

Received by the Graduate Council—December 4, 2017  
with the exception of all three Ph.D. proposals from the College of Engineering and Engineering Technology

GRADUATE COUNCIL CURRICULUM COMMITTEE (GCCC)  
Second Meeting/2017-18 Academic Year  
November 13, 2017

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**COLLEGE OF BUSINESS**

BOT/ Other catalog change: Page 57, 2017-18 Graduate Catalog  
IBHE

**Graduate Study in Business**

The College of Business offers the Master of Business Administration (M.B.A.), the Master of Accountancy (MAC), the Master of Accounting Science (M.A.S.) with an area of study, the Master of Science in Taxation (M.S.T.), the Master of Science (M.S.) in financial risk management, **the Master of Science (M.S.) in digital marketing**, and the Master of Science (M.S.) in management information systems. These programs are accredited by AACSB International—The Association to Advance Collegiate Schools of Business.

**Department of Marketing**

**All University Section**

**The Graduate School**

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**Graduate Programs**

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**Department of Marketing**

**Master of Science (M.S.)**

**Digital Marketing (M.S.)**

**Department of Operations Management and Information Systems**

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**Department Section**

BOT/ Other catalog change: Page 72, 2017-18 Graduate Catalog  
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**Department of Marketing (MKTG)**

Chair: Geoffrey L. Gordon

**Graduate Faculty**

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Ursula Sullivan, associate professor, Ph.D., Northwestern University

**Master of Science in Digital Marketing**

The M.S. in digital marketing program provides advanced study in marketing and digital marketing to prepare students for the challenges of working in the digital marketing field. The program's online format and professional orientation provide an opportunity for a large population of potential graduate students who

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cannot commit to either a full-time or location-based program to obtain the advanced degree. The program is designed to meet both the needs of full-time students and working professionals who desire to earn the degree while continuing to work full time. Graduates of the program will possess a set of marketable skills along with the business acumen needed to identify, engage, and continue meaningful relationships with both business customers and consumers.

The program provides opportunities to develop knowledge related to marketing and digital marketing concepts. The program also focuses on the development of communication, research, and technology skills and an understanding of ethical issues and expectations of the business community for professional conduct.

#### **Master of Science in Digital Marketing Learning Goals**

Graduates from the NIU Department of Marketing's Master of Science in digital marketing program will fulfill the following learning goals:

**Learning Goal 1: Demonstrate Appropriate Knowledge of the Impact of Digital Technologies on Marketing Strategies**

**Learning Goal 2: Demonstrate Problem Solving and Critical Thinking Skills**

**Learning Goal 3: Demonstrate Communication and Presentation Skills**

**Learning Goal 4: Demonstrate Marketing Metrics Skills**

**Learning Goal 5: Demonstrate Global Business Environment Knowledge**

**Learning Goal 6: Demonstrate Ethical Business Practice Awareness**

#### **Admission**

Admission to the Master of Science in digital marketing program is competitive. At a minimum, applicants must meet the admission requirements of the NIU Graduate School and demonstrate that they possess the following minimum qualifications:

#### **For applicants with a baccalaureate or higher degree from an accredited U.S. college or university:**

- Strong record of academic achievement demonstrated by cumulative GPA.  
*Note: The GMAT is not required but may be submitted to supplement the academic record if GPA does not fully demonstrate academic ability.*
- Positive recommendations, preferably from an academic source.

#### **For International applicants without a baccalaureate or higher degree from an accredited U.S. college or university:**

- Strong record of academic potential demonstrated by GMAT score.
- Command of both oral and written English--those for whom English is not their first language must submit a minimum TOEFL (IBT) score of 80 or IELTS score of 6.5. *Possession of a baccalaureate or higher degree from an accredited institution may serve in lieu of the TOEFL score.*
- Positive recommendations, preferably from an academic source.

#### **Degree Requirements (30-39)**

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The Master of Science in digital marketing consists of two phases. Phase One is designed to address deficiencies in undergraduate course work considered to be prerequisite for the Phase Two (30 credits) graduate course work. Students with significant undergraduate course work in business may be waived from some, or all, of the Phase One requirements.

Phase Two consists of 12 courses, five courses are required from Marketing Foundation (15 credits) and six courses are required from Digital Marketing Foundation (12-13 credits). Students must either complete a capstone project or a capstone thesis (3 credits).

**Phase One (8):**

MKTG 505 - Graduate Survey of Marketing (2)

OMIS 507 - Business Information Systems (2)

OMIS 524 - Business Statistics (2)

One of the following:

ACCY 505 - Financial Accounting Concepts (2)

MGMT 505 - Principles of Management (2)

OMIS 505 - Principles of Operations Management (2)

**Phase Two (30-31):**

**Marketing Strategy Foundation (15)**

**Required courses (9):**

MKTG 603 - Marketing Research and Analysis (3)

MKTG 654 - Marketing Management (3)

MKTG 670 - Digital Marketing Strategy (3)

**Two of the following (6):**

MKTG 626 - Brand Management (3)

MKTG 630 - Services Marketing (3)

MKTG 640 - Digital Selling Strategy (3)

MKTG 656 - Global Marketing Strategy (3)

MKTG 664 - New Product and Service Innovation (3)

**Digital Marketing Foundation (12-13)**

**Six of the following (12-13):**

MGMT 627 - Entrepreneurial Creativity and Innovation (3)

MKTG 671 - Digital Marketing and Search Engine Optimization (2)

MKTG 672 - Mobile Marketing (2)

MKTG 673 - Social Media Marketing and Advertising (2)

MKTG 674 - Digital Marketing Campaign Measurement (2)

MKTG 675 - Content Marketing (2)

MKTG 677 - Building and Managing Responsive Websites (2)

MKTG 678 - Marketing Data Visualization (2)

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MKTG 679 - Database Marketing (2)  
MKTG 680 - Digital Marketing Metrics (2)  
MKTG 682 - Online Reputation Management (2)

Capstone (3)

MKTG 684 - Capstone Applications in Digital Marketing (3)  
OR MKTG 686 - Capstone Digital Marketing Project (3)

## COLLEGE OF EDUCATION

### Department of Counseling, Adult and Higher Education

Other Catalog Change

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#### Master of Science in Education in Counseling

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#### Student-at-Large and Transfer Credit

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#### Retention

↓

#### Advisement

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#### Requirements

Students are required to take a minimum of 45 60 semester hours. ~~in common requirements and 15 semester hours in an area of professional preparation as follows.~~ Students are required to take 36 semester hours in the core curriculum, 15 semester hours of the specialization core, and 9 semester hours in supervised practicum and internship. Students select from one of the following: a specialization in clinical mental health counseling or a specialization in school counseling. In consultation with an adviser, the student selects a thesis or non-thesis option.

#### ~~Non-Thesis Option~~

##### Common Core

- CAHC 500 - Professional Identity and Ethics in Counseling (3)
- CAHC 501 - Diagnosis of Mental Health Issues in Counseling (3)
- CAHC 511 - Career Counseling (3)
- CAHC 525 - Counseling Skills and Strategies (3)
- CAHC 530 - Counseling Theories and Practices (3)
- CAHC 533X - Standardized Assessment and Testing in Counseling (3)
- CAHC 540 - Group Counseling (3)
- ~~CAHC 550 - Practicum in Counseling (3)~~
- CAHC 565 - Multicultural and Social Justice Counseling (3)

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CAHC 567 - Substance Abuse Issues **Use and Addictions** in Counseling (3)  
~~CAHC 586 – Internship in Counseling (6)~~  
CAHC 593 - Crisis Intervention (3)  
EPS 710 - Seminar in Lifespan Human Development (3)  
ETR 520 - Introduction to Research Methods in Education (3)

**Clinical Core**

CAHC 550 - Practicum in Counseling (3)  
CAHC 586 - Internship in Counseling (6)

~~One of the following areas of professional preparation (15):~~

**Specialization in Clinical Mental Health Counseling**

This area of specialization is designed for students seeking professional counseling positions in agencies that assist clients to resolve psychological disorders and/or developmental issues through crisis intervention, remediation, and/or primary prevention interventions.

**Clinical Mental Health Counseling Specialization Core**

CAHC 524 - Clinical Mental Health Counseling: Programs, Issues, and Practices (3)  
CAHC 532 - Evidence Informed Practices in Clinical Mental Health (3)  
CAHC 784X - Theoretical Foundations of **Systems, Couples, and Family Therapy Counseling** (3)  
Two electives chosen with adviser's approval (6)

**Specialization in School Counseling**

This area consists of course work and experiences that prepare students to do counseling in a K-12 school setting.

**School Counseling Specialization Core**

CAHC 513 - Postsecondary and College Counseling for School Counselors (3)  
CAHC 521 - Counseling with Children and **Adolescents** (3)  
CAHC 523 - School Counseling: Programs, Issues and Practices (3)  
CAHC 570 - Consultation and Management in Developmental School Counseling Programs (3)  
Elective chosen in consultation with adviser (3)

**Thesis Option**

In addition to the requirements above, ~~a thesis is required,~~ **a student who chooses the thesis option must enroll with enrollment** in CAHC 699, Master's Thesis, for the number of semester hours specified on the student's official program of courses. ~~Doctor of Education in Counseling~~

**Department of Special and Early Education**

**All University Sections**

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**The Graduate School**

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**Graduate Programs**



**College of Education**



**Department of Special and Early Education**

Master of Science in Education (M.S.Ed.)

Early Childhood Education

Special Education

*with specialization in*

Advanced Special Education Practices

Vision Rehabilitation Therapy

~~Early Childhood Special Education~~

Learning Behavior Specialist I



**Directory for Correspondence**

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**Graduate Degree Programs, Specializations, and Departments**



Early Childhood Education: See Special and Early Education

~~Early Childhood Special Education: See Special and Early Education~~

Economics: Ardashir J. Dalal, Ph.D., departmental director of graduate studies

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**Master of Science in Education in Special Education**

**Specialization in Advanced Special Education Practices**

**Specialization in Vision Rehabilitation Therapy**

~~**Specialization in Early Childhood Special Education**~~

**Specialization in Learning Behavior Specialist I**

**Specialization in Orientation and Mobility**

**Specialization in Visual Impairments**

The specializations in Advanced Special Education Practices and Early Childhood Special Education are designed to serve the needs of individuals who have a Professional Educator License (PEL) with special education endorsement and are seeking to gain additional competencies and/or endorsements. See the individual program descriptions for information about requirements for these programs.

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The specializations in Learning Behavior Specialist I and Visual Impairments are designed to serve the needs of individuals with baccalaureate degrees who wish to obtain an initial Illinois Professional Educator License (PEL) with ~~pre-K school~~ through age 21 ... .. degree.

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**Requirements**

Each candidate must select a specialization. Each specialization requires a minimum of ~~36~~ **30-36** semester hours of study, which must include a research ... .. of the program

For a candidate whose undergraduate major ... .. the department. Deficiency course hours will not be counted toward the minimum ~~36~~ **30-36** semester hours of the master's degree program.

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**Field Work**

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The LBS I endorsement is a cross-categorical endorsement that encompasses all categories of disability from ~~Pre-K kindergarten~~ through ~~high school~~ age 21. As a result, early clinical experiences and student teaching practicum involve working with students with mild- **and** moderate disabilities in both elementary and secondary settings. Student teaching in the LBS I endorsement, SESE 609 and SESE 610, consists of two eight-week (Monday - Friday) full-day placements, one at the elementary level and one at the secondary level. Candidates fulfill various instructional and assessment responsibilities as well as ~~completion of~~ **complete** the edTPA during student teaching practicum. ...

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**Specialization in Advanced Special Education Practices**

This specialization focuses on study to strengthen the professional development of ~~licensed~~ candidates who have a professional educator license with endorsement in special education. ~~Candidates enrolled in this M.S.Ed. program may incorporate requirements for one or more Learning Behavior Specialist II or Director of Special Education licenses of graduate study in their programs of study.~~

**Required courses in this specialization:**

SESE 592 - Seminar in Special Education (3)

OR SESE 747 - Advanced Seminar in Special Education (3)

~~SESE 593—Collaboration in Advanced Special Education Practices (3)~~

~~Research course, such as SESE 792 – Seminar: Single Case Research Methodologies and Evidence-Based Practices in Special Education, or another research course~~ approved by adviser (3)

~~Foundations course, such as EPFE 510, EPFE 520, EPFE 521, EPFE 530,~~

~~EPS 501, approved by adviser (3)~~

Course work in the major (~~12-15~~ **18**)

Additional course work approved by adviser (~~12-15~~ **6 – 9**)

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**Specialization in Early Childhood Special Education**

This specialization prepares ... .. advisement. Required courses in this specialization are:

~~SESE 523—Observation and Assessment in Early Childhood Special Education (3)~~

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Elective course work with adviser's approval (15-18)

<sup>†</sup>Not required for candidates who have a Professional Educator License endorsed in LBS I.

## COLLEGE OF ENGINEERING AND ENGINEERING TECHNOLOGY

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### Department of Electrical Engineering

BOT Other Catalog Change Page 145, 2017-18 Graduate Catalog  
IBHE

### Department of Electrical Engineering

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#### Doctor of Philosophy in Electrical Engineering

A Ph.D. in Electrical Engineering allows graduates to pursue professional careers in institutions, national research labs, federal and state agencies, and private and public corporations. Students enrolled in the program will develop the ability to conduct independent research to address compelling problems of local, national, and global significance in Electrical Engineering application. Students will have a strong foundation in engineering knowledge, as subject matter experts within a traditional discipline of engineering, to pursue careers in engineering research, development, or education. Students will demonstrate the professional skills necessary to bridge the gap between the deep technical knowledge and scientific discoveries to practical application through careers in academe and industry. The overall goal of the program is to train and develop advanced practitioners, researchers, and teaching scholars in Electrical Engineering.

#### Learning Objective/Outcomes

Graduates of the Electrical Engineering Ph.D. program will demonstrate:

1. Fundamental understanding of the principles, major research findings and current unresolved problems in their area of emphasis
2. Effective scientific communication skills
3. Proficiency in critical thinking,
4. Appropriate use of the scientific method.
5. Technical writing proficiency
6. Original scholarship and the ability to conduct independent research.

#### Admission Requirements

Students seeking admission to the Ph.D. program in Electrical Engineering must have a B.S. degree. Students with backgrounds in fields other than Electrical Engineering are encouraged to apply, but are required to take core Electrical Engineering courses as part of the doctoral program. In addition to ~~The~~ the Graduate School minimum requirements, applicants must also have a minimum GPA of 3.00/4.00 and submit three letters of



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recommendation.

### Course Requirements

The Graduate Studies Committee, in consultation with the faculty ~~advisor~~ advisor and the chair of the department, is responsible for approving each student's program to meet the course requirements specified below. Each student must complete at least 90 semester hours of graduate course work after the baccalaureate degree. Students with a master's degree can transfer up to 30 semester hours of graduate course work. The committee will assess all work done at other institutions and will recommend acceptance of transfer credit for any graduate work deemed appropriate, subject to the policies of and approval by the Graduate School. In addition to meeting all of the course requirements below, students must ensure at least 1/2 half of their course work is at the 600-level or above, with the exception of dissertation hours.

The Graduate Studies Committee of the department is also responsible for the administration of the candidacy examination. In addition, all students are required to complete the following.

### Core Courses (12)

All students are required to take 12 semester hours in Electrical Engineering in one of the focus areas listed below:

#### Digital Signal Processing and Communication (12)

ELE 525 - Biomedical Signal Processing (3)  
ELE 551 - Digital Filter Design (3)  
ELE 552 - Real-Time Digital Signal Processing (3)  
ELE 650 - Digital Signal Processing (3)  
ELE 651 - Random Signal Processing (3)  
ELE 653 – Digital ~~Speech~~ Signal Processing (3)  
ELE 654 - Advanced Topics in Digital Image Processing (3)  
ELE 659 - Adaptive Signal Processing (3)  
ELE 660 - Digital and Analog Communication Systems (3)  
ELE 661 - Error Control Coding (3)  
ELE 662 - Optical Communication (3)  
ELE 664 - Spread Spectrum Communication Systems (3)  
ELE 665 - Satellite Communications (3)

#### Computer Engineering, Power Electronics and Control (12)

ELE 530 - Design with Field Programmable Logic Devices (3)  
ELE 540 - Power Electronics (3)  
ELE 557 – Processor ~~B~~ based Systems (3)  
ELE 581 - Digital Control Systems (3)

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**ELE 640 - Advanced Power Electronics**

ELE 655 - Microprocessor System Design (3)

ELE 657 - Parallel Processing (3)

~~ELE 581 - Digital Control Systems (3)~~

~~ELE 640 - Advanced Power Electronics~~

ELE 683 - Computerized Control and Modeling of Automated Systems (3)

ELE 685 - Control Laws and Strategies for Multilink Manipulators (3)

ELE 687 - Fuzzy Logic in Engineering (3)

ELE 689 - Introduction to Neural Networks (3)

**Semiconductor Fabrication, MEMs and Devices (12)**

ELE 521 - Biomedical Sensor Engineering (3)

**ELE 532 - Semiconductor Device Fabrication Laboratory (3)**

ELE 535 - Integrated Circuit Engineering (3)

~~ELE 532 - Semiconductor Device Fabrication Laboratory (3)~~

ELE 537 - Hybrid Circuit Design (3)

ELE 538 - Thin Film Engineering (3)

ELE 630 - Advanced Integrated Circuit Engineering (3)

ELE 631 - VLSI Engineering: Computer-Aided Design (3)

ELE 632 - VLSI Engineering: Device Design (3)

ELE 633 - VLSI Engineering: Chip Design (3)

ELE 634 - Integrated Circuit Design for Testability (3)

ELE 635 - Advanced Electronic Devices (3)

ELE 636 - Design of Microsystems (3)

ELE 637 - Thin Film Resistive Sensors (3)

**Radio Frequency and Antenna Design (12)**

ELE 537 - Hybrid Circuit Design (3)

ELE 561 - Synthesis of Active and Passive Filters (3)

ELE 574 - Transmission Line Media and Wave Propagation (3)

ELE 575 - Antenna Theory and Design (3)

**ELE 635 - Advanced Electronic Devices (3)**

**ELE 660 - Digital and Analog Communication Systems (3)**

ELE 670 - Microwave Circuits and Devices (3)

**ELE 672 - Microwave Solid-State Devices and Circuits (3)**

ELE 673 - Time Harmonics Electromagnetic Fields (3)

ELE 674 - Microwave Measurement and Beam Instrumentation Laboratory (3)

ELE 677 - Advanced Microwave and Millimeter Wave Engineering (3)

~~ELE 635 - Advanced Electronic Devices (3)~~

~~ELE 660 - Digital and Analog Communication Systems (3)~~

~~ELE 672 - Microwave Solid State Devices and Circuits (3)~~

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#### **Doctoral Seminar (3)**

Students are required to register for three semesters of ELE 791, Doctoral Seminar.

#### **Technical Writing (3)**

All students must take ENGL 626, Technical Writing.

#### **Elective Course Work (45)**

An additional 45 semester hours of graduate course work as electives. Elective courses can be graduate courses in Electrical Engineering and related disciplines outside the department. All elective courses must be approved by the Graduate Studies Committee, in consultation with the faculty ~~advisor~~ ~~adviser~~ and the chair of the department. Students in the professional track need to take 3 ~~credit~~ ~~semester~~ hours of Industry Residency (ELE 701).

#### **Dissertation (27)**

A minimum of 27 semester hours in ELE 799, Doctoral Research and Dissertation.

#### **Candidacy Examination**

The candidacy exam is a written examination based on the core courses. The examination is to be taken within one year after completion of the core courses. A student who fails the candidacy examination may be granted the opportunity to retake it. Failure on the second attempt denies the student admission to candidacy.

#### **Dissertation Committee**

The dissertation committee for each student will be nominated by the chair of the department and appointed by the dean of the Graduate School. This committee will consist of three to five graduate faculty members and will otherwise meet the specifications of the Graduate School. It will be chaired by the faculty ~~advisor~~ ~~adviser~~, who is appointed by the chair of the department and the dean of the College of Engineering and Engineering Technology and the dean of the Graduate School.

#### **Dissertation Proposal Examination**

An oral examination of a proposal of a dissertation topic is required after the student has completed at least 45 semester hours of courses. This examination will be evaluated by the dissertation committee and must be found satisfactory before the candidate may continue his or her progress towards completion of the doctoral degree requirements. A student who fails the examination may be granted the opportunity to retake it. Failure on the second attempt will terminate the student from the Ph.D. program in Electrical Engineering.

#### **Oral Dissertation Defense**

An oral examination on the dissertation will be conducted by the dissertation committee according to the Graduate School regulations.

Department of Industrial and Systems Engineering

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### **Doctor of Philosophy in Industrial and Systems Engineering**

A Ph.D. in Industrial and Systems Engineering (ISYE) allows graduates to pursue professional careers at academic institutions, national research labs, federal and state agencies, and private and public corporations. Students enrolled in the program will develop the ability to identify and pursue important research questions pertaining to the field of Industrial and Systems Engineering. Students will also acquire the quantitative, qualitative, and methodological research skills needed to advance research findings that contribute to the development of the economy, society, and industry, either locally or globally. Training focuses on the engineering process, skills, and critical thinking necessary to design and execute scientific and engineering research. Training through research and study of the primary literature endows graduates of the program with enhanced content knowledge, applied skills and a fundamental understanding of the engineering process and technology to prescribe scientific solutions. The overall goal of the program is to train and develop advanced practitioners, researchers and teaching scholars in Industrial and Systems Engineering.

### **Learning Objective/Outcomes**

Graduates of the Ph.D. program in Industrial and Systems Engineering will be able to demonstrate the following objectives/outcomes:

- a) Advanced Knowledge. Master advanced concepts, methods and technologies in industrial and systems engineering thrust areas.
- b) Methods. Understand and apply research methodologies to relevant industrial and systems engineering questions, issues, and problems.
- c) Research. Conduct independent research that results in an original contribution to knowledge that meets all the standards for responsible conduct of research.
- d) Ethics. Demonstrate knowledge and understanding of ethical standards in executing research.
- e) Communication. Communicate research to both technical and general audiences in an effective manner through oral and written formats.

### **Admission Requirements**

Students seeking admission to the Ph.D. program in Industrial and Systems Engineering must have a B.S. degree. In addition to ~~The~~ Graduate School minimum requirements, applicants must also have a minimum GPA of 3.00/4.00 and submit three letters of recommendation.

### **Course Requirements**

The Graduate Studies Committee, in consultation with the faculty ~~advisor~~ and the chair of the department, is responsible for approving each student's program to meet the course requirements specified below. Each student must complete at least 90 semester hours of graduate course work after the baccalaureate

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degree. Students with a master's degree can transfer up to 30 semester hours of graduate course work. The committee will assess all work done at other institutions and will recommend acceptance of transfer semester credit for any graduate work deemed appropriate, subject to the policies of and approval by the Graduate School. In addition to meeting all of the course requirements below, students must ensure at least 1/2 half of their course work is at the 600-level or above, excluding dissertation hours.

The Graduate Studies Committee of the department is also responsible for the administration of the candidacy examination. In addition, all students are required to complete the following.

**Core Courses (12)**

All Ph.D. students must successfully complete:

- ISYE 671 - Linear Programming and Network Flows Credits: 3(3)

Students must complete at least three from the following list:

ISYE 510 - Human Factors Engineering (3)Credits:3

OR ISYE 691 - Occupational Ergonomics (3)Credits:3

ISYE 530 - Quality Control (3)Credits:3

OR ISYE 630 - Advanced Quality Control (3)Credits:3

ISYE 540 - Production Planning and Control (3)Credits:3

OR ISYE 640 - Advanced Production and Inventory Control (3)Credits:3

ISYE 570 - Introduction to Data Analytics for Engineers (3)Credits:3

OR ISYE 670 - Data Analytics for Engineers (3)Credits:3

ISYE 580 - Simulation Modeling and Analysis (3)Credits:3

OR ISYE 680 - Advanced Simulation Techniques (3)Credits: 3

**Seminar (3)**

Students are required to register for three semesters of ISYE 795, Doctoral Seminar.

**Technical Writing (3)**

All students must take ENGL 626, Technical Writing.

**Industry Residency (3)**

All students must take ISYE 701, Industry Residency after successfully completing the candidacy examination.

**Electives (48)**

An additional 48 semester hours of graduate course work as electives. Elective courses can be graduate courses in Industrial and Systems Engineering and related disciplines outside the department. All elective courses must be approved by the Graduate Studies Committee, in consultation with the faculty advisor and the chair of the department.

**Dissertation (21)**

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A minimum of 21 semester hours of ISYE 799, Doctoral Dissertation must be taken. The student must successfully pass the candidacy examination before taking ISYE 799.

#### **Candidacy Examination**

The candidacy exam is a written examination based on the core courses. The examination is to be taken within one year after completion of the core courses. The exam will cover linear programming, statistics, ergonomics, quality, production planning and simulation. A student who fails the candidacy examination may be granted the opportunity to retake it. Failure on the second attempt denies the student admission to candidacy.

#### **Dissertation Committee**

The dissertation committee for each student will be nominated by the chair of the department and appointed by the dean of the Graduate School. This committee will consist of three to five graduate faculty members and will otherwise meet the specifications of the Graduate School. It will be chaired by the faculty ~~advisor~~ adviser, who is appointed by the chair of the department and the dean of the College of Engineering and Engineering Technology and the dean of the Graduate School.

#### **Dissertation Proposal Examination**

An oral examination of a proposal of a dissertation topic is required after the student has completed at least 45 semester hours of courses. This examination will be evaluated by the dissertation committee and must be found satisfactory before the candidate may continue his or her progress towards completion of the doctoral degree requirements. A student who fails the examination may be granted the opportunity to retake it. Failure on the second attempt will terminate the student from the Ph.D. program in Industrial and Systems Engineering.

#### **Oral Dissertation Defense**

An oral examination on the dissertation will be conducted by the dissertation committee according to the Graduate School regulations.

### **Department of Mechanical Engineering**

**NOTE: ALL THE PH.D. PROPOSALS FROM THE COLLEGE OF ENGINEERING AND ENGINEERING TECHNOLOGY WERE NOT CONSIDERED BY THE GRADUATE COUNCIL AT THE REQUEST OF THE OFFICE OF THE PROVOST.**

BOT  
IBHE

Other Catalog Change

Page 155, 2017-18 Graduate Catalog

#### **Doctor of Philosophy in Mechanical Engineering**

The Department of Mechanical Engineering offers a program leading to the Ph.D. in mechanical engineering. A Ph.D. allows graduates to pursue professional careers at academic institutions, national research labs, federal and state agencies, and industry. Students enrolled in the program will develop the ability to identify and pursue important research questions pertaining to the field of mechanical engineering. Training focuses on the engineering process and critical thinking necessary to design and execute scientific and engineering research.

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### **Learning Objectives/Outcomes**

Graduates of the Ph.D. program in Mechanical Engineering will be able to demonstrate the following outcomes:

- a) *Advanced knowledge.* Master advanced concepts, methods and technologies in a core mechanical engineering thrust area.
- b) *Analysis.* Apply in depth qualitative analysis to relevant mechanical engineering questions, issues, and problems.
- c) *Research.* Conduct independent research that results in an original contribution to knowledge that meets all the standards for responsible conduct of research.
- d) *Ethics.* Demonstrate knowledge and understanding of ethical standards in executing research.
- e) *Communication.* Communicate research to both technical and general audiences in an effective manner through oral and written formats.

### **Admission Requirement**

Students seeking admission to the Ph.D. program in Mechanical Engineering must meet all requirements for admission to the Graduate School and shall have satisfied the requirements (or equivalent) for the B.S. in Mechanical Engineering at NIU. Students with backgrounds in fields other than mechanical engineering are encouraged to apply, but may be required to take a sequence of core mechanical engineering courses as part of the doctoral program. Students seeking admission who possess a master's degree will also be expected to have met the above requirements. In addition, the department asks for a personal statement along with three letters of recommendation. Admission to the Ph.D. program is not automatic for students completing their M.S. degree in the department. Master's students who desire to continue on to the Ph.D. must apply for admission. Nondegree applicants may be admitted for no more than 8 semester hours.

### **Course Requirements**

The Graduate Studies Committee, in consultation with the faculty ~~advisor~~ advise r and the chair of the department, is responsible for approving each student's program to meet the course requirements specified below. Each student must complete at least 90 semester hours of graduate course work after the baccalaureate degree. Students with a master's degree may be able to transfer up to 30 semester hours of graduate course work at the discretion of the Graduate Studies Committee. The Graduate Studies Committee, in consultation with the faculty ~~advisor~~ adviser and the chair of the department, will assess all work completed at other institutions and will recommend acceptance of transfer credit for graduate work deemed appropriate, subject to the policies of an approval by the Graduate School. Two-thirds of a student's coursework must be at the 600-level or above, with the exception of dissertation hours.

### **Core Courses (21)**

All students are required to take 21 semester hours in mechanical engineering at or above the 600-level, excluding MEE 697, MEE 698, MEE 699, MEE 701, MEE 795, and MEE 799. It is recommended that students choose a focus area related to their research, but taking any combination of ~~upper~~ upper-level mechanical engineering courses, not explicitly excluded above, will qualify towards this requirement.

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#### **Distribution Requirement (15)**

All students are required to take at least 15 semester hours of additional graduate course work pertaining to their research and field of study, excluding MEE 697, MEE 698, MEE 699, MEE 701, MEE 795, and MEE 799. At least three ~~semester credit~~ hours must be outside of the College of Engineering & Engineering Technology. At least three ~~semester credit~~ hours must be at the 600-level or above.

#### **Department Seminar (3)**

Students are required to register for and attend the department seminar, MEE 795, for three semesters total.

#### **Dissertation (27)**

Students must take a minimum of 27 semester hours in MEE 799, Doctoral Research and Dissertation.

#### **Elective Course Work (24)**

Students must take an additional 24 ~~semester credit~~ hours of graduate course work. This may include additional hours of dissertation, MEE 799, beyond the ~~27-27-semester hour credit~~ requirement, and it may include MEE 701, Industry Residency. The courses chosen to meet this requirement are subject to the approval of the Graduate Studies Committee, in consultation with the faculty ~~advisor~~ ~~advisor~~ and the chair of the department.

#### **Candidacy Exam**

The candidacy exam is an oral examination based on core courses that the student takes. The examination is to be taken within one year after completion of the core courses.

#### **Dissertation Committee**

The dissertation committee for each student will be nominated by the chair of the department and appointed by the dean of the Graduate School. This committee will consist of three to five graduate faculty members and will be chaired by the dissertation advisor who has been appointed by the chair of the department.

#### **Dissertation Proposal Examination**

An oral examination of a proposal of a dissertation topic is required after the student has completed at least 45 ~~credit semester~~ hours of courses toward the Ph.D. The examination will be evaluated by the dissertation committee and must be found satisfactory before the candidate may continue his or her progress towards completion of the doctoral degree requirements.

#### **Oral Dissertation Defense**

An oral examination on the dissertation will be conducted by the dissertation committee according to Graduate School regulations.

#### **Professional Track**



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There is an opportunity for those wanting to work in industry after obtaining a Ph.D. Students in the professional track work on research projects of interest to an industrial collaborator. Such students are required to take at least three ~~credit-semester~~ hours of MEE 701, Industry Residency, as elective course work. Other elective courses may focus on business, finance, or other subjects relevant to the professional goals of the student, subject to approval by the ~~advisor~~ and Graduate Studies Committee.

## COLLEGE OF HEALTH AND HUMAN SCIENCES

BOT/ Other Catalog Change Page 190 2017-18 Graduate Catalog  
IBHE

### Master of Science in Health Sciences

This 30-~~semester-semester~~-hour program prepares students from a variety of health-related fields to become managers, educators, and leaders in health-related professions or to progress to doctoral studies. Students develop competencies in interdisciplinary communication skills, quality measurement of health services, culturally-aware leadership, and evidence-based analysis to function effectively in professional and academic environments. Courses include core content and a focused area to meet student learning goals developed in discussion with ~~advisor~~. Core content includes foundational research methods, statistics, management, and systems- or theory-based courses. Requirements for electives can be fulfilled by courses to expand knowledge and skills such as the topics of evidence-based practice, cultural diversity, leadership, policy, and communication or a focused content area. Students can complete the program through online course work and additionally can participate in on-campus offerings, as desired.

The student learning outcomes for this degree are located at:  
[www.niu.edu/assessment/clearinghouse/outcomes/index.shtml](http://www.niu.edu/assessment/clearinghouse/outcomes/index.shtml).

The objectives of the interdisciplinary M.S. in Health Sciences program will be to support student abilities to:

Critically appraise research to evaluate the level of evidence supporting best practices,

Demonstrate preparedness for continued development of research and advocacy skills,

Demonstrate the interdisciplinary communication skills necessary to function effectively in today's professional and academic environments

Apply in-depth knowledge of content areas to quality measurement of health and human services,

Become efficient in discerning, implementing, and evaluating new developments and advances in health sciences,

Evaluate legal and ethical considerations for professional practice,

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Develop strategies for a diverse, culturally-aware work or learning environment.

Create a professional development plan for enhancing professional competency that includes a personal vision statement, philosophy, mission, and goals.]

### Admissions

To be admitted to the M.S. in Health Sciences program students must be admitted to the Graduate School and must have obtained a baccalaureate or higher degree in a field of study related to Health Sciences, prior to the start of the NIU term for which the student is admitted. Required application materials include: a minimum of ~~2~~two letters of recommendation, a statement of purpose to demonstrate communication skills and interest in the program, and an official GRE score. Scores on the GRE are waived for applicants who earned a bachelor's degree with a GPA of 3.25 or higher from an accredited institution. The program will assess preparedness and academic potential in the unique context of each student's personal experience and career goals. Admission assessment will consider all achievements, both academic and non-academic, to enroll students with a broad range of characteristics and perspectives. Prospective students may be admitted to begin in the fall or spring semesters.

### Requirements

The M.S. in Health Sciences requires a minimum of 30 semester hours of graduate course work, determined jointly by the student and ~~advisor~~adviser. The approved program of courses includes general requirements in health sciences and electives as follows.

### Core Coursework (15)

HSCI 560<sup>1</sup> - Research Methods in Health and Human Sciences (3),

OR ETR 520 - Introduction to Research Methods in Education (3),

OR HDFS 604/~~NUTR 604X~~ - Research Methods (3),

~~OR NUTR 604X - Research Methods (3)~~

PHHE 605 - Biostatistics in Public Health (3),

OR ETR 521 - Educational Statistics I (3),

OR BIOS 670 - Biostatistical Analysis (3)

PHHE 601 - Introduction to Health Systems in the United States (3),

OR HDFS 532 - Theories of Child Development (3),

OR HDFS 584 - Family Theories (3)

HSCI 600 - Seminar: Topics in Health Sciences (2)

HSCI 698 - ~~Master's~~ Comprehensive Examination (1)

Select one of the following (3)

AUD 612B - Professional Issues II: Practice Management (3)

HSCI 550<sup>1</sup> - Administration for Professionals in Health and Human Sciences (3)

MGMT 635 - Managing Individuals, Teams, and Organizations (3)

PHHE 624 - School Health Programs: Planning, Managing, and Evaluating (3)

PHHE 655 - Human Resource Management in the Health Care Setting (3)

GERO 568 - Leadership in Aging Services (3)

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Three semester hours selected in consultation with the student's program ~~advisor~~ advisor (3)

#### Elective Course ~~W~~work<sup>2</sup>

Three of the following including at least one 600-/700-level course (8-9)

AUD 612A - Professional Issues I: Foundations of Practice (2)

COMS 672 - Seminar in Organizational Development and Communication (3)

COMS 680 - Seminar in Conflict Management and Negotiation (3)

GERO 567 - Fieldwork in Gerontology (3)

HDFS 583<sup>1</sup> - Social Policy, Children and Families (3)

HDFS 588<sup>1</sup> - Working with Ethnically Diverse Children and Families in the United States (3)

HDFS 685 - Family Stress and Structural Diversity (3)

HSCI 640 - Communication for Health Professionals (3)

HSCI 567 - Internship in Health Sciences (3)

MGMT 505 - Principles of Management (2)

NURS 704 - Clinical Prevention ~~for Population Health~~ in Advanced Nursing (3)

PHHE 510<sup>1</sup> - Coping with Death, Dying, and Loss (3)

PHHE 535<sup>1</sup> - Ethical Decision Making for Health Professionals (3)

PHHE 613 - Principles and Methods of Epidemiology (3)

UHHS 630 - Interdisciplinary Perspectives on Quality and Customer Satisfaction ~~on~~ in Healthcare Settings (3)

Additional course work selected in consultation with the student's program ~~advisor~~ advisor (6-7)

#### Footnotes:

<sup>1</sup> Students with prior credit in the 400-level option for this course should select an alternative

<sup>2</sup> Course work related to a content area or to complete a Certificate of Graduate Study in the major college may apply with approval of the program ~~advisor~~ advisor.

#### Comprehensive Examination

The comprehensive examination requirement is fulfilled by successfully completing and presenting a portfolio of student work that demonstrates competency in the core course work of the program and includes a professional development plan. Students must have completed 21 ~~credit~~ semester hours toward the M.S. degree in order to participate in the portfolio process.

#### Limitation of Time

The student must fulfill all requirements for a degree within the six consecutive years immediately preceding the date of graduation for all graduate course work used to satisfy degree requirements consistent with Graduate Degree requirements.

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## Department of Computer Science

BOT/ Other Catalog Change Page 223, 2017-18 Graduate Catalog  
IBHE

### Doctor of Philosophy in Computer Science

Students seeking admission to the Ph.D. program in computer science must meet all the requirements for admission to the Graduate School; must have a baccalaureate or master's degree in computer science or a related field; and should have a background equal to that required for the B.S. degree at Northern Illinois University.

### Requirements

A program of study designed by the student and the adviser to meet the course requirements specified below must be approved by the Department of Computer Science. Each student must complete at least 90 semester hours of graduate course work.

Students must obtain prior departmental approval to apply courses not offered by the Department of Computer Science to their programs of study. No more than 12 credit hours may be outside the Department of Computer Science.

Check departmental information for any additional requirements.

The student learning outcomes for this degree are located at [http:// www.niu.edu/assessment/clearinghouse/outcomes/index.shtml](http://www.niu.edu/assessment/clearinghouse/outcomes/index.shtml).

The requirements for the Ph.D. degree are as follows:

- I. Requirements for the M.S. in Computer Science with thesis option (31)
- II. Research methods course (3)
- III. Advanced course work (12)
- IV. Dissertation (24-44)
- V. Electives (0-20)

Total (90)

Graduate-level courses for which there exists an undergraduate equivalent (typically courses that are offered as 400/500 classes) shall not constitute more than 50% of hours, exclusive of dissertation hours, applied toward a doctoral degree.

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Details for each category are listed below.

#### I. Requirements for the M.S. in Computer Science with thesis option (31)

Students must complete the M.S. program in Computer Science with the thesis option at NIU, or its equivalent elsewhere.

A student who has already taken this course as part of the M.S. degree in Computer Science must take 3 additional semester hours of electives instead. If a student has taken an equivalent course elsewhere, the student's ~~advisor~~ ~~advisor~~ may recommend to the department that this requirement be waived, in which case the student must take 3 additional semester hours of electives instead.

#### II. Research methods (3)

Students must complete the following course.

CSCI 701 - Research Methods in Computer Science (3)

A student who has already taken this course as part of the M.S. degree in Computer Science must take 3 additional semesters of electives instead. If a student has taken an equivalent course elsewhere, the student's advisor may recommend to the department that this requirement be waived, in which case the student must take 3 additional semester hours of electives instead.

#### III. Advanced course work (12)

Students must take four courses chosen from the following.

Data Analytics:

CSCI 637 - Pattern Recognition and Data Mining II (3)

CSCI 647 - Advanced Discrete Simulation (3)

CSCI 658 - Natural Language Processing II (3)

CSCI 659 - Intelligent Interactive Systems (3)

Graphics and Visualization:

CSCI 628 - Information Visualization (3)

CSCI 629 - Scientific Visualization (3)

CSCI 632 - Advanced Computer Graphics (3)

CSCI 634 - Computer Vision (3)

CSCI 635 - Virtual Reality (3)

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#### Bioinformatics:

CSCI 653 - Algorithmic Bioinformatics II (3)

#### IV. Dissertation (24-44)

Students must complete a minimum of 24 semester hours of the following course:

CSCI 799 - Doctoral Research and Dissertation.

#### V. Elective cCourse wWork (0-20)

Students must complete sufficient semester hours of electives to fill out their program. Elective course work includes CSCI courses in the range 500-798, excepting 699, that have not been used to satisfy another requirement. Students may take up to 12 semester hours from other departments in courses relevant to the student's dissertation and subject to department approval.

#### Language/Research Tool Requirements

Students fulfill this requirement by passing the two courses listed below.

Since computer programming is a required tool for a Ph.D. in Computer Science, successful completion of CSCI 601, CSCI 602, or CSCI 603, or departmental approval, as required by the M.S. in Computer Science, counts as one of the research tool courses.

CSCI 701 - Research Methods in Computer Science, counts as the other research tool course.

#### Qualifying Examination

The qualifying examination for the Ph.D. consists of writing and successfully defending a master's thesis in Computer Science in the department. If a student has written and defended a master's thesis before entering the program, the student's Ph.D. ~~advisor~~ adviser will advise the department on whether the student has satisfied this requirement. Students are generally expected to pass the qualifying examination by the end of their second year in the program. Students who fail the examination may, with permission of the department, repeat it once.

#### Candidacy Examination

The candidacy examination for the Ph.D. consists of writing a dissertation proposal and successfully passing an oral examination based on that proposal. Students are generally expected to pass the candidacy examination within two years of the completion of the qualifying examination. Students who fail the examination may, with permission of the department, repeat it once.

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### Dissertation Committee

The department chair, in consultation with the chair of the doctoral committee and the student, will nominate a doctoral committee to be appointed by the dean of the Graduate School. This committee will consist of three to five members. Adjunct graduate faculty may serve on the doctoral committee; a majority of the committee, however, must be regular members of the graduate faculty in the Department of Computer Science.

### Oral Dissertation Defense

An oral examination on the dissertation will be conducted by the dissertation committee according to Graduate School regulations. Students must be enrolled for at least 2 semester hours of credit in the semester in which the examination is taken. Students who fail the examination may, with permission of the department, repeat it once.

## Department of Foreign Languages and Literatures

Pres. Other Catalog Change  
Freeman/  
BOT

Page 239-240, 2017-2018 Graduate Catalog

### Master of Arts in **World Languages and Cultures - Spanish and Hispanic Studies**

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#### Requirements

Students are required to complete a minimum of 30 semester hours of graduate credit. A student's program of courses should be formally approved by the graduate coordinator early in the program of study.

~~During their last semester of study, candidates are required to pass an oral comprehensive examination demonstrating a satisfactory level of communicative competence and the ability to integrate a knowledge of language, literature, and culture effectively.~~

Students fulfill the requirements of the M.A. by choosing one of two options:

Option 1. Successful completion of ~~ten~~10 regular courses and a two-part comprehensive examination based on course work and the graduate reading list. The examination consists of a written and an oral exam.

Option 2. Successful completion of nine regular courses, a written thesis (FLSP 699) and an oral defense that includes a comprehensive examination based on course work.

~~Specialization in Spanish~~

Choose among the following courses:

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Linguistics (3-9)

FLAL 583 - Applied Linguistics and the Romance Languages (3)

↓

FLSP 591 - History of the Spanish Language (3)

~~FLST 683D – Research Seminar in Languages and Linguistics: Spanish (3)~~

Translation and Business (6-9)

**FLAL 515 - Internship in World Languages and Cultures (3)**

**FLAL 520 - Introduction to Translation Theory (3)**

FLSP 514 - Spanish Business Communications (3)

↓

FLSP 589 - Consecutive Interpretation: Theory and Practice (3)

~~FLST 684D – Research Seminar in Translation: Spanish (3)~~

~~FLAL 520 – Introduction to Translation Theory (3)~~

Culture and Literature (9-15)

FLSP 531 - Spanish Golden Age Poetry (3)

↓

FLSP 560 - Contemporary Spanish American Literature (3)

FLSP 561 - ~~Special Topics~~ **Seminar on the Cultures of** in Spanish Civilization (3)

FLSP 562 - ~~Special Topics~~ **Seminar in Spanish-American Civilization** **on the Cultures Latin America** (3)

FLSP 563 - Hispanic Culture through Film (3)

~~FLST 640D – Research Seminar in Literature: Spanish (3)~~

~~FLST 661D – Research Seminar in Civilization and Culture: Spanish (3)~~

Elective (**0-3**)

With the consent of their graduate advisory committee, students may select from the following language-related courses, or they may select other graduate-level courses which have a direct bearing on their program of study.

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HIST 518 - Modern European Cultural History (3)

~~Practicum~~/Thesis (3)

~~FLSP 590 – Practicum in Spanish (3)~~

~~OR~~ FLSP 699 - Master's Thesis in Spanish (1-3)

Students need to take 3 semester hours **altogether** in this course. **During the first semester of writing the thesis, students should sign up for 1 ~~credit~~semester hour.**



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### School of Art and Design

Pres. Other Catalog Change: Page 299, 2017-18 Graduate Catalog  
Freeman

#### Art Education

##### Master of Science in Art

↓

##### Specialization in Art and Design Education (30)

Applicants for the M.S. degree with a specialization in art and design education ... Art and Design.  
Students must complete 30 semester hours as follows.

↓

Additional electives ... approved by the School of Art and Design (12)

Students may complete their 30 semester hours by taking these courses online.

A maximum of 9 semester hours may be taken outside the School of Art. Any program requires the written approval of the major adviser.

Pres. Other Catalog Change: Page 299, 2017-18 Graduate Catalog  
Freeman

#### Art Education

##### Master of Science in Art and Design

##### Educator Licensure – Track 1<sup>1</sup>

↓

##### Admission Requirements

Successful completion of the Illinois Test of Basic Skills, Test of Academic Proficiency or ACT substitution.  
Completion of ARTE 342 542 with a grade of at least C.  
Admission to the School of Art and Design.

##### Retention

Students must remain in good standing in the Graduate School. In addition students must maintain an average 3.00 GPA or higher, and receive no final grade lower than C in art education methods courses (ARTE 342 542, ARTE 344 544, ARTE 545; and ARTE 563, and ART 682).

↓

##### Requirements

Studio and art ... recognized institutions.

~~ARTE 342—Introduction to Art Education: Content and Clinical  
Experience at the Elementary Level (3)~~

~~ARTE 344—Resources and Methods in Art Education: Content and~~

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~~Clinical Experience at the Middle Level (3)~~

~~ARTE 488A— Student Teaching in Elementary Art (6)~~

~~ARTE 488B— Student Teaching in Secondary Art (6)~~

ARTE 500 - Studio Foundations for Art and Design Educators (3)

ARTE 542 - Introduction to Art Education (4)

ARTE 543 - Art and Technology in the K-12 Classroom (3)

ARTE 544 - Resources and Methods in Art Education: Content and Clinical Experience at the Middle Level (4)

ARTE 545 - Curriculum Development in Art and Design Education (4).

ARTE 563 –Reading and Writing in Art and Design Education: Critical Approaches (3)

ARTE 588A - Student Teaching in Elementary Art (6)

ARTE 588B - Student Teaching in Secondary Art (6)

ARTE 679 - Art Education for Special Needs Populations (3),

OR SESE 557 - Methods for Including Middle and Secondary Students with Exceptionalities in the General Education Classroom (3)

~~ARTE 682—Curriculum Development in Art and Design Education (3)~~

ARTE 684 - History and Philosophy of Art Education (3)

↓

Also see “Educator Licensure Information.”

**Educator In-Service: Online or Blended – Track 2**

**Requirements**

ARTE 543 - Art and Technology in the K-12 Classroom (3)

ARTE 682 - Curriculum Development in Art and Design Education (3)

ARTE 684 - History and Philosophy of Art Education (3)

ARTE 685 - Research Readings in Art Education (3)

ARTE 687 - Evaluation and Assessment in Art Education (3)

ARTE 780 -Research Development and Writing (9)

Seminar courses consisting of any combination of the following (6)

ART 680 Seminar (3-6)

ARTE 683 - Seminar in Art Education (3-6)

BOT Other Catalog Change: Page 299, 2017-18 Graduate Catalog

**~~Specialization in Art Education under the Doctor of Education in Curriculum and Instruction~~**

~~This is a professional degree, . . . . . and/or demonstrated field leadership.~~

**~~Admission~~**

~~Decisions about admission . . . . . for the appeal.~~

**~~Deficiency Study~~**

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~~In cases ... .. may be prescribed.~~

**Requirements**

~~The doctoral program ... .. research competencies~~

**Examinations**

~~A candidacy examination ... .. of the Graduate School.~~

Pres. Other Catalog Change: Page 302, 2017-18 Graduate Catalog

Freeman

**Doctor of Philosophy in Art and Design Education**

↓

**Admission**

A student seeking admission to the Ph.D. program in Art and Design Education in the School of Art and Design must ... .. criteria.

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**Dissertation Committee**

Upon successful completion of the candidacy examination, a dissertation committee for the student will be nominated by the Art and Design Education Division of the School of Art and Design ... .. Graduate School.