is required for unconditional admission.

Students with undergraduate degrees in mechanical engineering from institutions other than Bradley University may be required to take undergraduate coursework if their transcripts do not show a satisfactory level of preparation in certain areas.

New students who are planning to take their coursework at an off-campus site must submit copies of their transcripts for evaluation purposes with their first application for off-campus registration. To ensure that appropriate academic advising takes place, all continuing students, including those off-campus, will have their registration capability encumbered each semester until they have met with their advisor or appropriate faculty representative from the Department of Mechanical Engineering.

The student must file an approved plan of study with the graduate program coordinator 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 coordinator and by the student's advisor.

Master's Degree Curriculum Requirements

In order to graduate, students must complete 30 graduate credit hours with at least 24 graduate credit hours of coursework and a minimum of 3 graduate credit hours of research by taking ME 681, ME 682, or ME 699 Thesis. Students can appeal the research requirement to the graduate coordinator by documenting prior experience.

For all students, the total graduate credit hours must include one graduate mathematics course that must be approved by the student's advisor. Courses in statistics, numerical methods, and engineering analysis are applicable to this requirement.

Each student must choose to focus on one specialty area out of the following: Mechanical Systems Design and Thermal Sciences.

Mechanical Systems Design students must take the following core courses:

- Systems (Vibration ME 540, Systems ME 544, or Advanced Controls)
- Dynamics (ME 502)
- Advanced Design of Machine Elements (ME 557)
- One fundamental graduate course in Thermal Sciences chosen from:
  ME 501, ME 515, ME 521.

Thermal Science students must take the following core courses:

- Thermodynamics (ME 501)
- Heat Transfer (ME 515)
- Fluids (ME 521)
- One fundamental graduate course in Mechanical Systems Design chosen from:
  ME 540, ME 544, Advanced Control, ME 502, ME 557.

The student's advisor must approve the Program of Study, including any subsequent changes. All students are required to pass a Master's Comprehensive Exam (MCE) in their respective area of concentration according to the policies described below.

Master's Comprehensive Exam (MCE)

The student will be eligible to take the MCE after he/she successfully completes all the core requirements stated above for all program options. The student must report to the department by February 15 or September 15 a list of five courses (excluding math and the course from other side) to be tested on. The list must include all the three fundamental/applied required courses listed above and two additional ME courses. The department's graduate committee will combine the list of courses to be tested on by the 3rd week of February or September. A request for test questions will be issued by March 1 or October 1 by the graduate committee to the faculty members who teach the listed courses. The involved faculty will provide two (2) problems for each of their listed courses to the ME Department office by the first Friday of March or October. The student will be required to solve one of the two problems. Each problem should not take more than one-half hour to solve. All tests are open book. Faculty who request a closed-book option for their part must notify the ME Department by the first Friday of March or October and will be encouraged to proctor the exam. The students must be notified by the ME Department by the second Friday of March or October whether certain tests will be closed book. The students will be instructed to solve 5 of the 10

problems. No two problems can be on the same topic. Passing the MCE requires successful completion of 4 of the 5 submitted problems. The student must retake the topic that he/she failed during the next regularly scheduled MCE. Students who fail have only one additional opportunity for reassessment. Time allotted for the test will be three hours. Students who opt to take thesis option will not be required to take the MCE written exam, but still must abide by the degree guidelines as described above. These students will be tested on their fundamental knowledge during the oral defense of their thesis.

MECHANICAL ENGINEERING COURSES

M E 501 - Advanced Thermodynamics *(3 hours)*

Laws and concepts of classical thermodynamics: real gases and equations of state; availability; irreversibility; property relations; potential functions; equilibrium; multicomponent systems. Prerequisite: ME 302; or graduate standing.

M E 502 - Problems in Advanced Dynamics *(3 hours)*

Application of analytical and graphical methods to problems involving velocities, accelerations, working and inertia forces. Prerequisite: ME 341; or graduate standing.

M E 503 - Internal Combustion Engines *(3 hours)*

Thermodynamic analysis, thermo-chemistry, and performance characteristics of spark ignition and compression ignition engines. Prerequisite: ME 301 and ME 302; or graduate standing.

M E 507 - Nuclear Energy *(3 hours)*

Introduction to nuclear reactors, the physics of nuclear radiations and interactions, the effects of radiation on people, and the issues and potentials that will govern the future use of nuclear energy. Prerequisite: consent of instructor; senior or graduate standing; PHY 201.

M E 509 - Solar Engineering *(3 hours)*

Nature and characteristics of solar energy as a renewable energy resource. 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.

M E 515 - Intermediate Heat Transfer *(3 hours)*

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; or graduate standing.

M E 520 - Gas Dynamics *(3 hours)*

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; or graduate standing.

M E 521 - Intermediate Fluid Mechanics *(3 hours)*

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. Prerequisite: MTH 224 and ME 308; or graduate standing.

M E 533 - Propulsion Systems *(3 hours)*

Gas turbine analysis; stationary power plants; turboprop, turbojet, and ramjet engines; rocket propulsion; application of thermodynamics. Prerequisite: ME 308; or graduate standing.

M E 534 - Environmental Engineering-Air Conditioning *(3 hours)*

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.

M E 535 - Environmental Engineering-Refrigeration *(3 hours)*

Mechanical vapor compression refrigeration cycles; refrigerants; absorption refrigeration; miscellaneous refrigeration processes; cryogenics; semester design project. Prerequisite: ME 301.

M E 536 - Industrial Pollution Prevention *(3 hours)*

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; or graduate standing.

M E 537 - Building Energy Management *(3 hours)*

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.

M E 540 - Advanced Mechanical Vibrations *(3 hours)*

Principles of vibrations in one or more degrees of freedom; application to machine members. Prerequisite: ME 341; MTH 224; or graduate standing.

M E 544 - Mechanical Systems Analysis *(3 hours)*

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; or graduate standing.

M E 547 - Fluid Power Control Systems *(3 hours)*

Definition and scope of fluid power control systems. Fluid properties. Continuity and power balance equations. Components function, operation, and dynamic performance. Use of perturbation theory for developing linearized transfer functions. Application of conventional control theory. Prerequisite: ME 301, ME 308; or graduate standing.

M E 548 - Optimization of Mechanical Systems *(3 hours)*

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; or graduate standing.

M E 549 - Microprocessor Interfacing in Mechanical Systems *(3 hours)*

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." Prerequisite: ME 303; ECE 227; proficiency in at least one computer language; or consent of instructor.

M E 554 - Fracture of Solids *(3 hours)*

Mechanical failure caused by stresses, strains, and energy transfers in mechanical parts: conventional design concepts and 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. Prerequisite: M E 354 and C E 270; or graduate standing.

M E 556 - Mechanics of Composite Materials *(3 hours)*

Mechanical behavior, analysis, and design of various advanced composite materials: introduction to composite materials and their applications; elasticity of anisotropic solids; micromechanics of fiber reinforced composites and particulate composites; short fiber composites; macromechanics of laminated composites; thermal stresses; failure criteria; fracture and fatigue, reliability, testing, and design of composite materials. Emphasis on developing simple microcomputer programs for analysis. Projects involve curing and testing composites. Prerequisite: CE 270; or graduate standing.

M E 557 - Advanced Design of Machine Elements *(3 hours)*

Review of mechanical testing, 3-D stress-strain relationship, complex and principal states of stress, yielding and fracture under combined stresses, fracture of cracked members, stress and strain based approaches to fatigue, creep damage analysis, and plastic damage analysis as applied to the design of machine elements. Prerequisite: ME 342 and ME 351, with a minimum grade of C; or graduate standing in ME. Requires consent of instructor if non-ME Student.

M E 560 - Principles of Robotic Programming *(3 hours)*

Programming of industrial robotic manipulators with external inputs, tactile sensing, and vision sensing. A design project is required. Cross-listed as IME 560. Prerequisite: graduate or senior standing in engineering or computer science.

M E 561 - Introduction to Robotics *(3 hours)*

Coordinate transformation, forward & inverse kinematics, robot dynamics, robot control, motion planning, actuators and sensors, and robotic vision. A design project is required. Prerequisite: Graduate or senior standing in engineering or computer science; consent of the instructor

M E 562 - Dynamics, Modeling, and Control of Robots *(3 hours)*

Fundamental concepts and methods to analyze, model, and control robotic systems. Kinematics/dynamics, modeling and controller design of robotic arms, mobile robots, and drones. Plant visits to observe robots in action; hands-on practice using Arduino or Raspberry-Pi. Prerequisite: M E 344, ECE 227; or consent of instructor.

M E 564 - Sensor, Actuators, and Computer Vision *(3 hours)*

Fundamental principles of sensors, actuators, and computer vision; Image processing, image recognition, and face detection; Introduction to OpenCV and MATLAB computer vision; Prerequisite: M E 273, M E 303; or consent of instructor

M E 568 - Motion planning *(3 hours)*

This course provides an in-depth treatment of path planning and motion in robotic systems. Common techniques and algorithmic procedures used for planning and decision-making are covered. Case studies include mobile manipulation platforms and multi-robot systems. The student evaluation will be done by tests, homework, and projects. Prerequisite: Senior or Graduate Standing

M E 573 - Methods of Engineering Analysis *(3 hours)*

Application of principles of analog and digital computers and numerical methods to solve mechanical engineering problems. Prerequisite: ME 341; ME 273; MTH 224; or graduate standing.

M E 577 - Finite Element Methods in Engineering *(3 hours)*

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; or graduate standing.

M E 580 - Biomechanics *(3 hours)*

Human body as a mechanical system. Biomechanics of cells, soft issue and hard tissue Biomechanics of movement. Laboratory exercises on design and analysis of implants. Prerequisite: senior or graduate standing in engineering or consent of instructor.

M E 582 - Medical Imaging *(3 hours)*

Introduction to the common methods and devices employed for medical imaging, including conventional x-ray imaging, x-ray computed tomography (CT), nuclear medicine (single photon planar imaging), single photon emission computed tomography (SPECT), and positron emission tomography (PET), magnetic resonance imaging (MRI), and ultra-sound imaging. The physics and design of systems, typical clinical applications, medical image processing, and tomographic reconstruction. Cross-listed as EE 582. Prerequisite: Senior standing in engineering or consent of instructor.

M E 588 - Human Centered Design *(3 hours)*

Principles and practices of biomedical engineering for integration into design. The focus on human limits including physical, visual, cognitive and medical will serve as the basis for technology evaluations and case studies. Design and analysis with team-based, open ended client specific project. Prerequisite: Senior or graduate standing and consent of instructor

M E 591 - Topics in Mechanical Engineering *(3-9 hours)*

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 under different topic names up to a maximum of 9 credits. Prerequisite: consent of instructor.

M E 604 - Design of Internal Combustion Engines *(3 hours)*

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. Prerequisite: undergraduate courses in dynamics of machines, internal combustion engines, and machine design, or consent of instructor.

M E 648 - Advanced Computer Aided Design *(3 hours)*

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. Prerequisite: 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.

M E 681 - Research *(0-6 hours)*

Research on a project selected by student and advisor.

M E 682 - Research *(0-6 hours)*

Individual study on a topic selected by the student with advisor approval. Integration and application of research. Student must produce a product such as a software program or journal article Prerequisite: consent of instructor.

M E 699 - Thesis *(0-6 hours)*

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

Christopher Jones,

Dean

Kelly McConnaughay,

Associate Dean

Lee Newton,

Assistant 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.

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SCI COURSES

SCI 501 - Topics in Investigative Science for Educators *(3 hours)*

Laboratory-based biological and physical science. Content developed along interdisciplinary themes. Course taught in an inquiry/investigative format and includes application to Pre K-12 classroom settings. Course may be repeated under different topic. Credit will not be given for SCI 501 students who have obtained credit for SCI 101 under the same theme. Registration is not open to undergraduate or graduate students enrolled in a natural science degree program. Prerequisite: Concurrent enrollment in ETE 550.

BIOLOGY

Erich Stabenau,

Graduate Program Coordinator

The Biology Department offers graduate programs leading to a Master of Science in Biology degree. The programs provide graduate education that will allow students to be successful in following a number of differing career paths or Ph.D. programs. The degree requires completion of a significant research project, completion of a written thesis, and defense of that thesis. The program delivers significant experience in all aspects of scientific research. This should allow the biologists who leave the program to be well versed in the requirements of working scientists and professionals.

MS Biology

Admission - MS Biology program

Minimum prerequisites for admission to the graduate program in biology are: 16 semester hours of biology beyond first year biology, one semester of organic chemistry, one semester of physics, one semester of calculus, last 60-hour undergraduate GPA above 3.0, and a sum of the GRE verbal and quantitative sections above 1000.

Graduation Requirements

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 chemistry, education, or computer science) approved by the graduate coordinator. Of the total 32 hours, fifteen hours must be classroom courses (i.e., non-independent study), one hour must be in Thesis Proposal Preparation (BIO 500), and twelve hours must be taken at the 600 level. The Thesis Proposal Preparation course should be taken between 9 and 18 hours. Students will not be allowed to enroll in the 19th program hour without completing BIO 500. The graduate coordinator must approve the entire course of study.

The student must pass a comprehensive oral exam focusing on basic biology content, the science content of the research proposal and the science content necessary for the student to successfully complete the proposed research. The student will be given specific information on the exam format and content before the exam. The oral comprehensive exam must be completed no later than the semester immediately following completion of the Thesis Proposal Preparation Course.

All biology graduate students must complete an independent research thesis and enroll in six hours of thesis (BIO 699). In the student's first year, a committee of three members of the graduate faculty (including the thesis advisor) will be chosen in consultation with the graduate coordinator. A majority of committee members must be from the faculty of the Department of Biology at Bradley University. This committee will advise the student in his or her thesis

research. The student must submit a thesis proposal to his or her thesis committee while enrolled in the Thesis Proposal Preparation course. 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.

BS/MS Biology Program

Admission

Bradley University Biology undergraduates may enroll in the BS/MS program while completing their bachelor's degree. They must meet the following requirements and follow the procedures described below:

Students will be considered for the BS/MS program following nomination by a Biology Department faculty member during the spring of the student's junior year (preferred date: April 1). By nominating a student the faculty member agrees to become the student's thesis advisor and confirms that the student has the necessary research background, including thesis research plan, to be successful in the program. Nominations will be accepted the fall of the student's senior year given a reasonable need for accommodation. Students will not be admitted to the program after the first day of spring semester their senior year. After nomination the student must follow the application procedures consistent with application to Graduate Education and Biology Graduate Program with the following exceptions. The student:

a. does not need to have completed the bachelor's degree to be admitted to the program,
b. has greater than a 3.2 GPA (in biology) and overall greater than 3.2 GPA,
c. has a minimum of 85 hours completed at time of admission to program if admitted before completion of junior year, or 99 if admitted at the beginning of the senior year.
d. already has a thesis advisor
e. will have the GRE score waived.

Graduation Requirements

Students admitted to the graduate program in biology pursuing an MS degree in biology as an undergraduate as stipulated above will need to complete 30 semester hours of graduate work. A minimum of 26 hours will be biology; the remaining hours may include cognate courses (e.g., in chemistry, education, or computer science). Cognate courses will be deemed appropriate if they contribute to a student's content knowledge or skill level in an area that directly complements the area of research or study. The cognate course must be approved by the department graduate coordinator to be placed on the program of study. The entire program of study must be approved by the department graduate coordinator. Of the total 30 hours, fifteen hours must be classroom courses (i.e., non-independent study), one hour must be in the Thesis Proposal Preparation course (BIO 500) taken spring of the senior year, twelve hours must be taken at the 600 level, and six hours of Thesis (BIO 699) are required. The graduate coordinator must approve the entire course of study.

Undergraduates will apply for graduation for their bachelor's degree the semester that they will achieve 120 credit hours and receive their degrees at Commencement. Following graduation with the BS degree, students will be considered graduate students. Students who are admitted to the BS/MS program will have up to nine graduate hours taken during the final year of the bachelor's degree dual counted for the BS and MS Degrees. Students admitted to this program will be required to have sufficient research already completed to have reasonable expectation of passing their oral comprehensive exams in their first semester as a graduate student and of finishing and defending their thesis research in their fifth year at Bradley University.

An oral comprehensive exam and thesis are required. The student must pass a comprehensive oral exam focusing on basic biology content, the science content of the research proposal, and the science content necessary for the student to successfully complete the proposed research. The student will be given specific information on the exam format and content before the exam. The student must prepare a thesis based on a research project as approved by the thesis committee, give a public seminar, and defend the thesis to the thesis committee.

We will also enforce the following policies with regard to the necessary timelines: students must enroll in the thesis proposal development course the spring of their fourth year at BU. The oral comprehensive exam will be scheduled for the BS/MS students during this course as for the MS students in our department; however the exam will not take place until their first semester as graduate students. The exam must be taken within the first month of their first academic semester as a graduate student. Oral comprehensive exams must be successfully completed before the student will be allowed to enroll in the second semester of their fifth year.

All biology graduate students must complete an independent research thesis and enroll in six hours of thesis (BIO 699). In the student's fourth year at BU, a committee of three members of the graduate faculty (including the thesis advisor) will be chosen in consultation with the graduate coordinator. A majority of committee members must be from the faculty of the department of Biology at Bradley University. This committee will advise the student in his or her thesis research. The student must also submit a thesis proposal to his or her thesis committee at the end of the fourth year of the BS/MS program. 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.

BIOLOGY COURSES

BIO 500 - Thesis Proposal Preparation *(1 hour)*

Designed to prepare students to write and present their graduate thesis proposal. The instructor will work with students to develop the appropriate timeline and give a general outline of relevant information for a thesis proposal and instruction on developing and giving presentations. Students will also be directed to the CITI site to complete an ethics training module. The student will work with the thesis advisor to develop and edit the thesis proposal. The course will serve as a mechanism to organize proposal development and presentation. Ultimate responsibility for student grade and confirmation of completion of the work will reside with the faculty advisor who will report to the instructor of record. It is intended that students will present their written proposal to their chosen thesis committee and present their thesis proposal orally to the committee and department at the end of the semester they are enrolled in this course. Prerequisite: Graduate standing or consent of Graduate Advisor

BIO 502 - Biometry *(3 hours)*

Principles of biological measurement. Topics include the nature of data, sampling, experimental design, and statistical analysis. Prerequisite: C or better in BIO 260, 261 or equivalent.

BIO 503 - Molecular Genetics *(3-4 hours)*

Molecular genetics is the study of the intricate control of cellular events such as DNA replication, transcription, and translation. Familiarizes students with the exciting and rapidly advancing field of molecular biology and with some of the techniques that are used by molecular biologists. Primary focus will be on eukaryotic organisms. Prerequisite: C or better in BIO 310 (Genetics); permission of instructor.

BIO 505 - Topics in Bioethics *(3 hours)*

Topics in Bioethics aims to enlighten students to ethical issues in modern biology. This will be done through films, readings, discussions and student writing and presentations. Topics will include eugenics, medical ethics, implications of the human genome project, and genetically modified organisms. Prerequisite: Junior standing with a GPA of 3.0 or higher. BIO 111 or BIO 151 recommended

BIO 506 - Advanced Microbiology *(3 hours)*

Comprehensive discussion of selected topics of current interest in microbiology, including microbial genetics, microbial growth, environmental microbiology, infectious diseases and immunity, and the exploitation of microorganisms by humans. Laboratory experiments will demonstrate and further explore techniques and ideas discussed in lecture. Students will discuss and critically analyze primary research literature that is complementary to topics discussed in lecture. Lab mandatory. Cross-listed as BIO 406. Prerequisite: four semesters of biology with laboratory; organic chemistry; or consent of instructor. Students who have credit for BIO 406 may not enroll in BIO 506.

BIO 508 - Advanced Bacterial Pathogenesis *(3 hours)*

Basic bacterial cell biology and the human innate and adaptive immune systems. Focuses on and explores the cellular and molecular mechanisms used by bacterial pathogens to bypass the defenses of the body to cause infection in humans. Includes laboratory. Cross-listed as BIO 408. Prerequisite: C or better in BIO 151 and BIO 152 or BIO 111 and BIO 113 or equivalent required. Junior standing in Biology or Chemistry with a GPA of 3.0 or higher or consent of instructor. Students with credit for 408 cannot enroll in 508.

BIO 509 - Human Genetics *(3 hours)*

Genetic theory and methodology applied to humans. Prerequisite: C or better in BIO 310 or consent of instructor

BIO 517 - Environmental Physiology *(3 hours)*

Provides an understanding of the mechanisms that animals use to cope with environmental conditions, including extreme habitats, and habitat fluctuations. Lectures will focus on the physiology of metabolism, body temperature, respiration, osmoregulation, and nervous systems in both invertebrate and vertebrate animals from a broad range of habitats. Laboratory experiments will focus on the biochemical and organismal acclimations animals use to cope with fluctuations in temperature, oxygen, and salinity. Crosslisted with BIO 417. Prerequisite: C or better in BIO 250, 251, and 252 (or equivalent)and senior or graduate standing; or consent of instructor. Students who have credit for BIO 417 may not enroll in BIO 517.

BIO 519 - Comparative Animal Behavior *(3 hours)*

Advanced content encompassing a wide variety of vertebrate and invertebrate species with emphasis on comprehension of primary literature and research. Cross-listed as BIO 419. Prerequisite: 6 hours college-level biology and senior or graduate standing. Students with credit in BIO 419 cannot enroll in BIO 519.

BIO 520 - Advanced Ecosystems Ecology *(3 hours)*

A comprehensive description of ecosystem form and function with focus on biogeochemistry, food webs, and energy transformations within natural systems. Emphasis on application of ecosystem principles to sustainable land management and current issues such as global change and nitrogen deposition. Understanding of the complex nature of the systems emphasized through use of primary literature, small group discussion and individual projects. Cross-listed as BIO 420. Prerequisite: C or better in BIO 250 and BIO 251 (or equivalent); CHM 116; MTH 115 or 121; graduate standing or consent of instructor. Students with credit in BIO 420 cannot enroll in BIO 520.

BIO 523 - Advanced Freshwater Ecology *(3 hours)*

The course will explore the major types of freshwater ecosystems and the interactions among physical, chemical, and biological processes that determine ecosystem structure and function. There will be an emphasis on water as a resource and the consequences of human activities, such as species introductions and pollution, on sustainable resource use. Lab will focus on skills needed for measuring key physical, chemical, and biological characteristics of freshwater ecosystems. Cross listed as BIO 423. Prerequisite: C or better in BIO 250 and BIO 251 (or equivalent); CHM 116; MTH 115 or 121; graduate standing or consent of instructor. Students with credit in BIO 423 cannot enroll in BIO 523.

BIO 525 - Advanced Physiology *(3 hours)*

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 526 - Advanced Pathophysiology *(3 hours)*

Detailed presentation of pathological conditions in the human body, with particular focus on the cellular basis for disease in muscular, respiratory, renal, and cardiovascular systems. Prerequisite: BIO 525 or concurrent enrollment, or consent of the instructor.

BIO 527 - Physiology of Anesthesia *(3 hours)*

Emphasis on the pharmacokinetics and pharmacodymanics of various anesthetic agents in the human body, with particular attention on the effect of the agents on the major physiological systems. Prerequisite: BIO 525; consent of instructor.

BIO 530 - Plant Systematics *(3 hours)*

Evolution, classification, and characteristics of various flowering plant families. Prerequisite: 6 hours college-level biology.

BIO 540 - Evolution *(3 hours)*

Advanced content in evolutionary history, the mechanisms of evolution, and how evolutionary theory forms the basis for all biology. In-depth examination of selected evolutionary topics utilizing discussions, primary literature, and student presentations. Cross-listed as BIO 440. Prerequisite: Graduate standing or consent of instructor. Students who have credit for BIO 440 may not enroll in BIO 540.

BIO 550 - Conservation Biology *(3 hours)*

Advanced content on the preservation of biodiversity. In-depth examination of selected conservation issues utilizing case studies, field trips, discussions, primary literature, and student presentations. Cross-listed as BIO 450. Prerequisite: graduate standing or consent of instructor. Students who have credit for BIO 450 may not enroll in BIO 550.

BIO 563 - Advanced Plant Ecology *(3 hours)*

Physiological and growth responses of plants to environmental stresses, and consequences to the structure and function of communities and ecosystems. Cross-listed as BIO 463. Prerequisite: Graduate standing or consent of instructor. Students who have credit for BIO 463 may not enroll in BIO 563.

BIO 564 - Advanced Cell Biology *(3 hours)*

Structural and functional organization of cells and their dynamic interactions with the environment. Methods and techniques of investigation. Cross-listed as BIO 464. Prerequisite: C or better in BIO 310, or consent of instructor. Students who have credit for BIO 464 may not enroll in BIO 564.

BIO 568 - Cellular and Molecular Immunology *(3 hours)*

Interaction between foreign antigen, antigen presenting cells, B lymphocytes, and T lymphocytes to mount immune responses. Molecules responsible for immune interactions. Random generation of the diversity of the immune

response, its associated problems, and natural solutions through selection and energy. Lab required. Cross-listed as BIO 468. Prerequisite: BIO 564 or equivalent, or consent of instructor. Students who have credit for BIO 396 or BIO 468 may not enroll in BIO 568.

BIO 570 - Seminar *(1 hour)*

Selected topics in biological sciences. May be repeated under different topics for a maximum of 3 credit hours. Prerequisite: 3.0 grade point average in student's major; senior or graduate standing; consent of instructor.

BIO 575 - Special Graduate Topics in Biology *(2-3 hours)*

Selected graduate-level coursework in biology. May be repeated under different topics for a total of 6 credit hours. Prerequisite: 3.0 grade point average in graduate-level biology program; or consent of instructor.

BIO 580 - Readings *(1-3 hours)*

Individual assignments of relevant topics in biological sciences. Prerequisite: 3.0 grade point average in student's major; senior or graduate standing; consent of instructor.

BIO 582 - Endocrinology *(3 hours)*

Provides an understanding of how hormones regulate physiological systems and their role in endocrine disorders. Expert guest lectures from those in the field will provide supplementary content related to advanced topics. Cross-listed with BIO 482. For cross-listed undergraduate/graduate courses, the graduate level courses will have additional academic requirements beyond those of the undergraduate course. Students that have credit for BIO 382 or BIO482 may not enroll in BIO 582. Prerequisite: C or better in BIO 250 (or equivalent); graduate standing or consent of instructor.

BIO 583 - Stem Cell Biology and Tissue Regeneration *(3 hours)*

Provides graduate students with an understanding of basic biology of stem cells including the role of stem cells in development and endogenous tissue regeneration. Cross-listed as BIO 483. Students that have credit for BIO 483 may not enroll in BIO 583. Prerequisite: C or better in BIO 250 (or equivalent); graduate student standing or consent of instructor.

BIO 584 - Neurophysiology *(3 hours)*

An introduction to the basic principles of cellular and molecular neurobiology of the nervous system. General topics include cellular, molecular and developmental biology of nerve cells, synapses and neural systems. Cross-listed as BIO 484. Students with credit in BIO384 or BIO 484 cannot enroll in BIO 584. Prerequisite: C or better in BIO 250 (or equivalent); graduate standing or consent of instructor.

BIO 585 - Research *(1-6 hours)*

Individual research for qualified students in special areas of biology. Prerequisite: senior-graduate standing, consent of instructor, 3.0 grade point average in the major field of study.

BIO 681 - Readings *(1-6 hours)*

Readings in an area of interest to the student. Prerequisite: graduate standing and consent of instructor.

BIO 683 - Research *(1-6 hours)*

Research in an area of interest to the student. Prerequisite: graduate standing and consent of advisor.

BIO 699 - Thesis *(0-6 hours)*

Research and thesis preparation. Repeatable to a maximum of six hours of credit. Prerequisite: consent of program coordinator.

This is the official catalog for the 2023-2024 academic year. This catalog serves as a contract between a student and Bradley University. Should changes in a program of study become necessary prior to the next academic year every effort will be made to keep students advised of any such changes via the Dean of the College or Chair of the Department concerned, the Registrar's Office, u.Achieve degree audit system, and the Schedule of Classes. It is the responsibility of each student to be aware of the current program and graduation requirements for particular degree programs.

CHEMISTRY AND BIOCHEMISTRY

Chemistry and Biochemistry

Wayne Bosma, Graduate Program Coordinator

The Department of Chemistry and Biochemistry offers five graduate programs, the M.S. in Chemistry or Biochemistry, the M.A. in Chemistry, and the B.S./M.S. in Chemistry or Biochemistry. The M.S. programs are designed to meet the needs of the full-time graduate student or the chemist who wishes to pursue graduate studies on a part-time basis. These thesis-based programs are designed to provide a broad educational experience in the chemical or biochemical sciences while enhancing the student's laboratory skills. The M.A. program is designed to meet the needs of the full-time graduate student or chemist who wants to earn a graduate degree in Chemistry based solely on course work and not on research leading to a thesis. The B.S./M.S. programs are integrated, accelerated, and research-intensive programs that provide opportunities for students to begin an M.S. while completing requirements for the B.S. All five programs provide a solid foundation for immediate employment or further education.

MS Degree (Chemistry or Biochemistry)

General MS Admission Requirements

In addition to the admission requirements of Graduate Education, the applicant shall have a bachelor's degree in chemistry, biochemistry, or a related field and shall have completed one year each of college-level calculus and physics. The student must have achieved a cumulative GPA of 3.0 in the last 60 hours of undergraduate course work, a cumulative GPA of 2.75 in undergraduate chemistry courses, and a C or better in each of the following courses and their accompanying labs: general chemistry, organic chemistry (two semesters), and analytical chemistry (one semester). Students lacking one of these courses may be admitted conditionally to the program, with full acceptance being granted after the course is completed. The course used to fill this deficiency will not apply to the M.S. degree. A maximum of six credits may be transferred into the program from an accredited graduate program.

Candidates for graduate assistantships must have a personal interview with the chemistry graduate coordinator; international applicants may satisfy this requirement by telephone.

General MS Program Requirements:

- Candidates for the M.S. degrees must complete a minimum of 31 graduate credits in chemistry and related subjects.
- Program participants are expected to engage in full-time research experiences during the summers.
- All matriculated graduate students (except those requiring a leave of absence) are required to be registered for at least one course for each fall and spring semester and one course during each summer from the semester of matriculation through the semester in which the degree is completed.
- Students must identify a research mentor and begin their research in the first semester in which they are enrolled. If the research mentor is from the graduate faculty of the Department of Chemistry and Biochemistry, the mentor also serves as the

thesis advisor.

- If approved by the department chair and the graduate coordinator, the student may conduct research with a scientist (off-campus or on-campus) who is not a member of the department's faculty. In that case, a member of the department's graduate faculty must serve as the thesis advisor.
- During the first semester of study, the student's thesis committee shall be constituted. The committee shall be composed of at least three voting members, chosen in consultation with the student, the thesis advisor, and the graduate coordinator. The committee shall include the thesis advisor and at least two other members from the department. If a research mentor from outside the department is directing the student's research, the research mentor is an ex officio, non-voting member of the committee.
- The department's graduate coordinator and the student's thesis advisor must approve a Graduate Program of Study within three months after the start of graduate study.
- Before completing six credit hours of research, the student must present a seminar (CHM 580) that summarizes the literature relevant to the thesis project, outlines the proposed research, and presents any preliminary data. Following the seminar, the student must meet with the thesis committee to discuss the presentation and the research plan.
- Upon completion of the thesis, the student must present the work in a public research seminar and successfully defend the thesis to the thesis committee (CHM 699, 1 credit). The voting members of the thesis committee shall determine the CHM 699 grade and decide when a thesis has satisfactorily met all standards.

MS Biochemistry

- In addition to the general admission requirements above, students must have satisfactorily completed (B or better) one semester of biochemistry, with laboratory, at the undergraduate level.
- The required 31 semester hours must include the courses listed below. The graduate coordinator will review the transcript of each student to ensure that students do not repeat courses they have already completed (C or better) at the undergraduate level.

Required Courses

- CHM 520 Instrumental Analysis - 4 hrs **or** CHM 536 Inorganic Chemistry - 3 hrs.
- CHM 524 Fundamentals of Separation Science - 3 hrs.
- CHM 562 Protein Structure and Function - 3 hrs.
- CHM 566 Intermediary Metabolism - 3 hrs.
- CHM 570 Physical Chemistry I - 3 hrs.
- CHM 580 Literature Seminar in Chemistry & Biochemistry - 1 hr.
- CHM 682 Thesis Research Seminar - 1 hr.
- CHM 697 Research - 10 total hrs.
- CHM 699 Thesis - 1 hr.
- Electives - The remainder of the 31 required hours must be met by elective courses with no less than half of those credits coming from the biochemistry list below. Any remaining electives can be 500-level Chemistry courses (CHM) or up to six graduate credit hours from cognate fields. Cognate courses must be approved, prior to enrollment, by the thesis advisor, department chair, and graduate coordinator.

Biochemistry Electives

- CHM 564 Biochemical Literature - 1-2 hrs.
- CHM 568 Topics in Biochemistry - 1–3 hrs.
- BIO 509 Human Genetics - 3 hrs.
- BIO 564 Advanced Molecular Biology - 3 hrs.
- BIO 568 Cell and Molecular Immunology -3–4 hrs.

MS Chemistry

- In addition to the general admission requirements above, students must have satisfactorily completed (C or better) one semester of physical chemistry, with laboratory, at the undergraduate level.
- The required 31 semester hours must include the courses listed below. The graduate coordinator will review the transcript of each student to ensure that students do not repeat courses they have already completed (C or better) at the undergraduate level.

Required Courses

- CHM 520 Instrumental Analysis - 4 hrs.
- CHM 524 Fundamentals of Separation Science - 3 hrs.
- CHM 536 Inorganic Chemistry - 3 hrs.
- CHM 576 Physical Chemistry II - 3 hrs.
- CHM 580 Literature Seminar in Chemistry & Biochemistry - 1 hr.
- CHM 697 Research - 10 total hrs.
- CHM 699 Thesis - 1 hr.
- **Electives** - The remainder of the 31 required hours can be 500-level Chemistry courses (CHM) or up to six graduate credit hours from cognate fields. Cognate courses must be approved, prior to enrollment, by the thesis advisor, department chair, and graduate coordinator.

MA in Chemistry

General MA Admission Requirements

In addition to the admission requirements for Graduate Education, the applicant shall have a bachelor's degree in chemistry, biochemistry, or a related field and shall have completed one year each of college-level calculus and physics. The student must have achieved a cumulative GPA of 3.0 in the last 60 hours of undergraduate course work, a cumulative GPA of 2.75 in undergraduate chemistry courses, and a C or better in each of the following courses and their accompanying labs: general chemistry, organic chemistry (two semesters), and analytical chemistry (one semester) and at least one additional course in one of the fundamental areas of chemistry (physical chemistry, inorganic chemistry, or biochemistry). Students lacking one of these courses may be admitted conditionally to the program, with full acceptance being granted after all undergraduate prerequisites are completed.

Specific MA Program Requirements

- Applicants are required to take the GRE general exam and to provide their scores as part of their application to the program. This requirement may be waived at the discretion of the Department.
- Preparation of a graduate Program of Study in consultation with their major advisor and the graduate coordinator will be completed by the end of the first semester in the program. The M.A. program is expected to take at least two years to complete. Remedial undergraduate courses will not apply to the 33 semester hours required for the M.A. degree.
- To graduate from the program, a student must have completed, either at the undergraduate or graduate level, courses in the four following fundamental areas: inorganic, biochemistry, thermodynamics/kinetic, and quantum mechanics. Students who have not already met this requirement at the time of admission may complete the courses at Bradley, but no more than nine hours will be counted toward the M.A. degree.
- Degree candidates must complete the Literature Review course (CHM 686), the capstone experience for the M.A. degree, with a grade of B or better in their last semester in the program. For CHM 686, the student must prepare a concise, up-to-date,

well-written review paper on a literature topic that was selected in consultation with the student's seminar advisor and present a seminar to the Department on this topic. After the seminar, the student must meet with their graduate committee to complete the comprehensive assessment as required by Graduate Education.

- Students must complete a total of 33 semester hours including the required courses listed below. The graduate coordinator will review the transcript of each student to ensure that students do not repeat courses they have already completed (C or better) at the undergraduate level.

Core Requirements *

- CHM 536 Inorganic Chemistry - 3 hrs.
- CHM 560 Biochemistry - 3 hrs.
- CHM 570 Physical Chemistry I - 3 hrs.
- CHM 576 Physical Chemistry II - 3 hrs.

  * At least one of these requirements must be fulfilled by undergraduate coursework. Any remaining deficiencies can be taken at the graduate level.

Additional Requirements

- CHM 520 Instrumental Analysis - 4 hrs.
- CHM 524 Fundamentals of Separation Science - 3 hrs.
- CHM 686 Literature Review - 1 hr.

Electives – The remainder of the 33 required hours must be met by 500-level Chemistry courses** and must include a minimum of 2 hrs of laboratory electives from the list below.

- CHM 537 Inorganic Chemistry Lab - 1 hr.
- CHM 541 Materials Chemistry Lab - 1 hr.
- CHM 561 Biochemistry Lab - 1 hr.
- CHM 571 Physical Chemistry I Lab - 1 hr.
- CHM 599 Research - 1-2 hrs.***
- CHM 697 Research - 1-2 hrs.***

**A maximum of six graduate credit hours from cognate fields may be used to fulfill this requirement.

***No more than 2 hours of graduate research (CHM 599 or CHM 697) can be applied toward an MA degree.

BS/MS in Chemistry or Biochemistry

Admission Requirements

BS/MS Admission Requirements (Undergraduate)

Students may apply to the program after completing CHM 252; to be admitted, the student must have achieved an overall GPA of 2.50, an average GPA of 2.75 in chemistry courses, and a C or better in all chemistry, mathematics, biology, and physics courses.

Students are strongly encouraged to apply in their junior year, but applications from seniors who have significant research experience will also be considered. The initial application is made within the department, using the "Application for Admission to the B.S./M.S. Program" form available on the Department Sakai site. This application is

to be submitted to the graduate coordinator. Once admitted, students fill out the change of major form, which must be signed by the Department Chair and the LAS Dean.

BS/MS Admission Requirements (Graduate)

To earn graduate status within the B.S./M.S. program, students must have achieved a cumulative GPA of 3.0 in the last 60 hours of undergraduate coursework, a cumulative GPA of 2.75 in undergraduate chemistry courses, and a cumulative GPA of 3.0 in graduate courses. The student must also have met the requirements for undergraduate graduation before the first semester of the graduate study. Application is made to graduate education after meeting with the Department's Graduate Coordinator regarding the specific requirements for application to the B.S./M.S. graduate program.

For both Chemistry and Biochemistry B.S./M.S. options, up to nine hours of graduate credit taken prior to the completion of the bachelor's degree can be counted toward both degrees. If this option is selected, a minimum of 145 hours, 30 of which must be at the graduate level, must be earned. The Graduate Record Examination is not required for admission to this program.

Programmatic Requirements and Procedures

- Program participants are expected to engage in full-time research experiences during the summers after their third, fourth, and fifth years.
- Students must identify a research mentor/thesis advisor and begin their undergraduate research no later than the summer after their third year. A research mentor/thesis advisor must be identified before applying to the B.S./M.S. program.
- At the beginning of the fourth year, the student's thesis committee shall be constituted. The committee shall be composed of at least three voting members, chosen in consultation with the student, the thesis advisor, and the graduate coordinator. The committee shall include the thesis advisor and at least two other members from the department. If a research mentor from outside the department is directing the student's research, the research mentor is an ex officio, non-voting member of the committee.
- Before completion of the fourth year, the student must present a seminar (CHM 580) that summarizes the literature relevant to the thesis project, outlines the proposed research, and presents any preliminary data. Within one week of the seminar, the student must meet with the thesis committee to discuss the presentation and the research plan. Failure to meet with the committee will result in a grade of IN in the course.
- The student must apply to graduate when the undergraduate requirements are complete, so as to be able to register as a graduate student thereafter.
- All matriculated graduate students (except those requiring a leave of absence) are required to be registered for at least one course for each fall and spring semester and one course during each summer from the semester of matriculation through the semester in which the degree is completed
- The department's graduate coordinator and the student's thesis advisor must approve a Graduate Program of Study before the first day of classes of the student's fifth year of study.
- Upon completion of the thesis, the student must present the work in a public research seminar and successfully defend the thesis to the thesis committee (CHM 699, 1 credit). The voting members of the thesis committee shall determine the CHM 699 grade and when a thesis has satisfactorily met all standards.

Departmental Common Curriculum Requirements

Students in the B.S./M.S. programs must successfully complete the Chemistry and Biochemistry Common Curriculum Requirements. A grade of C or higher must be earned in CHM 110, 111, 116, 117, 252, and 253 before continuing on to the next course in this sequence.

- CHM 110 General Chemistry I - 3 hrs.
- CHM 111 General Chemistry I Laboratory - 1 hr.
- CHM 114 Chemistry of the Elements - 1 hr.
- CHM 116 General Chemistry II - 3 hrs.
- CHM 117 General Chemistry II Laboratory - 1 hr.
- CHM 252 Organic Chemistry I - 4 hrs.
- CHM 253 Organic Chemistry Laboratory I - 1 hr.
- CHM 256 Organic Chemistry II - 3 hrs.
- CHM 257 Organic Chemistry Laboratory II - 1 hr.
- CHM 292 Chemical Informatics - 1 hr.
- CHM 326 Analytical Chemistry - 4 hrs.
- CHM 360 Biochemistry - 3 hrs.
- CHM 470 Physical Chemistry I - 3 hrs.
- CHM 380 Seminar I in Chemistry and Biochemistry - 0 hrs.
- CHM 386 Seminar II in Chemistry and Biochemistry – 1 hr.
- One semester of biology with lab (BIO 151, 152), one year of college-level physics (PHY 110, 201 or PHY 107, 108) and one year of calculus (MTH 121, 122 or MTH 115, 116) are also required of all majors.

BS Requirements for BS/MS Biochemistry

The B.S. degree will be awarded once the candidate has met the All-University Degree Requirements, completed the Departmental Common Curriculum Requirements, and completed the B.S. Requirements listed below:

- Complete any one of the undergraduate concentrations in Chemistry or a major in Biochemistry at Bradley University
- CHM 499 Research – 2 hrs. minimum
- CHM 580 Literature Seminar – 1 hr.
- Take up to eight additional credit hours of 500-level CHM or BIO coursework*

*The eight additional hours of 500-level CHM** can be taken as electives or can be used to fulfill the requirements for an undergraduate chemistry concentration or a Biochemistry major as long as the student meets the department's requirement for taking 500-level courses. Undergraduate students wishing to take 500-level CHM courses must have junior or senior standing and either a cumulative GPA of 3.0 or greater or a GPA of 3.0 or greater in the last 60 hours of coursework. Special permission may be granted to students whose GPA is below 3.0 if the student provides a compelling case for enrolling in the course.

MS Requirements for BS/MS Biochemistry

To complete the M.S. degree (M.S. awarded in GRD BCM 41), students must complete a minimum of 30 hours of coursework at the 500–600 level and the courses listed below either as a requirement for their B.S. degree or as a requirement for their M.S. degree. The graduate coordinator will review the transcript of each student to ensure that students do not repeat courses they have already completed (C or better) at the undergraduate level. All students in this program will have an American Chemical Society Certified Degree once the M.S. degree requirements are complete.

- CHM 361 or 561 Biochemistry Laboratory – 1 hr.
- CHM 420 or 520 Instrumental Analysis – 4 hrs.
- CHM 436 or 536 Inorganic Chemistry – 3 hrs.
- CHM 465 or 565 Protein Structure and Function - 3 hrs.

- CHM 466 or 566 Intermediary Metabolism - 3 hrs.
- CHM 524 Analytical Separations – 3 hrs.
- CHM 599 Research – 2-4 hrs.[‡]
- CHM 697 Research – 6-8 hrs.[‡]
- CHM 699 Thesis – 1 hr.
- BIO 310 Genetics - 3 hrs.
- BIO 464 or 564 Cell Biology - 4 hrs.
- The remainder of the 30 required 500-600 level hours must be met by 500-600 level Chemistry (CHM).**

[‡]The total number of graduate research hours (CHM 599 + CHM 697) must equal 10.

**A maximum of three graduate credit hours from cognate fields may be used to fulfill this requirement if approved by the department's graduate coordinator and the student's thesis advisor.

BS/MS - Chemistry

BS Requirements for BS/MS Biochemistry

The B.S. degree will be awarded once the candidate has met the All-University Degree Requirements, completed the Departmental Common Curriculum Requirements, and completed the B.S. Requirements listed below:

- Complete any one of the undergraduate concentrations in Chemistry or a major in Biochemistry at Bradley University
- CHM 499 (Research) – 2 hrs. minimum
- CHM 580 (Literature Seminar) – 1 hr.
- Up to eight credit hours of 500-level CHM coursework in addition to CHM 580*

*The eight additional hours of 500-level CHM courses can be taken as electives or can be used to fulfill the requirements for an undergraduate chemistry concentration or Biochemistry major as long as the student meets the department's requirement for taking 500-level courses. Undergraduate students wishing to take 500-level CHM courses must have junior or senior standing and a cumulative GPA of 3.0 or greater. Special permission may be granted to students whose GPA is below 3.0 if the student provides a compelling case for enrolling in the course.

MS Requirements for BS/MS Chemistry

To complete the M.S. degree (M.S. awarded in GRD CHM 41), students must complete a minimum of 30 hours of coursework at the 500–600 level and the courses listed below either as a requirement for their B.S. degree or as a requirement for their M.S. degree.** The graduate coordinator will review the transcript of each student to ensure that students do not repeat courses they have already completed (C or better) at the undergraduate level. All students in this program will have an American Chemical Society Certified Degree once the M.S. degree requirements are complete.

- CHM 361 or 561 Biochemistry Laboratory – 1 hr.
- CHM 420 or 520 Instrumental Analysis – 4 hrs.
- CHM 436 or 536 Inorganic Chemistry – 3 hrs.
- CHM 437 or 537 Inorganic Chemistry Laboratory – 1 hr.
- CHM 471 or 571 Physical Chemistry I Laboratory – 1 hr.
- CHM 476 or 576 Physical Chemistry II – 3 hrs.
- CHM 524 Analytical Separations – 3 hrs.
- CHM 599 Research – 2-4 hrs.[‡]

- CHM 697 Research – 6-8 hrs.[‡]
- CHM 699 Thesis – 1 hr.
- The remainder of the 30 required 500-600 level hours must be met by 500-level Chemistry (CHM) courses.

[‡]The total number of Graduate research hours (CHM 599 + CHM 697) must equal 10.

**A maximum of three graduate credit hours from cognate fields may be used to fulfill this requirement if approved by the department's graduate coordinator and the student's thesis advisor.

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CHEMISTRY AND BIOCHEMISTRY COURSE DESCRIPTIONS

CHM 500 - Chemical Topics *(1-3 hours)*

Topic stated in the current Schedule of Classes. Maximum of 3 credit hours per semester; may be repeated under different topics for a maximum of six credit hours. Cross-listed with CHM 400. Prerequisite: C or better in CHM 256.

CHM 512 - Molecular Modeling *(1 hour)*

An introduction to computational chemistry with an emphasis on the structures and energies of organic systems. Cross listed with CHM 412. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: C or better in CHM 256.

CHM 514 - Chemical Group Theory *(1 hour)*

Application of symmetry and group theory to chemical systems. Topics include point groups, character tables, spectroscopic selection rules, and molecular orbital theory. Cross listed with CHM 414. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: C or better in CHM 256.

CHM 516 - Environmental Chemistry *(3 hours)*

Chemical principles applied to environmental topics such as air, water, soils, and conventional and hazardous wastes. Thermodynamic and kinetic principles, acid-base and redox chemistry, interfacial chemistry and analytical techniques are included. Cross-listed with CHM 416. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: C or better in CHM 112 or CHM 116.

CHM 520 - Instrumental Analysis *(4 hours)*

Theory and applications of qualitative and quantitative instrumental methods of chemical analysis. Includes laboratory. Cross listed with CHM 420. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: C or better in CHM 257 and CHM 326.

CHM 522 - Clinical Chemistry *(2 hours)*

Diagnostic laboratory testing methods in a variety of areas, including endocrinology, enzymes, acid-base balance, carbohydrates, and lipids. Not open to students with credit in CHM 422. Prerequisite: CHM 162

CHM 524 - Fundamentals of Separation Science *(3 hours)*

The theory and practice of separation methods used in the analytical chemistry of chemical and biochemical systems are covered. Traditional separation methods such as extraction, precipitation, and crystallization are introduced.

These techniques are compared and contrasted with chromatographic methods of separation that make up the bulk of the topics covered. Chromatographic theory and its practical application in the form of specific analytical separation methods are discussed. Prerequisite: CHM 326 or CHM 420 or CHM 470

CHM 526 - Advanced Analytical Chemistry *(3 hours)*

Instrumental analysis, including topics in spectroscopy, electrochemistry, chromatography, sampling, and statistics. Prerequisite: C or better in CHM 420 or CHM 520.

CHM 528 - Topics in Analytical Chemistry *(1-6 hours)*

Topic stated in the current Schedule of Classes. Maximum of 3 hours per semester; may be repeated under different topics for a maximum of six credits. Prerequisite: C or better in CHM 326.

CHM 532 - Descriptive Inorganic Chemistry *(3 hours)*

Preparation, properties, reactions and uses of the main group and transition elements and their compounds. Not open to students with credit in CHM 332. Prerequisite: C or better in CHM 256 and CHM 326.

CHM 536 - Inorganic Chemistry *(3 hours)*

Theoretical and descriptive inorganic chemistry, including atomic structure, molecular structure, coordination chemistry, organometallic chemistry, and catalysis. Cross listed with CHM 436. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: C or better in CHM 114 or concurrent enrollment; C or better in CHM 256.

CHM 538 - Topics in Inorganic Chemistry *(1-6 hours)*

Topic stated in the current Schedule of Classes. Maximum of 3 hours per semester; may be repeated under different topics for a maximum of six credits. Prerequisite: C or better in CHM 532 or CHM 536.

CHM 540 - Materials Chemistry *(3 hours)*

Study of unit cells, band theory, and the structure, function, and characterization (diffraction, microscopy, and spectroscopy) of metals, polymers, glasses, concrete, ceramics, and biomaterials. Cross listed with CHM 440. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: C or better in CHM 256 and CHM 257 or consent of instructor.

CHM 541 - Materials Chemistry Laboratory *(1 hour)*

Laboratory that reinforces and expands upon concepts covered in CHM 440/540. Emphasis on methods of fabrication and characterization of various types of materials. Cross listed with CHM 441. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: C or better in CHM 440 or CHM 540 or concurrent enrollment.

CHM 548 - Topics in Materials Chemistry *(1-6 hours)*

Topic stated in the current Schedule of Classes. Maximum of 3 hours per semester; may be repeated under different topics for a maximum of six credits. Prerequisite: C or better in CHM 540.

CHM 550 - Industrial Organic Chemistry *(1 hour)*

Survey of industrial organic chemistry with an emphasis on petroleum derivatives. Cross listed with CHM 450. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: C or better in CHM 256.

CHM 552 - Advanced Organic Chemistry *(3 hours)*

Topics include principles of physical organic chemistry, organometallic chemistry, and stereo- and regiochemical control in organic synthesis. Prerequisite: CHM 256 and CHM 257.

CHM 556 - Organic Spectroscopy *(3 hours)*

Characterization and identification of compounds using spectrometric methods with an emphasis on mass spectrometry, infrared spectroscopy, and one- and two-dimensional nuclear magnetic resonance spectroscopy.

CHM 558 - Topics in Organic Chemistry *(1-6 hours)*

Topic stated in the current Schedule of Classes. Maximum of 3 hours per semester; may be repeated under different topics for a maximum of six credits. Prerequisite: Consent of instructor.

CHM 560 - Principles of Biochemistry *(3 hours)*

Survey of the structural and functional properties of the major classes of biological macromolecules (proteins, nucleic acids, carbohydrates and lipids) and their roles in biological systems. Topics include enzyme kinetics and mechanisms, selected metabolic pathways, and the role of nucleic acids in the flow of genetic information. Prerequisite: Graduate standing and consent of instructor.

CHM 561 - Principles of Biochemistry Laboratory *(1 hour)*

Techniques and methods of macromolecular purification and characterization; refining skills of record collecting, data analysis, and presentation of results in manuscript form. Prerequisite: C or better in CHM 360 or CHM 560

CHM 562 - Protein Structure and Function *(3 hours)*

Investigation of the structure-function relationships of proteins, with emphasis on thermodynamics and kinetics. Topics include ligand binding, enzymatic catalysis, and the use of molecular visualization software. Cross listed with CHM 462. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: C or better in CHM 360 or equivalent.

CHM 564 - Biochemical Literature *(1-2 hours)*

Designed to foster students' ability to read and critically evaluate biochemistry papers from the primary literature. In addition, students will gain experience in giving oral presentations and writing critical summaries of the papers they present. Prerequisite: C or better in CHM 360 and consent of instructor.

CHM 566 - Intermediary Metabolism *(3 hours)*

Study of the processes by which carbohydrates, lipids, proteins, and nucleic acids are synthesized, stored, or oxidized to generate biochemical energy and building blocks. Regulation of these processes will be examined. Cross listed with CHM 466. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: C or better in CHM 360 or equivalent.

CHM 568 - Selected Topics in Biochemistry *(1-3 hours)*

Topic stated in the current Schedule of Classes. Maximum of 3 hours per semester; may be repeated under different topics for a maximum of six credits. Prerequisite: consent of instructor.

CHM 570 - Physical Chemistry I *(3 hours)*

Topics include kinetic molecular theory, thermodynamics, equilibrium, and kinetics. Students conduct independent projects. Cross listed with CHM 470. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Grade of C or better in: CHM 116 and CHM 256; MTH 116 or MTH 122; PHY 108 or PHY 201

CHM 571 - Physical Chemistry Laboratory *(1 hour)*

Experimental and computational studies of the physical properties of matter. Cross listed with CHM 471. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: C or better in CHM 470 or concurrent enrollment in CHM 570.

CHM 576 - Physical Chemistry II *(3 hours)*

Topics include quantum mechanics, spectroscopy, and statistical thermodynamics. Students conduct independent projects. Cross listed with CHM 476. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Grade of C or better in: CHM 116 and CHM 256; MTH 116 or MTH 122; PHY 108 or PHY 201

CHM 578 - Topics in Physical Chemistry *(1-6 hours)*

Topic stated in the current Schedule of Classes. Maximum of 3 hours per semester; may be repeated under different topics for a maximum of six credits. Prerequisite: consent of instructor.

CHM 580 - Literature Seminar in Chemistry & Biochemistry *(1 hour)*

Each student presents a literature-based seminar under the supervision of a faculty member. Prerequisite: consent of instructor.

CHM 584 - Readings in Chemistry and Biochemistry *(1-6 hours)*

Directed reading for qualified students. Maximum of 3 hours per semester; repeatable for up to 6 hrs credit. Prerequisite: consent of instructor.

CHM 599 - Research *(0-8 hours)*

Research in an area of interest to the student, repeatable for up to 8 hours credit. At the completion of the semester, students are required to submit a research report, describing the goals, methods, and results of the study. Zero-credit course graded. Satisfactory/Unsatisfactory.

CHM 686 - Literature Review *(1 hour)*

Each student will prepare a concise, up-to-date, well-written review paper and present a seminar to the Department on a literature topic that is chosen in consultation with the course instructor and the student's academic advisor. Prerequisite: Consent of instructor

CHM 697 - Research *(0-10 hours)*

Research in an area of chemistry or biochemistry of interest to the student, repeatable for up to 10 hours credit. At the completion of the semester, students are required to submit a research report, giving an update of the progress made in their research. Zero credit course graded Satisfactory/Unsatisfactory. Prerequisite: Consent of instructor

CHM 699 - Thesis *(0-1 hours)*

All MS students must write a thesis based on independent research and present a public seminar detailing the accomplishments of his/her thesis research. The final version of thesis must conform to the requirements outlined by the department and on the Graduate School website. Typically, students enroll in the course in the semester they intend to submit their thesis. Zero credit course graded Satisfactory/Unsatisfactory. Prerequisite: 6 hours of CHM 697 with grades of B or better.

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COMPUTER SCIENCE AND INFORMATION SYSTEMS

Scott Williams, Vladimir Uskov (on-campus programs)

Young Park (online programs)

Graduate Program Coordinators

Katia Bauer (on-campus programs)

Young Park (online programs)

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 science is the study of theoretical and algorithmic foundations used in computer systems. Students are taught how to gather and analyze requirements, design, develop and test software systems, and devise new innovations and applications in computing. Computer information systems is a discipline that focuses on information technology and a wide variety of scientific, engineering, and business applications; the mathematical requirements for computer information systems are not as rigorous as they are for computer science because there is less focus on theoretical foundations.

Students can concentrate their study in various areas of computing including 1) computer game technology, 2) computing management, 3) emerging topics in computer science or computer information systems, 4) intelligent systems, databases, and data mining, 5) mobile computing, 6) software engineering, 7) Cybersecurity, 8) Web technologies and systems, and 9) theoretical computer science.

Computer science and computer information systems graduates are employed by a variety of industries and non-profit organizations as software engineers and/or developers, system administrators and/or developers, system analysts, network administrators, web developers and/or technologists, software test engineers, and database administrators and/or developers.

In addition to satisfying all Graduate Education requirements for the degree, all candidates for the master's degree must satisfy the following departmental requirements:

1. At least 33 hours of graduate-level coursework. The course CS 502 does not count as part of the total hours needed.
2. No "D" grades can be counted in the completion of requirements for the degree.
3. Every student must pass a written comprehensive examination that will be based on the core requirements for the program pursued.

Interested and qualified students are offered the option of writing a master's thesis. Students selecting this option are encouraged to choose an advisor and topic as early as possible in order to plan the thesis development and any needed supporting coursework. The following policies apply to theses:

1. A minimum grade point average of 3.5 in computer science and computer information systems graduate courses is required for students enrolling in CS 699 (Thesis).
2. No student may register for CS 699 until 9 hours of graduate courses have been completed in the department.
3. Six credit hours of CS 699 are required and, upon completion, the thesis must be defended in an oral examination. No grade will be given for CS 699 until after the oral defense.
4. A written outline of the thesis project and a tentative schedule must be submitted to and approved by the graduate coordinator and the chair prior to the registration for CS 699.

Students in the CS and CIS programs may register for only three courses and be on the wait list for up to seven additional semester hours, not going over 16 semester hours. Any exceptions must be approved by the department head.

Admission requirements and graduation requirements specific to computer science and computer information systems are given below. In addition, applicants must submit GRE General Test scores taken within the last five years. The applicant may request a GRE waiver under certain circumstances. Note that prospective students who do not meet the conditions for admission may be admitted conditionally, in which case the department will prescribe a program for the removal of such admission conditions. Conditional status must be removed prior to graduation. Admission to these programs is highly competitive and admission will be determined using a single admission date per term.

Computer Science

In addition to meeting all the general requirements of Graduate Education and of the department as stated above, candidates for the master's degree in computer science must satisfy the following requirements:

1. At least 21 of the 33 required hours must be earned in courses labeled CS. At most, six hours may be earned in approved courses other than those labeled CS or CIS.
2. To satisfy the core (breadth) requirement, four courses must be taken, one from each pair given below (either by taking the course or showing evidence of the completion of an equivalent course elsewhere):
   - CS 520 or CS 625
   - CS 590 or CS 591
   - CS 514 or CS 612
   - CS 561 or CS 571
3. To satisfy the depth requirements, the student must take three courses from one of the concentrations offered by the department. No course taken to satisfy the core requirement (see item 2) may be counted as one of the three courses in this requirement.

For admission into the computer science program, a student must have the approval of the department and have completed:

a. discrete mathematics
b. at least two semesters of calculus, matrix or linear algebra
c. at least one semester of calculus-based statistics

d. at least 15 hours of computer science coursework including knowledge of one structured or object-oriented programming language, elementary data structures, advanced data structures, and introductory computer architecture

Computer Science Online

In addition to satisfying the Graduate Education requirements for the degree, all candidates for the online master's degree in computer science must satisfy the following departmental requirements:

1. At least 33 hours of graduate-level coursework. The course CS 502 does not count as part of the total hours needed.
2. No "D" grades can be counted in completion of requirements for the degree.
3. Every student must pass a comprehensive examination that will be based on the core requirements for the online Computer Science program.

In addition to meeting the general requirements of Graduate Education and the departmental requirements, candidates for the online master's degree in computer science must satisfy the following requirements:

1. To satisfy the core (breadth) requirement, four courses must be taken:
    - CS 514
    - CS 520
    - CS 571
    - CS 590
2. To develop expertise in software engineering and data science, the following additional courses must be taken:
    - CIS 530
    - CS 560
    - CS 562
    - CS 563
    - CS 591
    - CS 592
    - CS 593

For admission into the online computer science program, a student must have an undergraduate degree in CS or related area, approval of the department and have completed:

- Discrete mathematics
- At least two semesters of calculus, matrix or linear algebra
- At least one semester of calculus-based statistics
- At least 15 hours of computer science coursework including knowledge of one structured or object-oriented programming language, advanced data structures, and introductory computer architecture

Computer Information Systems

In addition to meeting all the general requirements of Graduate Education 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 33 semester hours required must be earned in courses labeled as CIS. At most, six hours may be earned in approved courses other than those labeled CS or CIS.
2. To satisfy the core (breadth) requirements, a student must either take the following courses or show the evidence of having completed equivalent courses elsewhere: CIS 530, CS 571, CIS 575, CIS 591.

3. To satisfy the depth requirements, the student must take three courses from one of the concentrations offered by the department. No course taken to satisfy the core requirements (see items 2) may be counted as one of the three courses in this requirement.

The admission requirements for the computer information systems program are:

1. one semester of calculus
2. one semester of statistics, and
3. two semesters of computer programming

Concentrations

Computer Game Technology - 9 hrs.

The computer game technology concentration provides students with essential background, understanding, knowledge, and skills in the practice of computer game technology and software design and development. The concentration is comprised of 9 semester hours of study including 6 semester hours of required courses and 3 semester hours of elective courses as outlined below.

Required courses:

- CIS 551 Computer Game Design - 3 hrs.
- CIS 552 Computer Game Modification - 3 hrs.

Elective courses (choose one from the following):

- CIS 553 Concepting and Storytelling - 3 hrs.
- CIS 555 Computer Graphics - 3 hrs.
- CIS 556 Game Engine Programming - 3 hrs.
- CIS 557 Digital Animation - 3 hrs.
- CIS 558 Sound Design - 3 hrs.
- CIS 559 Computer Game Capstone Project - 3 hrs.

Computing Management - 9 hrs.

The Computing Management graduate concentration provides students with knowledge and skills necessary in the management of computing, computing services, computer science, information technology, computer information systems, and related areas. The concentration is comprised of 9 semester hours of study including 3 semester hours of required courses and 6 semester hours of elective courses as outlined below.

Required course:

- CIS 572 Computing Management: Systems, Technology, Services - 3 hrs.

Elective courses (choose two courses from the following)

- CIS 573 Quality Management in Computing - 3 hrs.
- M L 520 Management Theory - 3 hrs.
- M L 602 Organizational Behavior - 3 hrs.
- M L 615 Interpersonal Relations - 3 hrs.
- M L 625 Business Ethics - 3 hrs.

- M L 657 Executive Development - 3 hrs.
- M L 658 Topics in Business Administration - 3 hrs.
- MTG 624 Marketing Decision Making - 3 hrs.
- MTG 640 Obtaining, Analyzing, and Applying Market Information - 3 hrs.

Emerging Topics in Computer Information Systems - 9 hrs.

This concentration provides students with essential background, understanding, in-depth knowledge, and unique skills in the practice of selected emerging topics in Computer Information Systems area. The Concentration is comprised of 6 required and 3 elective semester hours of study as outlined below.

Required courses:

- CIS 699 Thesis in Computer Information Systems (6 hrs.)

Elective courses (choose one from the following):

- CIS 697 Advanced Topics in Computer Information Systems (3 hrs.)
- CIS 698 Directed Individual Studies in Computer Information Systems (3 hrs.)

Emerging Topics in Computer Science - 9 hrs.

This concentration provides students with essential background, understanding, in-depth knowledge, and unique skills in the practice of selected emerging topics in computer science area. The concentration is comprised of 6 required and 3 elective semester hours of study as outlined below.

Required courses:

- CS 699 Thesis in Computer Science - 6 hrs.

Elective courses (choose one from the following):

- CS 697 Advanced Topics in Computer Science - 3 hrs.
- CS 698 Directed Individual Studies in Computer Science - 3 hrs.

Data Science - 9 hrs.

The data science concentration provides students with essential background, understanding, knowledge, and tools for discovering knowledge from data. Data science is the confluence of many areas including machine learning, artificial intelligence, information storage and retrieval, statistics and operations research. The courses cover the complete knowledge discovery process and students learn skills such as sampling techniques, data and knowledge representations, cleansing and preprocessing of data sets, machine learning algorithms to build models for forecasting, classification and unsupervised learning tasks, evaluating and comparing models, and combining models through techniques such as boosting and stacking. Big Data, Data Warehousing and OLAP are also covered as well as data and knowledge visualization.

The concentration consists of 9 semester hours of study including 6 semester hours of required courses and 3 semester hours of elective courses as outlined below.

Required courses - 6 hrs.

- CS 560 Fundamentals of Data Science - 3 hrs.
- CS 563 Knowledge Discovery and Data Mining - 3 hrs.

Elective courses (choose one of the following courses) - 3 hrs.

- CS 561 Artificial Intelligence - 3 hrs.
- CS 562 Machine Learning - 3 hrs.
- CS 572 Distributed Databases and Big Data - 3 hrs.

Mobile Computing - 9 hrs.

The Mobile Computing concentration provides students with essential background, understanding, knowledge, and analytical and technical skills in advanced mobile technology and its applications in computer science, computer information systems, and the design and development of complex mobile software systems.

The concentration is comprised of 6 semester hours of required courses and 3 semester hours of elective semester hours of study as outlined below.

Required courses:

- CIS 533 Mobile and Wireless Networks - 3 hrs.
- CIS 546 Advanced Mobile Programming - 3 hrs.

Elective courses (choose one from the following)

- CIS 535 Computer Networks and System Security - 3 hrs.
- CIS 595 Software and Web Applications Security - 3 hrs.
- CS 593 Agile Software Development - 3 hrs.

Due to the fast-changing learning content in Mobile Computing, see the Department of Computer Science and Information Systems for possible additional elective courses in this area.

Software Engineering - 9 hrs.

The software engineering concentration provides students with essential background, understanding, knowledge, and skills in the practice of software engineering concepts, models, methods, technology, tools and techniques. The concentration is comprised of 9 semester hours of study including 3 semester hours of required courses and 6 semester hours of elective courses as outlined below.

Required courses (choose one from the following):

- CS 590 Fundamentals of Software Engineering - 3 hrs.
- CS 591 Software Project Management - 3 hrs.

Elective courses (choose two from the following):

- CS 592 Requirements Development - 3 hrs.
- CS 593 Agile Software Development - 3 hrs.
- CS 690 Advanced Topics in Software Engineering - 3 hrs.

Cybersecurity - 9 hrs.

The Cybersecurity concentration provides students with essential background, understanding, knowledge, and skills in the practice of software, Web, computer networks and computer systems security technology, and secure software and Web applications design and development. The concentration is comprised of 9 required semester hours of study as outlined below.

Required courses:

- CIS 515 Applied Cryptography - 3 hrs.
- CIS 535 Computer Networks and System Security - 3 hrs.
- CIS 595 Software and Web Applications Security - 3 hrs.

Theoretical Computer Science - 9 hrs.

The theoretical computer science concentration provides students with essential theoretical background and deep understanding of theory of computer science. The concentration is comprised of 9 semester hours of study, including 3 semester hours of required courses and 6 semester hours of elective courses as outlined below.

Required courses (choose one from the following):

- CS 514 Algorithms - 3 hrs.
- CS 612 Automata, Computation, and Complexity - 3 hrs.

Elective courses (choose two from the following):

- CS 503 Programming Methodology - 3 hrs.
- CS 516 Programming Languages - 3 hrs.
- CS 614 Parallel Algorithms - 3 hrs.

Web Technologies and Systems - 9 hrs.

The Web technologies and systems concentration provides students with essential background, understanding, knowledge, and skills in the practice of design and development of Web technologies and integrated Web-based systems and applications. The concentration is comprised of 9 semester hours of study including 3 semester hours of required courses and 6 semester hours of elective courses as outlined below.

Required course:

- CS 531 Web Development Technologies - 3 hrs.

Elective courses (choose two from the following):

- CS 520 Advanced Computer Architecture - 3 hrs.
- CS 532 Advanced Java Computing - 3 hrs.
- CIS 545 Integrative Programming and Technology - 3 hrs.
- CS 593 Software Engineering of Web-Based Applications - 3 hrs.
- CS 625 Operating Systems Design - 3 hrs.
- CS 635 Data Communications and Networks - 3 hrs.

Computational Data Science

The Computational Data Science program is a 12-semester hour online graduate certificate program that enhances student skills for a career in data science and other fields. This four-course graduate certificate program provides data science related courses that broaden students' access to data science related technology careers. Students will acquire new skills in topics such as fundamentals of data science, machine learning, and data mining. Individuals who complete this program will have a solid understanding of data science concepts and exposure to the methods and tools for knowledge discovery and data mining. This program is delivered fully online.

Admission Requirements

For admission into the Computational Data Science online graduate certificate program, students must have the approval of the department and have completed:

- Discrete mathematics
- At least two semesters of calculus, matrix or linear algebra
- At least one semester of calculus-based statistics
- At least 15 hours of computer science coursework including knowledge of one structured or object-oriented programming language, assembly language, advanced data structures, and introductory computer architecture
- A minimum GPA of 3.0

Program Requirements

The Computational Data Science online graduate certificate program will require students to complete the following 12 semester hours of four required courses with an average grade among the four courses of "B" or above:

- CS 571 Database Management Systems - 3 hrs.
- CS 560 Fundamentals of Data Science - 3 hrs.
- CS 562 Machine Learning - 3 hrs.
- CS 563 Knowledge Discovery and Data Mining - 3 hrs.

COMPUTER SCIENCE AND INFORMATION SYSTEMS COURSE DESCRIPTIONS

CIS 515 - Applied Cryptography *(3 hours)*

Various concepts, algorithms, and systems in the area of applied cryptography. Topics include but are not limited to overview of classical cryptography, various types of cryptographic algorithms and systems, block ciphers, advanced encryption standards, key management, digital certificates, design and development of cryptographic computer and software applications. Cross listed with CIS 415. For cross listed undergraduate/graduate courses, the graduate level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CS 210 or equivalent, or consent of instructor.

CIS 530 - Information Technology Infrastructure *(3 hours)*

Enterprise information technology infrastructure including networking and telecommunications fundamentals, concepts, models, architectures, protocols, standards, communications, configuration, implementation, management, deployment software, firmware, hardware, distributed systems, file services, and software/hardware/network security issues. Cross listed with CIS 430. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CS 220 or equivalent, or consent of instructor. CIS 393 is strongly recommended.

CIS 533 - Mobile and Wireless Networks *(3 hours)*

Fundamental concepts and technologies in mobile and wireless networks, medium access control, wireless LAN, PAN, and WAN, infrastructure-based mobile networks, ad hoc routing protocols, mobile transport layer, handoff in mobile and wireless networks, wireless application protocols, wireless sensor networks. Cross listed with CIS 433. For cross listed undergraduate/graduate courses, the graduate level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CS 330 or CIS 530 or equivalents.

CIS 535 - Computer Networks and System Security *(3 hours)*

Principles, concepts, and fundamentals of computer networks and systems; and information technology infrastructure security, computer network authentication, authorization, access control, confidentiality, and data integrity. Topics of computer network security policy and management, data encryptions, protection against internal and external attacks, security evaluation and management will also be covered. Cross listed with CIS 435. For cross listed undergraduate/graduate courses, the graduate level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CS 220 or equivalent, or consent of instructor.

CIS 545 - Integrative Programming and Technology *(3 hours)*

Data mapping and exchange: metadata, XML, encoding schemes, data stream transformations, data integration and exchange between computer systems. Integrative programming and technology: design patterns, interfaces, inheritance, reusability, and security practices. Computer information systems integration: architectures, socket programming, Web services, and message and queuing services. Cross listed with CIS 445. For cross listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CS 220 or equivalent, or consent of instructor. CIS 393 or equivalent is strongly recommended.

CIS 546 - Advanced Mobile Programming *(3 hours)*

Advanced programming concepts, languages and technology relevant to mobile software systems and mobile computing, including data structures, databases, file systems, objects, classes, I/O operations, SDKs, IDEs, services, networking and development of mobile software systems. Cross listed with CIS 446. For cross listed undergraduate/graduate courses, the graduate level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CS 321 or CIS 545 or equivalents, or consent of instructor.

CIS 550 - Game Programming Design Patterns *(3 hours)*

Using design patterns effectively for game programming, guided by software design principles. Software design patterns are tried-and-true solutions to common object-oriented design problems. Students will learn when and how to apply software design patterns through practice by designing and implementing game prototypes using Unified Modeling Language (UML) class diagrams and a game engine. Covered design patterns include Strategy, Observer, Decorator, Factory, Command, Template Method, State, Facade, Singleton, and Object Pooling. Cross-listed with CIS 450. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: CIS 350 and graduate standing in CS or CIS. Consent of instructor for all other students with graduate standing

CIS 551 - Computer Game Design *(3 hours)*

Gameplay, storytelling, challenges, interface and information design, and world interaction. Construction of experiences, including rule design, play mechanics, game balancing, social game interaction, and the integration of interactive media. Playtesting and game design documentation. Cross listed with CIS 451, IM 451. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or I M 113 and I M 115 and I M 285 and I M 260, or CS 101 and CS 102 and CS 140, or consent of instructor.

CIS 552 - Computer Game Modification *(3 hours)*

Software development and programming aspects of computer games, game engine modification, and virtual reality simulations, including event loops, execution threads, collision detection, multi-threading, performance analysis, multi-user games and networking. Cross listed with CIS 452, IM 452. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CS 101 and CS 102 and CS 140, or consent of instructor.

CIS 553 - Concepting and Storytelling *(3 hours)*

Process of narrative and interactive development. Students will work individually and in small groups learning how to write, pre-visualize, present, and produce their interactive experiences, narratives, and games. Cross listed with CIS 453. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or I M 113 and I M 115 and I M 160 and I M 285 and I M 260, or consent of instructor.

CIS 555 - Computer Graphics *(3 hours)*

Introduction to the theory and implementation of computer graphics with 2D and 3D applications in Computer Gaming, including 2D and 3D graphic primitives and objects, OpenGL, geometric transformations, image synthesis, rendering and lighting, and virtual environments. Cross listed with CIS 455, IM 455. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CS 101 and CS 102 and CS 140, or consent of instructor.

CIS 556 - Game Engine Programming *(3 hours)*

Advanced techniques and technologies for programming computer game engines, multi-user games, virtual environments, and virtual reality simulations. Cross listed with CIS 456, IM 456. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CIS 452 and CIS 455 or equivalents, or consent of instructor.

CIS 557 - Digital Animation *(3 hours)*

A studio course exploring computer modeling and animation. Survey of the theory, history, and practice involved with creating quality modeling for print media, and also modeling and animation for time-based audio-visual media. Cross listed with CIS 457, IM 457. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or ART 105 and ART 106 and IM 285, or consent of instructor.

CIS 558 - Sounds Design *(3 hours)*

Theoretical and practical sound design. Music composition, field sound recording, studio tracking, aesthetic analysis of music, electronic sound generation. Digital game technologies, 3D sound processing and generative audio structures. Mixing in non-linear environments and final mastering. Cross listed with CIS 458, IM 458. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or IM 113 and IM 285, or consent of instructor.

CIS 559 - Computer Game Capstone Project *(3 hours)*

Theoretical and practical sound design. Music composition, field sound recording, studio tracking, aesthetic analysis of music, electronic sound generation. Digital game technologies, 3D sound processing and generative audio structures. Mixing in non-linear environments and final mastering. Cross listed with CIS 458, IM 458. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond

those of the undergraduate course. Prerequisite: Graduate standing in CS or CIS, or consent of instructor, or senior standing in CS or CIS and completion of all other coursework in game design minor or computer game technology minor, or senior standing in CS or CIS and completion of all other coursework in game design concentration or computer game technology concentration.

CIS 572 - Computing Management: Systems, Technology, Services *(3 hours)*

Management of resources for computing; management of computer and information systems and technologies; planning for and management of computing services; operational considerations. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CS 310 or equivalent.

CIS 573 - Quality Management in Computing *(3 hours)*

Quality management topics relevant to advanced computing and software/hardware systems, including functional and structural quality, quality factors, McCall's triangle of quality, ISO standards, software quality assurance and management, COCOMO models, DFSS, CMMI, quality measurements and metrics. Cross listed with CIS 473. For cross listed undergraduate/graduate courses, the graduate level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CIS 430 and CS 390 or equivalents, or consent of instructor.

CIS 575 - Computer Information Systems Analysis. Design and Integration *(3 hours)*

Computer information systems analysis, design and integration including enterprise computer information systems types and architecture models, sourcing, development methodologies and life cycle, requirements, analysis and design models, conceptual and logic data modeling, testing and quality assurance, validation and verification. Systems implementation, integration, deployment and maintenance, metrics and economics. Cross listed with CIS 475 course. For cross listed undergraduate/graduate courses, the graduate level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CS 210 or CIS 210 or equivalent, or consent of instructor. CS 390 is recommended.

CIS 576 - Data Management *(3 hours)*

A study of techniques and processes to help organize, access, protect, and analyze data. Describe data collection, storage, and retrieval methods. Explain data integration and interoperability, including data transfer and exchange standards. Understand why it is important to define policies and procedures for data governance, quality, standards, security, and privacy. Describe different strategies for data analysis. Topics include data warehousing, database registries, data mining, NoSQL, and other Data Science techniques. Cross-listed with CIS 476. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Graduate standing in CS or CIS, and CS 571 (recommended). Consent of instructor for all other students with graduate standing.

CIS 580 - Digital Society and Computer Law *(3 hours)*

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: Graduate standing in CS or CIS, or senior standing in CS or CIS, or one semester of computer programming or equivalent.

CIS 588 - Introduction to Expert Systems *(3 hours)*

Knowledge-based systems design and implementation; expert systems shells and programming environments; validation and implementation of expert systems; case studies/laboratories. Cross-listed as IME 568. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or two semesters of computer programming or equivalent and one semester of statistics, or consent of instructor.

CIS 591 - CIS and IT Project Management *(3 hours)*

Methods of PMBOK-based management of computer information systems and/or information technology design and development projects, including systems view, main project management process groups and knowledge areas, management plans, project metrics and esti Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CS 390 or equivalent; or consent of instructor.

CIS 595 - Software and Web Applications Security *(3 hours)*

Various security concepts, models, methods, technologies, and tools used to design, develop, test, implement, and maintain secure software and Web applications. Topics include but are not limited to threats posed to software and Web applications, software security concepts and protection mechanisms, trust and threat model, authentication and authorization, software risks assessment and management models, secure programming and software development styles and tools. Cross listed with CIS 495. For cross listed undergraduate/graduate courses, the graduate level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CS 390 or equivalent, or consent of instructor.

CIS 607 - File Organization and Management *(3 hours)*

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: Graduate standing in CS or CIS, or CS 102 or equivalent.

CIS 681 - Professional Practicum in Computer Information Systems *(0 hours)*

Special projects under Smith Career Center supervision on student's professional practicum in corporate/business environment in computer information systems and/or information technology, with near-term economic benefit. Satisfactory/Unsatisfactory. Minim Prerequisite: Graduate CIS or CS student in good standing; consent of department chair and graduate program director.

CIS 697 - Advanced Topics in Computer Information Systems *(0-3 hours)*

Special projects under staff supervision on advanced problems and emerging technologies in computer information systems. May be repeated under different topics for a maximum of 6 semester hours. Prerequisite: consent of instructor.

CIS 698 - Directed Individual Studies in Computer Information Systems *(1-3 hours)*

Individual study or research/development project in an area of computer information systems 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 credit hours. Prerequisite: Consent of instructor

CIS 699 - Thesis in Computer Information Systems *(3 hours)*

Computer information systems research and thesis preparation. Required of candidates choosing the thesis option. Repeatable to a maximum of 6 semester hours. Prerequisite: consent of department chair.

CS 502 - Advanced Programming *(3 hours)*

Introduces the fundamental concepts of programming from an object-oriented perspective with emphasis on advanced programming skills and good software development principles in a closed laboratory setting. Covers topics including object-oriented paradigm, design and programming, fundamental data structures and computing algorithms, and software development principles. If needed, course should be taken during first regular semester at Bradley. Credit for this course does not count towards graduation requirements in any graduate program within the Department of Computer Science and Information Systems. Prerequisite: Graduate standing in CS or CIS. Consent of graduate program coordinator; at least two semesters of programming experience.

CS 503 - Programming Methodology *(3 hours)*

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. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or a grade of C or better in both MTH 120 and CS 102.

CS 510 - Numerical Methods *(3 hours)*

Introduction to numerical and computational aspects of various mathematical topics: finite precision, solutions to nonlinear equations, and interpolation, approximation, linear systems of equations, and integration. Cross listed as MTH 510. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CS 101 and MTH 207 and MTH 223.

CS 511 - Numerical Methods II *(3 hours)*

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. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS; or MTH 224 or MTH 345, and CS 510 or MTH 510.

CS 514 - Algorithms *(3 hours)*

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. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CS 210 or CIS 210 or equivalent and one semester of statistics.

CS 516 - Programming Languages *(3 hours)*

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: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CS 210 or CS 310 or equivalents.

CS 518 - Programming Language Translation *(3 hours)*

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 210 or CIS 210 or equivalent.

CS 520 - Advanced Computer Architecture *(3 hours)*

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: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CS 220 or equivalent.

CS 531 - Web Development Technologies *(3 hours)*

ntroduction to PERL/CGI, XHTML, XML, JavaScript and scripting languages. Web page design and layout. Client and server side development of web applications. Database connectivity, Java Database Connectivity (JDBC). Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CS 102 or equivalent.

CS 532 - Advanced Java Computing *(3 hours)*

Developing Web-based systems using J2EE Java technologies. Topics include Java Security, Java GUI development using IDE, Java Servlets and JavaServer Pages, Java Enterprise JavaBeans, XML and Java Web Services, and Java Transaction Service and Java Message Service. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CS 531 or equivalent.

CS 541 - Python Programming for Data Science *(3 hours)*

This course will cover programming constructs and features, data structures for data storage, such as sets, tuples, lists, dictionaries, trees and graphs, and algorithms for sorting, information retrieval from tree and graph data structures and search techniques such as binary tree search, depth and breadth depth first search of graphs. The programming language used is Python. Packages like pandas and numpy will also be presented. Assignments will focus on Python programming for natural language processing, machine learning, and data science applications. Students will design, write, test and run computer programs using Python and within an integrated development environment. Prerequisite: Graduate standing in Data Science and Analytics. Not for CS or CIS students. This course does not count towards graduation requirements for the MS degree in Computer Science or Computer Information Systems.

CS 560 - Fundamentals of Data Science *(3 hours)*

This course will combine two types of problem-solving: inferential thinking, and computational thinking applied to real-world problems. The course teaches critical concepts and skills in computer programming, at an accelerated pace, and an analysis of real-world datasets using statistical inference and a number of machine learning algorithms. The emphasis is on the use of tools and languages for data analysis and modeling. Prerequisite: Graduate students in Computer Science or Computer Information Systems or Data Science and Analytics, who have taken: one semester of calculus-based statistics (IME 511 or equivalent); two semesters of computer programming or CS 541 or CS 502.

CS 561 - Artificial Intelligence *(3 hours)*

Pattern recognition, search strategies, game playing, knowledge representation; logic programming, uncertainty, vision, natural language processing, robotics, programming in LISP and PROLOG. Advanced topics in artificial

intelligence. Cross-listed with CS 461. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Graduate standing in CS or CIS. Consent of instructor for all other students with graduate standing.

CS 562 - Machine Learning *(3 hours)*

Machine learning and intelligent systems. Covers the major approaches to ML and IS building, including the logical (logic programming and fuzzy logic, covering ML algorithms), the biological (neural networks and deep learning, genetic algorithms), and the statistical (regression, Bayesian and belief networks, Markov models, decision trees and clustering) approaches. Students use ML to discover the knowledge base and then build complete, integrated, hybrid intelligent systems for solving problems in a variety of applications. Cross listed with CS 462. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Graduate students in Computer Science or Computer Information Systems or Data Science and Analytics who have taken: CS 560 and two semesters of calculus.

CS 563 - Knowledge Discovery and Data Mining *(3 hours)*

Brings together the latest research in statistics, databases, machine learning, and artificial intelligence that are part of knowledge discovery and data mining. Topics include algorithms for the data cleansing and preprocessing phase, selected supervised machine learning algorithms for modeling forecasting and classification, selected unsupervised machine learning algorithms, trend and deviation analysis, dependency modeling, integrated discovery and ensemble systems, meta-processing (boosting, stacking, etc.) and application case studies. Cross-listed with CS 463. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Graduate students in CS or CIS or Data Science and Analytics who have taken one semester of calculus-based statistics, for example: IME 511 or equivalent.

CS 571 - Database Management Systems *(3 hours)*

Relational database design, including entity relationship modeling and normalization. Structured query language (SQL) for creating and querying databases. Other topics include the theory of relational databases, including relational algebra, various loading and reporting utilities, and the implementation of database management systems, e.g., how query optimization works. Prerequisite: Graduate standing in CS or CIS or Data Science and Analytics who have taken CS 541 or two semesters of computer programming.

CS 572 - Distributed Databases and Big Data *(3 hours)*

Designing and building enterprise-wide data warehouses. Cover topics related to large, distributed databases, including designing distributed databases, replicating data, and concurrency. NoSQL, object-oriented, multimedia databases and their query languages. Next generation database systems, data warehousing, and OLAP. Applications using distributed databases like Hadoop and its associated machine learning libraries. Cross-listed with CS 472. For cross-listed undergraduate/graduate courses, the graduate-level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Graduate students in CS or CIS or Data Science and Analytics who have taken: CS 571 and a calculus-based statistics course (for example, IME 511 or equivalent).

CS 590 - Fundamentals of Software Engineering *(3 hours)*

Software engineering: software product; prescriptive process models; system engineering; analysis modeling; design engineering; architectural design; user interface design; testing strategies and techniques; software systems' implementation; software systems' maintenance. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CS 390 or equivalent.

CS 591 - Software Project Management *(3 hours)*

Methods of PMBOK-based management of software systems design and development projects, including systems view, main project management process groups and knowledge areas, management plans, project metrics and estimates, tools for project management, project reports and documentation. Cross listed with CIS 491 and CIS 591 courses. For cross listed undergraduate/graduate courses, the graduate level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CS 390 or equivalent, or consent of instructor.

CS 592 - Requirements Development *(3 hours)*

Covers topics including basic concepts and principles of software requirements engineering, the requirements engineering process, requirements elicitation, requirements analysis, requirements specification, system modeling, requirements validation and requirements management, and techniques, methods, and tools for requirements engineering and software systems requirements modeling (including structured, object-oriented and formal approaches to requirements modeling and analysis). Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CS 210 or CIS 210 or equivalent, or consent of instructor.

CS 593 - Agile Software Development *(3 hours)*

Agile methodology, agile methods, and agile software engineering, including framework activities, SDLC models, requirements analysis, architectures, services, integrated development environments, testing, and quality issues. Cross listed with CS 493. For cross listed undergraduate/graduate courses, the graduate level course will have additional academic requirements beyond those of the undergraduate course. Prerequisite: Graduate standing in CS or CIS, or senior standing in CS or CIS, or CS 390 or equivalent.

CS 594 - Capstone Project for Data Science *(3 hours)*

Applies the concepts and skills learned by Data Science and Analytics graduate students at Bradley University. Students are required to work on a team on a significant Data Science project. Prerequisite: Graduate Standing in Data Science and Analytics-Computational Data Science concentration (DSA-CD). Taken in the last semester of enrollment.

CS 612 - Automata, Computation and Complexity *(3 hours)*

Theory of formal languages and computability, Automata, Turing machines, grammars. Context free and context sensitive languages; parsing. Recursion theory; limits of effective computability, P and NP class of problems, NP-complete problems. Non Turing computable problems, reducibility, complexity. Prerequisite: Graduate standing in CS or CIS, or CS 502 or equivalent.

CS 614 - Parallel Algorithms *(3 hours)*

Parallel algorithms for multi-processor computer architectures: concurrent programming, SIMD and MIMD systems, and time complexity. Prerequisite: Graduate standing in CS or CIS, or CS 514 or equivalent.

CS 625 - Operating Systems Design *(3 hours)*

Advanced concepts in operating system design. Topics include process and thread management, virtual memory, interprocess communication, distributed systems, parallel and distributed file system designs, resource management, and security and protection. Prerequisite: Graduate standing in CS or CIS, or CS 321 or equivalent.

CS 635 - Data Communications and Networks *(3 hours)*

Fundamentals of data communication, computer network architectures and protocols, wireless networks, network programming, and network security. Emphasis on OSI, TCP/IP, ATM, and IEEE 802 LAN layered architectures, and TCP/IP network programming. Prerequisite: Graduate standing in CS or CIS, or CS 330 or equivalent.

CS 681 - Professional Practicum in Computer Science *(0 hours)*

Special projects under Smith Career Center supervision on student's professional practicum in corporate/business environment in computer science, with near-term economic benefit. Satisfactory/Unsatisfactory. Minimum of 5-10 hours per week required. Prerequisite: Graduate CS or CIS student in good standing; consent of department chair and graduate program director.

CS 690 - Advanced Topics in Software Engineering *(3 hours)*

Special software engineering research and development projects under staff supervision. Emphasis on a specific topic and emerging technologies in the software engineering area. Prerequisite: Graduate standing in CS or CIS, or CS 590 or CS 591 or equivalents, or consent of instructor.

CS 697 - Advanced Topics in Computer Science *(3 hours)*

Special projects under staff supervision on advanced problems in numerical or non-numerical branches of computer science. May be taken more than once under different topics for a maximum of 6 semester hours. Prerequisite: Consent of instructor.

CS 698 - Directed Individual Studies in Computer Science *(1-3 hours)*

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 credit hours. Prerequisite: Consent of instructor.

CS 699 - Thesis in Computer Science *(0-6 hours)*

For graduate students in Computer Science (CS) or Data Science and Analytics-Computational Data Science concentration (DSA-CD). Computer Science or Data 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. Any semester after the six hours, the student must register for zero hours to maintain progress, after the thesis advisor's and department chair's approval. Prerequisite: Consent of department chair

This is the official catalog for the 2023-2024 academic year. This catalog serves as a contract between a student and Bradley University. Should changes in a program of study become necessary prior to the next academic year every effort will be made to keep students advised of any such changes via the Dean of the College or Chair of the Department concerned, the Registrar's Office, u.Achieve degree audit system, and the Schedule of Classes. It is the responsibility of each student to be aware of the current program and graduation requirements for particular degree programs.

DATA SCIENCE AND ANALYTICS

MS in Data Science and Analytics

Bradley University offers an interdisciplinary graduate program leading to the degree of master of science in Data Science and Analytics. This course of study is designed to prepare students for professional careers in the field or for further study and research.

The Data Science and Analytics graduate program provides students with the necessary skills to effectively use large data sets to solve problems and potentially find new insights.

Students can concentrate their study in various application areas including: 1) business analytics, 2) computational data science, and 3) engineering analytics.

In addition to satisfying all the Graduate Education requirements for the degree, all candidates for the master's degree must satisfy the following departmental requirements:

- At least 34 hours of graduate-level coursework. Some remedial course(s), e.g., an introductory programming class, such as CS 502, or an entry level statistics course, such as MTH 111, Q M 262, or IME 302, do not count as part of the total hours needed.
- No "D" grades can be counted in the completion of requirements for the degree.
- Every student must pass a written comprehensive examination that will be based on the core requirements for the program pursued.

Students in the Data Science and Analytics program may register for only three courses per semester. Any exceptions must be approved by the appropriate department chair.

Admission requirements to the Data Science and Analytics program are given below:

- completed at least one semester of statistics.
- must submit GRE General Test or GMAT scores taken within the last five years. The applicant may request a GRE or GMAT waiver under certain circumstances.

Note that prospective students who do not meet the conditions for admission may be admitted conditionally, in which case the department will prescribe a program for the removal of such admission conditions. Conditional status must be removed prior to graduation.

Data Science and Analytics

In addition to meeting all the general requirements of Graduate Education and of the department(s) as stated above, candidates for the master's degree in Data Science and Analytics must satisfy the following requirements:

1. At least 24 of the 34 required hours must be earned in courses labeled CS, CIS, IME, or MIS.
2. To satisfy the core (breadth) requirement, six courses or 16 credit hours must be taken:

- IME 511 Probability & Statistics for Analytics (3 credit hours)
- IME 512 Regression and Experimental Design (3 credit hours)
- CS 560 Fundamentals of Data Science (3 credit hours)
- CS 571 Database Management Systems (3 credit hours) or IME 514 Operations Research (3 credit hours)
- MIS 570 Introduction to Business Analytics (3 credit hours)
- BUS 511 Communicating Quantitative Information (1 credit hour)

3. To satisfy depth requirements, the student must take three or four courses from one of the concentrations offered and listed below. No course taken to satisfy the core requirement (item 2 above) may be counted as one of the courses in this requirement. The Business Analytics concentration is 9 credit hours, the Computational Data Science concentration is 12 credit hours or 15 credit hours if a student writes a thesis, and the Engineering Analytics concentration is 9 credit hours.
4. The remaining credit hours will be made-up of approved elective courses.

For admission into the data science and analytics program, a student must have the approval of the department(s) and have completed:

1. at least one semester of statistics,
2. submitted standardized test results, and
3. specific requirements for one of the concentrations
   a. Business Analytics concentration:
      1. basic spreadsheet proficiency
   b. Computational Data Science concentration:
      1. Two semesters of programming classes or CS 502
      2. Two semesters of calculus
      3. Linear Algebra
   c. Engineering Analytics concentration
      1. One semester of programming class or numerical analysis
      2. Two semesters of calculus
      3. Linear Algebra

Concentrations

Business Analytics Concentration - 9 credit hours (ch)

The Business Analytics concentration provides students with the necessary skills to analyze organizational data to aid in business decision-making. The concentration is comprised of 9 semester hours of study.

Prerequisites:

- Basic spreadsheet proficiency

Required courses (3 courses):

1. MIS 571 Business Analytics Software and Applications I - 3 ch
2. MIS 573 Data Visualization for Business - 3 ch
3. MIS 590 Business Analytics Consulting Project – 3 ch **OR** CS 594 Capstone Project for Data Science - 3 ch **OR** IME 691 Research/Practicum – 3 ch

Computational Data Science Concentration - 12-15 credit hours (ch)

The Computational Data Science concentration provides students with the necessary skills to understand the theory and algorithms utilized in data science and to be able to implement and apply them. The concentration is comprised of 12 to 15 semester hours of study.

Prerequisites

- Two semesters of programming classes or CS 502
- Two semesters of calculus
- Linear Algebra

Required courses (4 courses):

1. CS 562 Machine Learning - 3 ch
2. CS 563 Knowledge Discovery and Data Mining - 3 ch
3. CS 572 Distributed Databases and Big Data - 3 ch
4. CS 594 Capstone Project for Data Science - 3 ch **OR** CS 699 Thesis – 6 ch (Note: 3 ch taken for two consecutive semesters) **OR** MIS 590 Business Analytics Consulting Project – 3 ch **OR** IME 691 Research/Practicum – 3 ch

Interested and qualified students pursuing the Computational Data Science concentration have the option to write a master's thesis. Students selecting this option are encouraged to choose an advisor and topic as early as possible in order to plan the thesis development and any needed supporting coursework. The following policies apply to theses:

- A minimum grade point average of 3.5 in computer science and computer information systems graduate courses is required for students enrolling in a thesis course, i.e., CS 699.
- No student may register for a thesis until 9 hours of graduate courses have been completed in the program.
- Six credit hours of a thesis course are required and, upon completion, the thesis must be defended in an oral examination.
- No grade will be given for a thesis course until after the oral defense.
- A written outline of the thesis project and a tentative schedule must be submitted to and approved by the graduate coordinator and the chair prior to the registration for a thesis course.

Engineering Analytics Concentration - 9 credit hours (ch)

The Engineering Analytics concentration provides students with the skills to analyze and process large-size and complex data, to utilize proper methodology in identifying problems, formulating mathematical or algorithmic models, and to solve problems arising from engineering applications, including product design, process design, manufacturing execution, inventory management, production planning, quality control, economic analysis of engineering decision.

Prerequisites

- One semester of programming class or numerical analysis
- Two semesters of calculus
- Linear algebra

Required Courses (3 courses):

1. IME 568 Engineering Analytics I - 3 ch
2. IME 586 Logistics and Supply Chain Systems - 3 ch
3. IME 691 Research/Practicum – 3 ch **OR** MIS 590 Business Analytics Consulting Project – 3 ch **OR** CS 594 Capstone Project for Data Science - 3 ch

Possible electives for the Data Science and Analytics Program include courses required by the other concentrations, or additional courses listed below, or courses approved by the department chair. It is the responsibility of the student to ensure they have met the prerequisites for their elective courses.

- CIS 576 Data Management
- CIS 580 Digital Society and Computer Law
- CS 541 Python for Data Science
- CS 561 Artificial Intelligence
- ECE 565 Engineering Applications of Machine Learning
- IME 501 Engineering Cost Analysis
- IME 526 Reliability Engineering
- IME 561 Simulation of Manufacturing & Service Systems
- IME 578 Engineering Analytics II
- IME 583 Production Planning and Control
- MIS 613 Advanced Algorithms for Business
- MTG 624 Marketing Decision Making
- MTH 510 Numerical Methods I
- MTH 511 Numerical Methods II

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BRADLEY University

ENGLISH

Kevin Swafford,
Graduate Program Coordinator

Danielle Glassmeyer, Kevin Swafford, Laurie Vickroy,
Graduate Advisors

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. It also affords the opportunity to practice modes of creative writing via intensive poetry, fiction, nonfiction, and screenwriting workshops.

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 Graduate Education, 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

- 15 hours of required courses:
  - ENG 500 Theory and Practice of English - 3 hrs.
  - ENG 550 Language Theory *or* ENG 560 Writing Theory *or* ENG 570 Contemporary Literary Criticism *or* ENG 580 Theories and Methods of Teaching Composition - 3 hrs.
  - ENG 630 American Periods - 3 hrs.
  - ENG 640 English Periods - 3 hrs.
  - ENG 690 Internship in Literature *or* ENG 691 Internship in Writing - 3 hrs.
- 15 hours of elective courses from literature, writing, theory, or independent study from the following list:
  - ENG 503 Intensive Creative Non-Fiction Workshop - 3 hrs.
  - ENG 506 Writing in the Professions - 3 hrs.
  - ENG 507 Intensive Poetry Workshop - 3 hrs.
  - ENG 508 Intensive Fiction Workshop - 3 hrs.
  - ENG 509 Intensive Screenwriting Workshop - 3 hrs.
  - ENG 550 Language Theory - 3 hrs.
  - ENG 560 Writing Theory - 3 hrs.
  - ENG 570 Contemporary Literary Criticism - 3 hrs.
  - ENG 580 Theories and Methods of Teaching Composition - 3 hrs.
  - ENG 650 Selected Authors - 3 hrs.
  - ENG 660 Genres - 3 hrs.
  - ENG 680 Advanced Topics in Writing - 3 hrs.
  - ENG 695 Independent Study - 1 - 3 hrs.

30 hrs.

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ENGLISH COURSES

ENG 500 - Theory and Practice of English *(3 hours)*

Overview of the practices, theories, and history of the field of English and an introduction to the Bradley program. Required of all graduate students in English. Must be taken in the first nine hours.

ENG 503 - Intensive Creative Nonfiction Workshop *(3 hours)*

Craft and theory of writing creative nonfiction. Manuscript construction. Repeatable to a maximum of 6 hours. Prerequisite: ENG 403 or consent of instructor after submission of acceptable manuscript

ENG 506 - Writing in the Professions *(3 hours)*

Study and practice of the writing conventions and rhetorical characteristics of individual professions.

ENG 507 - Intensive Poetry Workshop *(3 hours)*

Craft and theory of writing poetry. Manuscript construction. Course repeatable to a maximum of 6 hours. Prerequisite: Open to graduate students by consent of instructor. Open to undergraduate students with credit for ENG 407 or consent of instructor

ENG 508 - Intensive Fiction Workshop *(3 hours)*

Craft and theory of writing fiction. Manuscript construction. Repeatable to a maximum of 6 hours. Prerequisite: Open to graduate students by consent of instructor. Open to undergraduate students with credit for ENG 408 or consent of instructor

ENG 509 - Intensive Screenwriting Workshop *(3 hours)*

Creative writing workshop in screenwriting taught by English faculty member in collaboration with professionals in the entertainment industry. Manuscript construction. Repeatable to a maximum of 6 hours. Prerequisite: Open to graduate students by consent of instructor. Open to undergraduate students with credit for ENG 307 or ENG 308 or consent of instructor

ENG 540 - Genres *(3 hours)*

Study of a single genre: fiction, prose, poetry, drama, or an emerging genre, or the impact of new modalities on a literary genre. May be repeated under a different genre for a maximum of six hours credit.

ENG 550 - Language Theory *(3 hours)*

Study of the relationships between language and writing, thinking, and society. Prerequisite: senior or graduate standing.

ENG 560 - Writing Theory *(3 hours)*

Theoretical approaches to the study of writing. Prerequisite: senior or graduate standing.

ENG 570 - Contemporary Literary Criticism *(3 hours)*

Advanced study of contemporary critical approaches to literature, including, but not limited to, feminism, semiotics, cultural criticism, poststructuralism. Study of the critical theories and applications of the criticisms to literary texts.

ENG 580 - Theories and Methods of Teaching Composition *(3 hours)*

Theoretical and pedagogical issues and approaches in teaching composition.

ENG 585 - Topics in Language and Literature *(3 hours)*

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 6 credit hours.

ENG 630 - American Periods *(3 hours)*

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 hours)*

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 hours)*

Study of one or two authors who write in English. May be repeated under different authors for a maximum of six hours credit.

ENG 680 - Advanced Topics in Writing *(3 hours)*

Advanced study of the theory and practice of compositional processes, with focus on a particular genre or area of writing. May be repeated for a maximum of six hours credit.

ENG 690 - Internship in Literature *(3 hours)*

Theory, analysis, and practice of literature within the context of an undergraduate literature course. Prerequisite: 21 hrs. English graduate courses.

ENG 691 - Internship in Writing *(3 hours)*

Theory, analysis, and practice of writing within the context of an undergraduate composition class. Prerequisite: 21 hrs. English graduate courses.

ENG 695 - Independent Study *(1-3 hours)*

Independent research in literature, writing, or theory. May be repeated for a maximum of 6 hours credit. Prerequisite: Consent of instructor, and graduate program director or department chairperson.

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Department concerned, the Registrar's Office, u.Achieve degree audit system, and the Schedule of Classes. It is the responsibility of each student to be aware of the current program and graduation requirements for particular degree programs.

LAS SUPPORTIVE COURSES

MTH 501 - Topics in Applied Mathematics I *(3 hours)*

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 hours)*

Continuation of MTH 501. Selected numerical algorithms: Fast Fourier transform, initial value problems, stability, z-transforms, and linear programming. Prerequisite: MTH 501 or consent of instructor.

MTH 510 - Numerical Methods I *(3 hours)*

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. Prerequisite: CS 101; MTH 207 and 223.

MTH 511 - Numerical Methods II *(3 hours)*

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. Prerequisite: MTH 224 or 345; CS/MTH 510.

MTH 514 - Partial Differential Equations *(3 hours)*

Theory of, and solution techniques for, partial differential equations of first and second order, including the heat equation, wave equation and Laplace equation in rectangular, cylindrical, and spherical coordinates. Topics include classification of PDE in terms of order, linearity, and homogeneity; solution techniques include separation of variables, Fourier series, and integral operators; and a subset of more advanced topics such as transform methods and numerical methods. Prerequisite: MTH 224 or 345.

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GRADUATE EDUCATION PROGRAMS

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

Sherri Morris,

Program coordinator

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

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

Admission Requirements

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

Degree Requirements

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

Sample Course of Study

Summer I

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

8 hours

Fall I

Elective (to be determined) - 3 hrs.

3 hours

Spring I

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

3 hours

Summer II

- MST 620, 621, or 629 Science Through Inquiry II - 3 hrs.
- MST 660 Research in Math and Science - 2 hrs.

5 hours

Fall II

MST 670 Action Research: Methods and Practice - 3 hrs.

3 hours

Spring II

Elective (to be determined) - 3 hrs.

3 hours

Summer III

- MST 680 Nature of Inquiry and Innovation - 3 hrs.
- MST 681 Advanced Teacher Leadership - 2 hrs.
- MST 685 STEM Education Project - 1 hr.

6 hours

Fall III

MST 685 STEM Education Project - 2 hrs.

2 hours

Total hours required 33

Electives

MST 630 Teaching Science Using Robotic Platforms

MST 631 The Science of Foods and Nutrition

MST 632 The Science of Matter

MST 633 Pharmacology and the Human Brain

MST 634 Crime Scene Science

MST 635 The Science of Global Climate Change

MST 636 The Science of Computer Games

MST 637 Scientific Myths and Misconceptions

MST 639 Special Topics

GRADUATE EDUCATION PROGRAMS

Professional Master Of Arts In Environmental Science Education

Sherri Morris,
Program coordinator

The PMA in Environmental Science Education is a professional master's degree for secondary and middle school (6-12) teachers who want to become teacher-leaders in middle-school/secondary level STEM education. Program objectives for the PMA in Environmental Science Education specify that the teachers will be able to gain knowledge and expertise in the following areas:

- increase the teachers' content knowledge in math, science, and engineering
- increase teachers' ability to use inquiry-based teaching of ENS in their classrooms
- improve the ENS achievement for all learners in the classrooms of the teachers
- help enrollees develop leadership skills to become teacher leaders
- teachers will understand the transdisciplinary and universal nature of environmental science.

Admission Requirements

Entrance requirements for the program include all held by Graduate Education. In addition, applicants must be a certified, secondary science teacher or a certified teacher who has completed at least 18 hours of course work in at least two different science content areas with a C or better and must pass a mathematics placement exam demonstrating proficiency in college-level algebra and precalculus skills. Regulations for the teachers to continue to be enrolled will be those established by Graduate Education and a requirement of continuous enrollment in the course of study as described at the time of admission. Other requirements to complete the program include those described by ISBE to satisfy the endorsements included in the program design. Students progress through the program as a cohort. A new cohort will begin no more than once per calendar year. Check with Graduate Education for the next cohort start date.

Degree Requirements

The program is comprised of 35 hours of graduate (600 level) courses to be completed in 36 months, the majority of which will be in environmental sciences, including related work in mathematics and technology, content, and in STEM education.

Sample Course Of Study

Spring I

MST 615: Introduction to the Interdisciplinary Nature of ENS - 3 hrs.

3 hours

Summer I

- MST 62x: Science through Inquiry II - 3 hrs.
- MST 661: Directed Research in ENS - 1 hr.
- MST 612: Introduction to Teacher Leadership - 1 hr.
- MST 63x-64x: first elective in Environmental Science Education - 2 hrs.*

7 hours

Fall I

MST 616: The Mathematics of Environmental Science - 3 hrs.

3 hours

Spring II

MST 665: Environmental Systems A - 2 hrs.

2 hours

Summer II

- MST 666: Environmental Systems B - 2 hrs.
- MST 650: Inquiry Based Curriculum Development and Analysis - 3 hrs.
- MST 662: Research in ENS - 2 hrs.

7 hours

Fall II

- MST 670: Action Research: Methods and Practice - 1 hr.
- MST 63x-64x: second elective in Environmental Science Education - 2 hrs.*

3 hours

Spring III

MST 681: Advanced Teacher Leadership - 2 hrs.

2 hours

Summer III

- MST 680: Nature of Inquiry and Innovation - 3 hrs.
- MST 63x-64x: third elective in Environmental Science Education - 2 hrs.*

5 hours

Summer/Fall III

- MST 685: STEM Education Project - 3 hrs. *or*

- MST 686: ENS Research Project - 3 hrs.

3–4 hours

*Electives options currently include: MST 635, MST 637, MST 640, and MST 641.

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GRADUATE SCHOOL PROGRAMS COURSES

MST 600 - Investigative Math, Science, and Technology for Educators: Energy *(3 hours)*

Investigative Math, Science, and Technology for Educators: Energy

MST 601 - Investigative Math, Science, and Technology for Educators: Motion *(3 hours)*

Investigative Math, Science, and Technololgy for Educators: Motion

MST 609 - Investigative Math, Science, and Technology for Educators: Special Topics *(3 hours)*

Investigative Math, Science, and Technology for Educators: Special Topics

MST 610 - Math Through Inquiry *(3 hours)*

Math Through Inquiry

MST 611 - Directed Research in Science and Math Internship *(1 hour)*

Directed Research in Science and Math Internship

MST 612 - Introduction to Teacher Leadership *(1 hour)*

Introduction to Teacher Leadership

MST 615 - Introduction to the Interdisciplinary Nature of Environmental Science *(3 hours)*

Introduces students to environmental science and the need to integrate across disciplines to understand and correct environmental problems. Students will participate in an interactive group-based course that delves into environmental problems and the science, resources, and sills needed to understand and solve them.

MST 616 - The Mathematics of Environmental Science *(3 hours)*

An introduction to mathematical modeling with applications to environmental science. Topics to be covered include elementary applications of mathematics in environmental science; the qualitative and quantitative theory of differential equations of functions of a single variable; the differential calculus of functions of several variables, optimization, and applications of the preceding to environmental systems. Prerequisite: College-level calculus.

MST 620 - Topics in Investigative Math, Science, & Technology For Educators II: Evolution *(3 hours)*

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

MST 621 - Investigative Math, Science, & Tech. for Educators: Environmental Science *(3 hours)*

Course integrating math, science, and technology in an investigative format. Emphasis on using scientific methods to explore thematic material. Course taught in an inquiry-based, investigative format that includes application to pre K-

12 classrooms. Second course of a two-course sequence. Course content is integrated along the theme of environmental science. Prerequisite: B or better in one course from MST 600-609, or graduate student standing and consent of instructor.

MST 629 - Investigative Math, Science, & Tech. for Educators: Special Topics *(3 hours)*

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

MST 630 - Teaching Science Using Robotics Platforms *(3 hours)*

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

MST 631 - The Science of Foods and Nutrition *(3 hours)*

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

MST 632 - The Science of Matter *(3 hours)*

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

MST 633 - Pharmacology and the Human Brain *(3 hours)*

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

MST 634 - Crime Scene Science *(3 hours)*

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

MST 635 - The Science of Global Climate Change *(2-3 hours)*

Focuses on the global climate change with particular attention to the global heat budget, its interactions with other factors such as greenhouse gasses and anthropogenic alterations to global systems. Instructors will cover basic atmospheric and terrestrial science (biology, geology, chemistry, physics, and mathematics) necessary to understand the problem. The consequences of global climate change on society (commerce, international relationships, policy, and national security) will then be discussed. Prerequisite: B or better in one course from MST 601-609 or MST 620-629, or graduate student standing and consent of instructor.

MST 636 - The Science of Computer Games *(3 hours)*

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

MST 637 - Scientific Myths and Misconceptions *(2-3 hours)*

Inquiry-based approach to investigating common myths or popular beliefs using principles of mathematics and sciences. Prerequisite: B or better in one course from MST 601-609 or MST 620-629, or graduate student standing and consent of instructor.

MST 639 - Special Topics *(1-3 hours)*

Inquiry-based exploration of science and mathematics content organized around a central theme. Topics will vary by instructor. May be repeated under different topics for a total of 6 credit hours. Prerequisite: B or better in one course from MST 600-609, or graduate student standing and consent of instructor.

MST 640 - Water: The Human Perspective *(2 hours)*

Focuses on water as a compound that is absolutely essential to our environment. Instructors will cover aspects of biology, geology, chemistry, physics, and mathematics necessary to understand the properties of water and their application. The consequences of the interaction between water, humans, and the rest of the environment (commerce, international relationships, policy, national security) will then be discussed. Prerequisite: B or better in one course from MST 601-609 or 620-629, or graduate student standing and consent of instructor.

MST 641 - Nanotechnology in the 21st Century *(2 hours)*

Focuses upon nanotechnology, from the fundamental science behind the field to applications which it attempts to address. Emphasis will be placed on different methods of preparation of nanoparticles and structures, how they are imaged and analyzed, and their applications and impact on our society. Basic physics and chemistry necessary to study nanoscience will also be covered early in the course. A laboratory experience will also expose students to actual preparation and analysis techniques. Prerequisite: B or better in one course from MST 601-609 or 620-629, or graduate student standing and consent of instructor.

MST 650 - Inquiry-Based Curriculum: Developement & Analysis *(3 hours)*

Inquiry-Based Curriculum: Developement & Analysis

MST 660 - Research in Math and Science *(2 hours)*

Research in Math and Science

MST 661 - Directed Research in Environmental Science *(1 hour)*

Students work with a faculty member from a STEM discipline in a guided research internship. Prerequisite: Graduate student standing.

MST 662 - Research in Environmental Science *(2 hours)*

Students work with a faculty member from an MST discipline on a collaborative research project. Prerequisite: Graduate standing and a B or better in MST 661 or permission of the instructor.

MST 665 - Environmental Systems I *(2 hours)*

Descriptions of ecosystems form and function with focus on biogeochemistry, food webs and energy transformations within natural systems. Emphasis on application of ecosystem principles to sustainable land management and current issues such as global change and nitrogen deposition. Prerequisite: B or better in one course from MST 601-609 or 620-629, or graduate student standing and consent of instructor.

MST 666 - Environmental Systems II *(2 hours)*

Description of ecosystem form and function with focus on the interactions and interdependence of Earth's biotic and abiotic systems. Focus will include role of disturbance in placement and distribution of those species and their relatedness to their specific environment. Focus on impacts of interactions with and perturbations to systems, including those that result from anthropogenic disturbance. Prerequisite: MST 665 Environmental Systems I

MST 670 - Action Research: Methods and Practice *(1-3 hours)*

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

MST 680 - Nature of Inquiry and Innovation *(3 hours)*

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

MST 681 - Advanced Teacher Leadership *(2 hours)*

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

MST 685 - Stem Education Project *(1-4 hours)*

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

MST 686 - Environmental Sciences Research Project *(1-3 hours)*

Capstone course to enhance STEM content knowledge while integrating concepts of research in environmental science and teacher leadership. Prerequisite: B or better in MST 661.

MST 690 - Continuation in MST Program *(0 hours)*

This non-credit course allows for continuous active enrollment in MST degree programs while students are completing one or more courses that spans multiple terms and are not otherwise registered for credit-bearing courses. Successful completion of the course(s) in progress will result in satisfactory completion of MST 690. S/U.

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