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COLLEGE OF BUSINESS

Other catalog change   Page 57, 2017-18 Graduate Catalog

College Mission Statement
~~Create innovative academic and business experiences through partnerships among students, faculty, staff, alumni, and the business community.~~ Create knowledge; transform business; and develop principled, adaptable global citizens through innovative active learning and personalized experiences.

Department of Accountancy

New course: Page 63, 2016-17 Graduate Catalog

CIP: 52.03

515. DATA ANALYTICS IN ACCOUNTING (3). Study of the use of accounting data to identify, analyze, and solve business problems. Examines the processes needed to develop, report, and analyze accounting data and the business risks related to data collection, storage, and use. A student may not receive credit for both ACCY 415 and ACCY 515. A student must earn a grade of C or better in an accounting information systems course, two intermediate financial accounting courses, and an assurance services course prior to enrollment.

Other catalog change: Pages 61-62, 2016-17 Graduate Catalog

Master of Accounting Science
↓
Phase Two
↓
Leadership Area of Study
Students pursuing the Leadership area of study must complete a minimum of 30 semester hours of course work and all required activities related to professional development. Students may pursue a program of study with an emphasis on financial reporting and assurance, managerial accounting systems, data analytics, or taxation, or may work with an adviser to tailor a program of study to their specific academic and career goals.
↓

Other catalog change: Page 63, 2016-17 Graduate Catalog

Certificate of Graduate Study
Foundation of Accountancy (15)
↓
The certification … … criteria follow:
 - An undergraduate degree with a cumulative GPA of 2.75.

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- A grade of C or better in a financial accounting concepts course taken within the last five years or pass the related exemption exam, or department consent.
- A grade of C or better in a managerial accounting concepts course taken within the last five years or pass the related exemption exam, or department consent.
- ~~A minimum TOEFL score of 100 with a minimum writing score of 26, or a minimum IELTS score of 6.5 with a minimum writing score of 7 for international students.~~

Students interested in the certificate should apply no later than the Graduate School fall admission deadline. Students who are not already admitted to the Graduate School, will be required to complete a Graduate School on-line application as a Student-at-Large. Students are also required to complete an application with the certificate coordinator. ~~The department application for admission and other pertinent information are available on the Department of Accountancy website:~~ www.cob.niu.edu/accy/.
↓

Department of Operations Management and Information Systems

All University Section

The Graduate School

Other catalog change: Pages 12-13, 2016-17 Graduate Catalog

Graduate Concentrations and Certificates of Graduate Study
↓
Certificates of Graduate Study
↓
Curriculum Adaptations Specialist
Data Analytics Using SAS Software—SAS Joint Certificate Program
Digital Image Processing
↓

Directory for Correspondence

Other catalog change: Page 15, 2016-17 Graduate School

Graduate Concentrations and Certificates of Graduate Study
↓
Curriculum Adaptations Specialist: Chair, Department of Special and Early Education
Data Analytics Using SAS Software—SAS Joint Certificate Program: Chair, Department of
          Operations Management and Information Systems
Digital Image Processing: Chair, Department of Electrical Engineering
↓

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Department Section

Other catalog change: Page 74, 2016-17 Graduate School

Certificates of Graduate Study
Business Analytics Using SAP Software (12)
↓
Data Analytics Using SAS Software—SAS Joint Certificate program (12)
Coordinator: Steven Kispert, Department of Operations Management and Information Systems

This certificate is designed for all graduate students. It helps organizations harness their data and use it to identify new opportunities. That, in turn, leads to smarter business moves, more efficient operations, higher profits and happier customers. The explosion of data isn't new. What has changed is the velocity of growth, the diversity of the data and the imperative to make better use of information to transform the business. Data Analytics has been consistently ranked as one of the top 10 hottest technical areas by the *ComputerWorld*. This is true across every industry and discipline, including: accounting, management, marketing, finance, information systems, operations, health care, engineering, and energy. Nearly all organizations need talented professionals who understand how to manage data and how to gain clarity from it.

SAS is the leader in business analytics application software. SAS analytical talent is in short supply and high demand in today's business world. This certificate is a SAS Joint Certificate Program approved by SAS Global Academic Program to prepare students to work in a data-rich environment.

Students must maintain good academic standing within the university, achieve a minimum grade of a B in each course applied toward the certificate. Some courses may have prerequisites that are not part of the certificate curriculum.

Students interested in the certificate should apply no later than the beginning of their final semester prior to graduation. Applications are available in the Department of Operations Management and Information Systems.

Required Courses:
OMIS 661 - Business Intelligence Applications and Tools (3)
OMIS 665 - Big Data Analytics for Business (3)
OMIS 670 - Social Media Analytics for Business (3)
OMIS 694 - Advanced Topics in Information Systems (3) (For this certificate students must take the topic: SAS Data Analytics)

COLLEGE OF EDUCATION

Other Catalog Change   Page 78, 2016-17 Graduate Catalog

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Certificates of Graduate Study
↓
Workplace Learning and Performance (18)

The certificate … … development.

CAHA 533 - ~~Learning How to Learn:~~ Applied Learning ~~Theory~~ Theories ~~for Adults~~ in Postsecondary Education (3)
↓
CAHA 530 - Instructional Theory~~, and~~ Practice and ~~in~~ Teaching in Postsecondary Education ~~Adults~~ (3)
CAHA 540 - Curriculum and Program Development in Postsecondary Contexts ~~Adult Education~~ (3)
↓

Department of Counseling, Adult and Higher Education

Course Revisions   Page 85, 2016-17 Graduate Catalog

CAHA 530. INSTRUCTIONAL THEORY~~, AND~~ PRACTICE AND ~~IN~~ TEACHING IN POSTSECONDARY EDUCATION ~~ADULTS~~ (3). Development of methods, techniques, and strategies for the instruction ~~of adults~~ in postsecondary contexts.

CAHA 533. ~~LEARNING HOW TO LEARN:~~ APPLIED LEARNING ~~THEORY~~ THEORIES ~~FOR ADULTS~~ IN POSTSECONDARY EDUCATION (3). Understandings and skills that enable adults to learn effectively in classrooms, small groups, and individually. Participation training and self-directed education in a laboratory setting. ~~Implications for adult education agencies.~~

CAHA 540. CURRICULUM AND PROGRAM DEVELOPMENT IN ~~ADULT EDUCATION~~ POSTSECONDARY CONTEXTS (3). Application of curriculum development and program planning principles to education and training programs designed specifically for ~~the adult learner~~ postsecondary contexts.

CAHA 733. THEORY BUILDING FOR LEARNING ~~HOW TO LEARN IN ADULT EDUCATION~~ IN POSTSECONDARY EDUCATION (3). Analyses of theory building for learning how to learn with emphasis on understanding theories and the application of ~~learning how to learn~~ these theories in varied ~~adult~~ postsecondary education~~al~~ contexts. ~~PRQ: CAHA 533.~~

CAHC 765. MULTICULTURAL COUNSELING AND SOCIAL JUSTICE (3). Alternate counseling … … institutional systems. ~~PRQ: CAHC 530 or consent of department.~~

Other Catalog Change   Page 79-80, 2016-17 Graduate Catalog

Master of Science in Adult and Higher Education

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↓
Non-Thesis Option
↓
Specialization in Adult Education
↓
Specialization Core
↓
CAHA 540 - Curriculum and Program Development in Postsecondary Contexts ~~Adult Education~~ (3)
CAHA 598 - Issues in Adult and Higher Education (3)
↓
Teaching and Adult Development
Four of the following:
CAHA 530 - Instructional Theory, ~~and~~ Practice and ~~in~~ Teaching in Postsecondary Education ~~Adults~~ (3)

Other Catalog Change   Page 79-80, 2016-17 Graduate Catalog

Doctor of Education in Adult and Higher Education

The Ed.D. program in adult and higher education provides a ~~flexible system of professional study~~ sequenced program with course work in areas of instruction, educational policy, administration, and research to prepare both generalists and specialists in the field. Doctoral students in adult and higher education prepare for leadership roles in a variety of adult and higher education ~~endeavors~~ contexts including student affairs, academic affairs, and other areas of higher education administration. ~~Adult and higher education can be formal or informal, traditional or nontraditional, and embraces such areas as adult basic education, adult English as a second language, human resource development, continuing professional education, community education, and higher education.~~

The student learning outcomes for this degree are located at
http://www.niu.edu/assessment/clearinghouse/outcomes/index.shtml.
↓
Application Deadlines
↓
Admission
Admission to the doctoral program requires a master's degree either in adult and higher education or in another discipline acceptable to the admissions committee. Three letters of recommendation are required from professors, employers, or supervisors who can provide supportive evidence of an applicant's professional qualifications and potential. Each applicant must submit a ~~writing sample (e.g., scholarly paper, professional report) of which the applicant is the sole author~~ resume/CV and written goals statement. Ordinarily, an interview … … additional requirements.

~~An applicant may submit MAT scores in lieu of the GRE scores. Students who have successfully completed a master's degree at an accredited institution may have the GRE requirement waived upon successfully completing two NIU adult and higher education courses and having an assessment letter~~

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~~written by each instructor.~~
↓
Requirements
↓
Common Requirements (~~15~~ 21)
CAHA 570 - Organization, Personnel Management, and Academic Administration (3)
CAHA 701 - Professional Practices in Adult and Higher Education (3)
CAHA 702 - Philosophy of Postsecondary Education (3)
CAHA 720 - Review of Research in Adult and Higher Education (3)
~~CAHA 721 - Applied Research Design in Adult and Higher Education (3)~~
CAHA 757 - Seminar in Higher Education (3)
CAHE 770 - Administration of Higher Education (3)
CAHA 798 - Research Seminar in Adult and Higher Education (3)

Research Methodology Requirements (~~9~~ 12)
~~At least 9 semester hours must be in research methodology, not including ETR 520 or its equivalent. These requirements may not be met through independent study.~~
CAHA 721 - Applied Research Design in Adult and Higher Education (3)
CAHE 572 - Assessment Methods in Higher Education (3)
ETR 521 - Educational Statistics 1 (3)
ETR 790 – Workshop: Community-Base and Participatory Action Research (3)

~~**Major Field of Study (18)**~~
~~Adult and Higher Education (CAHA/CAHE) … … within the university.~~

~~**Cognate (Optional)**~~
~~A cognate is a cluster … … within the university.~~

Emphasis (15):
(choose with guidance from academic ~~counselor~~adviser)

College Teaching
CAHA 530 - Instructional Theory, Practice and Teaching in Postsecondary Education (3)
CAHA 733 - Theory Building for Learning in Postsecondary Education (3)
CAHA 740 - Pedagogical Innovations and Student Learning (3)
CAHA 759 - Critical and Feminist Pedagogies in Adult and Higher Education (3)
~~CAHA 740 - Pedagogical Innovations and Student Learning (3)~~
Elective (3)

Higher Education Administration
CAHA 575 - Public Policy Studies in Higher Education (3)
CAHE 503 – U.S. College Students
CAHE 771- Legal Aspects of Higher Education Administration (3)

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CAHE 772 - Financing ~~of~~ Higher Education (3)
Elective (3)
↓
CAHA 799- Doctoral Research and Dissertation (12)
↓
Examinations
Qualifying examination. Before attempting … … part of a master's program.

Candidacy examination. ~~A written~~ Students will need to successfully pass their candidacy examination prior to registering for CAHA 799 - Doctoral Research and Dissertation. ~~is scheduled and administered at least twice each year. This~~ The examination is offered in several formats, to be decided in conjunction with the program committee. A graduate student eligible to take this examination, with the permission of the chair of the doctoral committee, will have completed at least two-thirds of his or her courses, exclusive of dissertation research, but including the common requirements. ~~This examination encompasses major areas of professional knowledge.~~

Once a student has successfully completed ~~all~~ the candidacy examination~~s~~ and is admitted to candidacy, she or he … … all Graduate School requirements.

Other Catalog Change   Page 83, 2016-17 Graduate Catalog

Certificates of Graduate Study

Adult Education (18)
↓
CAHA 540 - Curriculum and Program Development in Postsecondary Contexts ~~Adult Education~~
(3)
Two of the following (6)
CAHA 530 - Instructional Theory, ~~and~~ Practice and ~~in~~ Teaching in Postsecondary Education ~~Adults~~ (3)

Other Catalog Change   Page 83-84, 2016-17 Graduate Catalog

Certificates of Graduate Study
↓
College Teaching (~~18~~ 12)
The certificate of graduate study in college teaching is available to any graduate-level student in good standing. This certificate is designed to prepare or enhance professionals relative to the role of faculty in various postsecondary institutional contexts. Courses focus on understanding higher education institutions and the expected roles of faculty in different institutional contexts, developmental and learning theories for various student populations, online technologies, and assessment practices in student learning.

Requirements (6)
~~CAHA 501 - Adult Learning: Maturity through Old Age (3)~~

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CAHA 530 - Instructional Theory~~, and~~ Practice and ~~in~~ Teaching in Postsecondary Education ~~Adults~~ (3)
CAHA 533 – ~~Learning How to Learn:~~ Applied Learning ~~Theory~~ Theories ~~For Adults~~ in Postsecondary Education (3)
~~CAHE 522 - Student Development in Higher Education: Programs, Issues, and Practices (3)~~

~~Three~~ Two of the following (~~9~~ 6)
~~CAHA 502 - Educating Culturally Diverse Adults (3)~~
~~CAHA 533 - Learning How to Learn: Applied Theory for Adults (3)~~
CAHA 540 - Curriculum and Program Development in ~~Adult Education~~ Postsecondary Contexts (3)
~~CAHA 555 - Seminar in the Community College (3)~~
~~CAHA 586 - Internship in Adult and Higher Education (3)~~
CAHA 590[1] - Workshop in Adult and Higher Education (3)
CAHA 733 - Theory Building for Learning ~~How to Learn in Adult Education~~ in Postsecondary Education (3)
CAHA 740 - Pedagogical Innovations and Student Learning (3)
CAHA 759 – Critical and Feminist Pedagogies in Adult and Higher Education (3)
~~CAHE 509 - Campus Environments and Student Cultures (3)~~
~~CAHE 770 - The Administration of Higher Education (3)~~
~~EPFE 723 - History of Higher Education (3)~~
ETT 510 - Instructional Media and Technology (3)
ETT 535 - Distance Education: Design and Delivery (3)
~~LTRE 719 - Principles and Methods of Teaching Postsecondary Reading (3)~~

Other Catalog Change   Page 84, 2016-17 Graduate Catalog

Certificates of Graduate Study
↓
Higher Education Administration (~~18~~ 12)
The certificate of graduate study in higher education administration allows students seeking professional careers in higher education to pursue graduate-level study in one or more of the following areas related to two- and four-year institutions of higher education: higher education administration, student personnel services, curriculum development, and teaching.

~~This certificate of graduate … … required studies.~~

Students who wish to pursue this certificate of graduate study must complete an application with the ~~coordinator of the certificate of graduate study in higher education~~ academic counselor. Students will need to gain approval from the academic counselor regarding which ~~specifying those 18~~ 9 semester hours from the list below ~~which~~ will comprise the course work for the certificate. ~~Graduate students enrolled in a degree program should consult with their major adviser before completing an application with the higher education certificate coordinator.~~

Four of the following (12)

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~~CAHA 757 - Seminar in Higher Education (3)~~
~~CAHE 702 - Student Development in Higher Education: Theory and Practice (3),~~
~~OR CAHE 770 - The Administration of Higher Education (3)~~
~~EPFE 723 - History of Higher Education (3)~~
~~Three of the following (9)~~
CAHA 555 - Seminar in the Community College (3)
CAHA 575 – Public Policy Studies in Higher Education (3)
~~CAHA 560 - Nontraditional Adult Higher Education (3)~~
~~CAHA 568 - Continuing Higher Education (3)~~
CAHA 590[1] - Workshop in Adult and Higher Education (3)
CAHE 509 - Campus Environments and Student Cultures (3)
CAHE 522[2] - College Student Development Theory (3)
CAHE 572[2] or ETR 572X[2] - Assessment Methods in Higher Education (3)
CAHE 701 - Student Affairs Administration and Practice (3)
CAHE 702- Advanced College Student Development Theory (3)
~~CAHE 751 - Community College Student Personnel Services (3)~~
CAHE 770[2]- The Administration of Higher Education (3)
CAHE 771 - Legal Aspects of Higher Education Administration (3)
CAHE 772 - Financing Higher Education (3)
~~LTRE 719 - Principles and Methods of Teaching Postsecondary Reading (3)~~
~~Individualized study (3).~~
~~Students may take up to 3 … … dissertation hours.~~

[1]Workshop must be directly related to higher education and approved by the higher education certificate coordinator.
[2]~~If not taken to fulfill requirements above.~~ Cannot be used if student is enrolled in adult and higher education master's degree.

COLLEGE OF ENGINEERING AND ENGINEERING TECHNOLOGY

Department of Electrical Engineering

<u>New Course</u>:   2017-18 Graduate Catalog

CIP Code: 014.1001

559. SIGNAL PROCESSING DETECTION THEORY (3). Hypothesis Testing; Neyman-Pearson detector; Receiver Operating Characteristic (ROC) Curve; Bayesian detector; Composite Hypothesis Testing; Multiple Hypothesis Testing (Classification problems); detection of deterministic and random signals; detection of signals with unknown model parameters and the GLRT detector; detectors based on machine learning approaches. PRQ: ELE 360 or consent of department.

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Course Revision: 2017-18 Graduate Catalog

557. PROCESSOR-BASED SYSTEMS (3). Analysis of contemporary processor/core based systems including desktop, laptop, tablet computers, smart phones, MP3 players, Smart TVs. Emphasis on components such as memory, display, I/O, touch screen, USB, HDMI, Wi-Fi, BT, and GPS. PRQ: ELE 356 and ELE 360 and consent of department.

Department of Industrial and Systems Engineering

Other Catalog Change   Page 150, 2017-18 Graduate Catalog

Certificates of Graduate Study
Courses taken to meet … … requirements of the degree are met. Only courses taken at NIU for graduate credit may be applied toward a certificate. Students must achieve a minimum of a B in each course applied toward all certificates.

Department of Technology

All University Sections

Graduate School

Other Catalog Change   Page 12, 2017-18 Catalog

Certificates of Graduate Study

↓
Thermal, Fluid, and Energy Systems
~~Traffic Safety Education~~
Trauma-Informed Counseling
↓

Directory for Correspondence

Other Catalog Change   Page 15, 2017-18 Catalog

Graduate Concentrations and Certificates of Graduate Study
↓
Thermal, Fluid, and Energy Systems: Chair, Department of Mechanical Engineering
~~Traffic Safety Education: Chair, Department of Technology~~
Trauma-Informed Counseling: Chair, Department of Counseling, Adult and Higher Education
↓

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Course Deletion:　　　　　　　　Page 161, 2017-18 Graduate Catalog

~~539. ADVANCED TRAFFIC SAFETY EDUCATION PRACTICES (3)~~

~~622. DRIVING TASK ANALYSIS (3)~~

~~633. PRACTICUM IN TRAFFIC SAFETY EDUCATION (3)~~

~~635. SEMINAR IN SAFETY (1-6)~~

~~636 PRINCIPLES OF TRAFFIC SAFETY EDUCATION (3)~~

Other Catalog Change　　　　　Page 160, 2017-18 Catalog

Certificate of Graduate Study

~~Traffic Safety Education (15)~~

COLLEGE OF HEALTH AND HUMAN SCIENCES

Course Revisions　　　　　　　　Page 164, 2017-18 Graduate Catalog

UHHS 501. INDEPENDENT STUDY IN HEALTH AND HUMAN SCIENCES (3). Directed independent study and service learning with special opportunities for interprofessional collaboration in health and human sciences, ~~gerontology,~~ and related topics. May be repeated to a maximum of 6 semester hours. PRQ: ~~UHHS 565 or c~~Consent of college.

~~UHHS~~ GERO 565. THEORIES AND ISSUES IN AGING STUDIES (3). An Advanced interdisciplinary examination of aging and the older adult population. Biological, psychological, social, health and educational aspects of aging; theoretical and programmatic perspectives. PRQ: Consent of ~~college~~ program.

~~UHHS~~ GERO 566. TOPICS IN GERONTOLOGY (3). Exploration of current topics in the study of health and aging. Possible areas of coverage include: Bio-psychosocial dimensions of age and aging, or the public policy challenges of age and aging. May be repeated to a maximum of 6 semester hours (if topic changes). PRQ: ~~UHHS~~ GERO 565 or consent of ~~college~~ program.

~~UHHS~~ GERO 567. FIELDWORK IN GERONTOLOGY (3). Application of gerontological concepts to a real-world setting through an internship or other applied learning experience. Partners collaborating to provide the fieldwork experience might include long-term care facilities, elder-service provider agencies, or other relevant organizational settings outside the university with a focus on older people. May be repeated to a maximum of 6 semester hours. PRQ: ~~UHHS~~ GERO 565 or consent of ~~college~~ program.

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~~UHHS~~ GERO 568. LEADERSHIP IN AGING SERVICES (3). Study of the administration of aging services emphasizing non-clinical leadership roles and personnel management. Focus on provision and oversight of quality services along the delivery continuum. Management and leadership topics, including personnel policy, pertinent to institutional and community needs. PRQ: ~~UHHS~~ GERO 565 or consent of ~~school~~ program.

UHHS 720. CONTEMPORARY HEALTH SCIENCE TOPICS (2~~3~~). … ….

UHHS 731. RESEARCH DESIGN, CONDUCT, AND ANALYSIS IN THE HEALTH SCIENCES II (3~~2~~). … ….

Other Catalog Change   Pages 163, 2017-18 Graduate Catalog

Doctor of Philosophy in Health Sciences

Course Requirements
↓
Core Courses (9~~8~~)
UHHS 710 - Scientific Underpinnings and Seminal Readings in the Health Sciences (3)
UHHS 720 - Contemporary Health Sciences Topics (3~~2~~)
UHHS 760 - Knowledge Integration in the Health Sciences (3),

Research Methods Requirements (1~~1~~2)
UHHS 730 - Research Design, Conduct and Analysis in the Health Sciences I (3)
UHHS 731 - Research Design, Conduct and Analysis in the Health Sciences II (2~~3~~)
↓

Other Catalog Change   Pages 164, 2017-18 Graduate Catalog

Certificate of Graduate Study

Gerontology (18)
↓
Primary Content Area (9 ~~15~~)
HSCI 560 - Research Methods in Health and Human Sciences (3),
     OR other appropriate research course
~~UHHS~~ GERO 565 - Theories and Issues in Aging Studies (3)
~~UHHS~~ GERO 567 - Fieldwork in Gerontology (3)
↓
Additional Requirements (9)
↓
PHHE 533 - Principles of Long-Term Care Administration (3)

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~~PSPA 626 - Social Policy (3)~~
PSYC 525 - Adult Development and Aging (3)
↓
~~UHHS~~ GERO 566 - Topics in Gerontology (3)
~~UHHS~~ GERO 567 - Fieldwork in Gerontology (3)

Leadership in Aging Services (18)
↓
Primary Content Area (12)
↓
~~UHHS~~ GERO 565 - Theories and Issues in Aging Studies (3)
~~UHHS~~ GERO 568 - Leadership in Aging Services (3)

Additional Requirements (6)
↓
~~UHHS~~ GERO 567 - Fieldwork in Gerontology (3)
↓

School of Allied Health and Communicative Disorders

Course Revision   Page 172, 2017-18 Graduate Catalog

COMD 671. ~~ADVANCED CLINICAL PHONOLOGY~~ SPEECH SOUND DISORDERS (3). Selected topics in the acquisition, assessment, and treatment of ~~phonological~~ speech sound disorders in children with emphasis on case presentations. PRQ: Admission to speech-language pathology graduate program or consent of school.

Course Revisions   Page 174, 2017-18 Graduate Catalog

AHRC 662. VOCATIONAL ANALYSIS AND JOB PLACEMENT (3). Study of basic theory, methods, and techniques for obtaining and maintaining employment of vocational rehabilitation clients. Emphasis on job readiness, job development, vocational analysis, and job accommodation. PRQ: ~~AHRC 660 or~~ Admission to MS in Rehabilitation Counseling program or consent of school.

AHRC 683. PSYCHOLOGICAL AND VOCATIONAL ASSESSMENT WITH REHABILITATION POPULATIONS (3). Application of basic principles of standardized testing and evaluation to serving rehabilitation agency clients. Focus on issues related to assessment of persons with all disabilities. PRQ: ~~AHRC 628~~ Admission to MS in Rehabilitation Counseling program or consent of school.

Other Catalog Change   Page 167, 2017-18 Graduate Catalog

Master of Arts in Communicative Disorders
↓

Received by the Graduate Council—November 6, 2017

SECTION A – **Recorded for inclusion in the 2018-19 Graduate Catalog**

Requirements
↓
Students are required to take the following:
COMD 603 - Communication Disorders in Early Childhood (3)
COMD 607 - Language Disorders in School-age Populations (3)
COMD 610 - Multicultural Aspects of Speech-language Pathology (3)
COMD 671 - ~~Advanced Clinical Phonology~~ Speech Sound Disorders (3)
COMD 674 - Cognitive-Linguistic Disorders of Neurologically Impaired Adults (3)
COMD 676 - Organization and Planning of Speech, Language, and Hearing Services (3)
COMD 684 - Swallowing Disorders (3)
↓
Students are required to complete ~~21~~5 semester hours in the following:
↓
   COMD 605 - Fundamentals of Augmentative and Alternative Communication in Speech-Language Pathology (3)
   ~~COMD 610 - Multicultural Aspects of Speech-language Pathology (3)~~
   COMD 624 - Supervisory Techniques in Speech and Hearing Services (3)
   ↓
   COMD 673 - Instrumentation for Voice Analysis (3)
   ~~COMD 676 - Organization and Planning of Speech, Language, and Hearing Services (3)~~
   COMD 680 - Medical Aspects of Speech-Language Pathology (3)

School of Family and Consumer Sciences

Other Catalog Change   Pages 177, 2017-18 Graduate Catalog

Specialization in Leadership in Aging Studies (33)
↓
Students must complete the following required courses:

Required (33)
↓
~~UHHS~~ GERO 568[2] - Leadership in Aging Services (3)
~~UHHS~~ GERO 565[1,2] -Theories and Issues in Aging Studies (3)

Three of the following (9)
↓
   ~~UHHS~~ GERO 567 - Fieldwork in Gerontology (3)
↓
(Footnote)
[1]HDFS 601 and ~~UHHS~~ GERO 565 should be completed in the first year of enrollment in the specialization.

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School of Health Studies

Course Revisions   Page 187-188, 2017-18 Graduate Catalog

PHHE 601. INTRODUCTION TO HEALTH SYSTEMS ~~IN THE UNITED STATES~~ (3). ~~Evaluation of health care controversies using critical thinking and knowledge of the sources, uses, and analysis of the health literature, especially data.~~ Overview of the structure, function, and evolution of the U.S. health system as compared to that of other countries. Systems approach to the organization, financing and delivery of health care and public health ~~services~~. Evaluation of health care controversies using critical thinking. Specific ~~T~~topics include the role of technology, health system structure and labor force, ~~services~~ financing methods, mental health, primary care, inpatient services, insurance and managed care, long-term care, ~~the role of the public policy process,~~ the public health infrastructure and essential public health services ~~others~~. PRQ: Consent of school.

PHHE 605. BIOSTATISTICS IN PUBLIC HEALTH (~~4~~3). Introduction to the … … biomedical and health research. Includes an introduction to the use of a computer-based statistical software program. PRQ: Consent of school.

PHHE 607. HEALTH SERVICES MANAGEMENT (3). Analysis of techniques in leadership and management applicable to ~~the~~ public health and health care field~~s~~. Topics include budgeting and resource management, ~~change theory, power dynamics, creative~~ problem solving and decision making, strategic planning and marketing ~~concepts and ideas, and~~ as well as leadership and communication styles ~~image~~. Case studies demonstrate application of concepts. ~~Emphasis on leadership challenges, research findings on experimental exercises, and case histories involving applied leadership and management skills in health service organizations.~~ PRQ: Consent of school

PHHE 609. PROBLEMS AND ISSUES IN ENVIRONMENTAL HEALTH (3). Analysis of contemporary national and international environmental problems … … consent of school

PHHE 611. APPLIED RESEARCH METHODS IN PUBLIC HEALTH (3). Study of the research process applied to public health practice with the main emphasis on conceptual understanding and skill development. Integration of qualitative and quantitative research methods ~~and statistics~~ applicable to the public health setting. ~~CRQ:~~ PRQ: PHHE 605, or consent of school.

PHHE 661. PUBLIC HEALTH POLICY AND LAW (3). Introduction to the … … health emergencies. PRQ: Consent of school.

Other Catalog Change   Page 182-186, 2017-18 Graduate Catalog

Master of Science in Nutrition and Dietetics
↓
Requirements
↓

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ETR 521 - Educational Statistics I (3),
    OR ETR 522 - Educational Statistics II (3),
    OR PHHE 605 - Biostatistics in Public Health (4~~3~~),
↓
Two to three of the following (5-6)
↓
PHHE 601 - Introduction to Health Systems ~~in the United States~~ (3)
↓
Master of Public Health (M.P.H.)
↓
Grading Policy
M.P.H. students must earn a minimum grade of B in each of the ~~eight~~ nine core courses (PHHE 601,
PHHE 603, PHHE 605, PHHE 607, PHHE 609, PHHE 611, PHHE 613, PHHE 661, and PHHE 669).

Non-Thesis Option
A total of 43-46~~5~~ semester hours of graduate credit is required for the degree with the non-thesis option.
↓
Requirements
↓
PHHE 601 - Introduction to Health Systems ~~in the United States~~ (3)
PHHE 603 - Behavioral and Social Aspects of Public Health (3)
PHHE 605 - Biostatistics in Public Health (4~~3~~)
↓
PHHE 613 - Principles and Methods of Epidemiology (3)
PHHE 661 - Public Health Policy and Law (3)
PHHE 669 - Community Health Planning (3)
↓
One of the following specializations with adviser's approval (15~~2~~)

Specialization in Health Promotion
↓
Additional course work (9~~6~~)

Specialization in Health Services Management
↓
Additional course work (6~~3~~)
↓
Master of Arts in Teaching (M.A.T.)
↓
Pedagogy in Health Education (34-42)
↓
One course from the following:
↓

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PHHE 605 - Biostatistics in Public Health (4<mark>3</mark>)

Master of Science in Teaching (M.S.T.)
↓
Pedagogy in Health Education (24)
↓
One course from the following:
↓
PHHE 605 - Biostatistics in Public Health (4<mark>3</mark>)
PHHE 626 - Methods and Materials in School Health Education (3)

Certificates of Graduate Study
↓
Public Health (16)
↓
Requirements (13)
↓
PHHE 601 - Introduction to Health Systems ~~in the United States~~ (3)
PHHE 603 - Behavioral and Social Aspects of Public Health (3)
PHHE 605 - Biostatistics in Public Health (4<mark>3</mark>)

School of Nursing

All University Section

Requirements for Graduate Degrees

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Requirements for the Degree
Doctor of Audiology
See "Doctor of Audiology" in the School of Allied Health and Communicative Disorders.

<mark>**Requirements for the Degree**</mark>
<mark>**Doctor of Nursing Practice**</mark>
<mark>See "Doctor of Nursing Practice" in the School of Nursing</mark>

Requirements for the Degree
of Physical Therapy

School Section

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612. ADVANCED THEORETICAL PERSPECTIVES FOR NURSING PRACTICE (3).
614. ACTUALIZING THE ADVANCED PRACTICE NURSING ROLE (3).
615. DIVERSITY WITHIN COMMUNITY SYSTEMS FOR ADVANCED NURSING PRACTICE (3).
616. NURSING PRACTICE WITHIN THE HEALTH CARE DELIVERY SYSTEM (3).
617. PATHOPHYSIOLOGICAL CONCEPTS IN NURSING (4).
618. CLINICAL PHARMACOLOGY AND THERAPEUTICS IN ADVANCED NURSING PRACTICE (4).
619. HEALTH ASSESSMENT (3).
620. HEALTH ASSESSMENT CLINICAL LABORATORY (1).
625. ADULT-GERONTOLOGY RESPONSES TO HEALTH AND ILLNESS I (3).
626. ADULT-GERONTOLOGY RESPONSES TO HEALTH AND ILLNESS II (3). ↓
640. THEORETICAL FOUNDATIONS OF NURSING EDUCATION (3).
641. NURSING CURRICULUM DEVELOPMENT (3).
642. EVALUATION OF LEARNER AND PROGRAM OUTCOMES IN NURSING PROGRAMS AND HEALTH CARE SETTINGS (3).
643. INTERNSHIP: NURSING EDUCATION I (3).
644. INTERNSHIP: NURSING EDUCATION II (3).
674. PRIMARY CARE: INFANT, CHILD, AND ADOLESCENT (3).
675. PRIMARY CARE II: ADULT (3).
677. INTERNSHIP: INFANT AND CHILD HEALTH (4).
678. INTERNSHIP: WOMEN'S HEALTH (4).
679. INTERNSHIP: ADULT-GERONTOLOGY HEALTH (4).

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Master of Science in Nursing
↓
Requirements

Core Courses - Required for all Nursing M.S. and Post-Bachelor's D.N.P. Students (26-27)
NURS 601 - Transition to Graduate-Level Nursing (2)
ETR 521 - Educational Statistics I (3),
    OR PHHE 605 - Biostatistics in Public Health (43),
    OR BIOS 670 - Biostatistical Analysis (3)

Other Catalog Change   Page 194, 2017-18 Graduate Catalog

Post-Master's Degree D.N.P.:
↓
Advanced Role Component Courses (49-52)
See Requirements for Master of Science Degree in Nursing Core Courses Required for all Nursing M.S. Students (26-27) AND

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> ==One of the following specializations (15-25)==
> ==Advanced Practice Nursing (APN) Core Courses Required for all APN Students (5) AND== ~~OR~~
>   Specialization ~~in~~ ==as an== Adult-Gerontology Clinical Nurse Specialist (2==5==0)~~,OR~~
>   Specialization ~~in~~ ==as an== Adult-Gerontology Primary Care Nurse Practitioner (23==18~~),OR~~
>   Specialization ~~in~~==as a== Family Nurse Practitioner (24==19==)

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Certificates of Graduate Study
↓
Prerequisite Courses for Admission
↓
NURS 607 - Lab: Advanced Physical Assessment across the Lifespan (1)

~~Courses completed at schools other than NIU will be evaluated on an individual basis. Students who have deficiencies in prerequisite courses may be admitted to the program but will need to enroll in deficiency courses as part of the plan of study.~~

==For admission into all post master's certificate programs, a gap analysis of each applicant's transcript will be done to evaluate the following advanced courses: physiology/pathophysiology, pharmacology, and health assessment. Contingency-based admission to the program could be granted allowing students to complete these classes, if needed, within a designated timeframe from the date of admission.==

COLLEGE OF LIBERAL ARTS AND SCIENCES

Department of Biological Sciences

Other Catalog Change   2017-18 Graduate Catalog

Master of Science in Biological Sciences
↓
Specialization in Bioinformatics
↓
Two of the following (6-7)
↓
CSCI ~~661~~ ==602== - ~~Techniques of Computer Programming~~ ==Design== and ==Analysis of== Algorithms~~ic Processes~~ (3)
↓

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Certificate of Graduate Study

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Bioinformatics (16-17)
↓
Two of the following (6-7)
↓
CSCI ~~661~~ 602 - ~~Techniques of Computer Programming~~ Design and Analysis of Algorithm~~sic Processes~~ (3)
↓

Department of Computer Science

All University Section

Inter-College Interdisciplinary Certificates

Other Catalog Change   2017-18 Graduate Catalog

Homeland Security (15-18)
↓
Cybersecurity Track (15)
Coordinator: Raimund Ege, Department of Computer Science
    CSCI ~~650~~ 607 - Principles of Computer Security (3)

Two of the following (6)
    CSCI ~~652~~ 608 - Telecommunications and Networking Security (3)
    CSCI ~~654~~ 609 - Computer Security Management (3)
    CSCI ~~659~~ 610 - CISSP Review (3)
↓
Emergency Management and Response Track (15)
Coordinator: Theodore Hogan, Department of Technology

Five of the following: (15)
CSCI ~~650~~ 607 - Principles of Computer Security (3)
↓
Environmental and Hazards Risk Assessment Track (15-18)
Coordinators: David Changnon, … ….
↓
Four of the following with at least one chosen from outside the division of statistics (12-15)
    CSCI ~~650~~ 607 - Principles of Computer Security (3)
    GEOG ~~406~~ 506 - Natural Hazards and Environmental Risk (3)

Course Deletions   2017-18 Graduate Catalog

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523. MICROSOFT MOBILE DEVICE PROGRAMMING (4).
546. WEB SERVICES AND INTERNET TECHNOLOGIES (3).
565. ENTERPRISE APPLICATION ENVIRONMENTS (4).
566. DATABASES (4).
621. PARALLEL PROCESSING (3).
640. DATA STRUCTURES IN ASSEMBLY LANGUAGE (3).
641. ENTERPRISE OPERATING SYSTEMS (3).
645. NEURAL NETWORKS (3).
647. WEB SERVICES AND SERVICES COMPUTING (3).
662. ANALYSIS OF DATA PROCESSING SYSTEMS (3).
663. SYSTEMS DESIGN AND ANALYSIS (3).
664. DATA STRUCTURES IN ASSEMBLY LANGUAGE (4).
668. SYSTEMS PROGRAMMING (4).
679. DISTRIBUTED SYSTEMS (3).
767. APPLIED SYSTEMS PROGRAMMING (3).
768. ADVANCED SYSTEMS PROGRAMMING (3).

New Courses   2017-18 Graduate Catalog

CIP: 11.0803

630. COMPUTER GRAPHICS: MODELING (3). Introduction to algorithms for creating high level computer graphics models from low level primitives. Topics include hierarchical primitive composition, linear and non-linear transformations, superquadrics, particle systems, fractal modeling, L-systems and graftals. Curves and surfaces including Bezier, rational Bezier, B-splines, NURBS, subdivision surfaces. Implicit surface generation, constructive solid geometry, volume modeling, image-based modeling. Strong programming component with a focus on algorithm implementation. Extensive laboratory work. CRQ: CSCI 501 or CSCI 502 or consent of department.

631. COMPUTER GRAPHICS: RENDERING (3). Introduction to fundamental algorithms of rendering computer graphical images. Emphasis on scan conversion approaches. Topics include color systems, basic primitive rendering techniques, 2D and 3D projective transformations, the graphics pipeline, clipping, scan conversion techniques, depth effects, lighting models, material properties, attribute mapping, image-based rendering. Strong programming component with a focus on algorithm implementation. Extensive laboratory work. CRQ: CSCI 501 or CSCI 502 or consent of department.

634. COMPUTER VISION (3). Algorithms in computer vision. Topics include feature detection of points and lines, 2D to 3D geometric inference, solution of camera parameters, shape from motion and optical flow, shape from shading, depth from stereo, and object tracking. Strong programming component with a focus on algorithm implementation. Extensive laboratory work. PRQ: MATH 232 and MATH 240 and CSCI 633; or consent of department.

New Courses   2017-18 Graduate Catalog

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CIP: 11.0801

633. DIGITAL IMAGE PROCESSING AND ANALYSIS (3). Introduction to general principles and algorithms on digital image processing. Topics include concepts and algorithms of image enhancement, image segmentation, morphological image processing, image transforms, image registration and image feature extraction~~,~~. ~~a~~Algorithms on 3D and higher dimension image processing and analysis ~~will be discussed~~. ~~Students learn to apply~~Application of materials by implementing and investigating image processing algorithms. Extensive programming and team-based research projects. Extensive laboratory work. CRQ: CSCI 501 or CSCI 502 or consent of department.

New Course   2017-18 Graduate Catalog

CIP: 11.0199

635. VIRTUAL REALITY (3). 635. VIRTUAL REALITY (3). Introduction to the area of virtual and augmented reality. Topics include: review of the history; introduction of relevant issues (related to perception and believability), introduction to both software and hardware; overview of the application space. Development of both virtual and augmented reality applications, and a final group project, is expected. Extensive laboratory work. PRQ: CSCI 630 or consent of department.

New Course   2017-18 Graduate Catalog

CIP: 11.0101

637. PATTERN RECOGNITION AND DATA MINING II (3). An in-depth exploration of recent research in the area of pattern recognition and data mining, building on the introductory course to pattern recognition and data mining. Topics include the advanced variants of neural networks, deep learning, ensemble learning, reinforcement learning and online learning~~,~~. ~~a~~Advanced unsupervised learning methods as well as cluster validation ~~will also be discussed~~. Extensive reading on latest research in the area and programming projects. Extensive laboratory work. PRQ: CSCI 636 or consent of department.

New Course   2017-18 Graduate Catalog

CIP: 11.0804

647. ADVANCED DISCRETE SIMULATION (3). An in-depth exploration of recent research in the area of discrete simulation, building on the introductory course to modeling and simulation. Focuses on discrete paradigms including cellular automata, agent based models, and network models. May cover aspects such as hybrid models, spatial simulations, large-scale simulations, or in the interplay of simulations with areas such as interactive visualizations. Extensive reading of research articles and team-based project. Extensive laboratory work. PRQ: CSCI 646 or consent of department.

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New Course   2017-18 Graduate Catalog

CIP: 11.0103

652. ALGORITHMIC BIOINFORMATICS I (3). Comprehensive introduction to methodologies and applications of computational problems in bioinformatics, especially in comparative genomics. Topics include sequence alignment at genome-wide, genome comparison without alignment, genome rearrangements, detection of genomic signals, repeat analysis, and other computational problems. Introduction to molecular biology and algorithm design and analysis will be included. Course projects involve high-level programming languages. Extensive laboratory work. CRQ: CSCI 501 or CSCI 502 or CSCI 503 or CSCI 504 or CSCI 505 or consent of department.

653. ALGORITHMIC BIOINFORMATICS II (3). In-depth exploration of computational problems in bioinformatics, building on top of the introductory course to algorithmic bioinformatics. Topics may change each time the course is offered based on recent research development. Focus on computational and comparative genomics, including large-scale alignment, repeat analysis, detection of genomic signals, and other computational problems. ~~This course r~~Requires extensive reading of research papers and programming projects. Extensive laboratory work. PRQ: CSCI 652 or consent of department.

New Course   2017-18 Graduate Catalog

CIP: 11.0401

659. INTELLIGENT INTERACTIVE SYSTEMS (3). Concepts, system design and tools to build systems that interact with users using free text and retrieve information from a database using a logic engine. Design and implementation of the database and logic engine, the computational semantics and pragmatics necessary to conduct a state-of-the-art dialogue, and sentence and turn generation in context. Extensive laboratory work. PRQ: CSCI 657 or consent of department.

Course Revisions   2017-18 Graduate Catalog

521. iOS MOBILE DEVICE PROGRAMMING (4). Comprehensive introduction to building applications for mobile devices that use Apple's iOS operating system. Topics ~~covered will~~ include application of Model-View-Controller design architecture, ~~database and web services,~~ graphics, <mark>rich media content,</mark> multithreading, networking and … ….

522. ANDROID MOBILE DEVICE PROGRAMMING (4). Android application … …. Instruction in ~~codeing~~ <mark>coding</mark>, running, and debugging … ….

~~531~~ <mark>661</mark>. PARALLEL AND DISTRIBUTED PROGRAMMING MODELS (3). Topics ~~will~~ include message passing on … …. CRQ: ~~CSCI 689~~ <mark>CSCI 501</mark> or consent of department.

~~532~~ <mark>662</mark>. PROGRAMMING NON-TRADITIONAL ARCHITECTURES (3). Topics include

programming hardware … …. CRQ: ~~CSCI 689~~ CSCI 501 or consent of department.

~~567~~ 526. INTRODUCTION TO SOFTWARE ENGINEERING (4). Phases of the systems … ….

~~580~~ 514. ~~PRINCIPLES OF~~ OPERATING SYSTEMS (4 3). ~~Principles and practices of modern~~ Basic operating system ~~design~~ abstractions, mechanisms, and their implementations. ~~Includes file systems organization; memory management; multitasking; windowing interfaces; interprocess~~ Operating system support for concurrent processes and threads and their synchronization. Resource management for CPU, memory, and I/O. Distributed services, including communications across a network; and the client-server models ~~of processing~~, and distributed operating systems. ~~Extensive laboratory work. This course may not be taken by students with undergraduate credit for CSCI 480. PRQ: Admission to the graduate program in computer science or consent of department.~~ CRQ: CSCI 501 or consent of department.

~~627~~ 523. ADVANCED ~~APPLICATION DESIGN FOR~~ iOS MOBILE ~~DEVICES~~ PROGRAMMING (3). ~~Principles of~~ In-depth coverage of advanced programming ~~application design~~ for mobile devices that use Apple's iOS operating system. ~~Focus on the application's user experience and value to the user. Includes design principles for applications that are intended to run on multiple mobile device platforms. Includes extensive programming in Objective-C, Java, or C#.~~ Topics include exception handling, memory and thread management, databases, and web services. Extensive laboratory work. May not be taken by students with undergraduate credit for CSCI 427. PRQ: ~~Two of the following:~~ CSCI 521 with a C or better~~, CSCI 522, or CSCI 523;~~ or consent of department.

~~628~~ 524. ADVANCED ~~PROGRAMMING TOPICS FOR~~ ANDROID MOBILE ~~DEVICES~~ PROGRAMMING (3). In-depth coverage of ~~advanced~~ Android application programming topics ~~in programming mobile devices~~ that build on the foundations taught in CSCI 522. Topics may include ~~exception handling, memory and thread management, and external data portals~~ accessing JSON from a web service, creating and accessing an on board database, using location and map services as well as exploring new hardware and software options. ~~Design principles for applications that are intended to run on multiple mobile device platforms. Includes extensive programming in Objective-C, Java, or C#.~~ Extensive laboratory work. May not be taken by students with undergraduate credit for CSCI 428. PRQ: ~~Two of the following: CSCI 521,~~ CSCI 522 with a C or better~~, or CSCI 523;~~ or consent of department.

~~630~~ 512. COMPUTER NETWORKS (3). Basic principles and topics of fundamental importance in ~~concerning~~ the technology and architecture of data and computer communications. Focus on key topics in principles, design approaches, and standards. Compares and contrasts the ~~with emphasis on~~ applications of these topics in specific areas of current technology. PRQ: Admission to the graduate program in computer science or consent of department.

~~631~~ 612. NETWORK APPLICATIONS PROGRAMMING (3). Principles used to develop networking software … …. PRQ: ~~CSCI 689~~ CSCI 501 or consent of department.

~~650~~ 607. PRINCIPLES OF COMPUTER SECURITY (3). Survey of security … ….

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651. ~~GRAPH THEORY AND~~ APPLICATIONS OF GRAPH THEORY (3). ~~Introduction to g~~Graph theory ~~and applications~~ is introduced with emphasis on its applications in sciences. Topics include ~~trees, cycles, paths, colorings, connectivity, matchings, coverings, planar graphs, network flows, and their applications to sciences~~ basic graph concepts, algorithms, complexity analysis, and modeling real-life problems using graphs. PRQ: Admission to the graduate program in computer science or consent of department.

~~652~~ 608. TELECOMMUNICATIONS AND NETWORKING SECURITY (3). Survey … ….

~~654~~ 609. COMPUTER SECURITY MANAGEMENT (3). Survey of security … ….

~~659~~ 610. CISSP REVIEW (3). Preparation for the Certified … ….

~~661~~ 602. ~~TECHNIQUES OF COMPUTER PROGRAMMING~~ DESIGN AND ANALYSIS OF ALGORITHMS~~IC PROCESSES~~ (3). Advanced techniques for the design and analysis of ~~course in~~ algorithms~~ic processes and~~ with emphasis on comput~~ational~~~~er programming~~ problems that are central to both theory and practice. ~~A major~~ Techniques include divide-and-conquer recurrences, dynamic programming, greedy algorithms and other computational strategies. Concepts will be illustrated in pseudocode or a higher-level programming language ~~used in developing applications and the solutions of current problems. Knowledge of programming is required.~~ PRQ: Admission to the graduate program in computer science or consent of department.

~~669~~ 513. SOFTWARE ENGINEERING (3). ~~Topics in improved programming technology, data structures, and analysis of algorithms. Focus on problems encountered in the~~ Software development and engineering methods, including requirements gathering, specification, design, ~~and~~ implementation, and testing ~~of large software systems. Includes both individual and group programming projects.~~ Software life cycle models and process such as team development and agile methods. Use of development tools and automated support environments. PRQ: Admission to the graduate program in computer science or consent of department.

~~670~~ 646. ~~SIMULATION METHODS~~ MODELING AND SIMULATION (3). ~~Modeling and simulation concepts. Topics include generating pseudo random numbers and data, writing~~ Introduction to computational techniques for the design and analysis of computer simulations. ~~programs~~ Modeling paradigms (continuous models such as system dynamics and discrete models such as agent-based models), their implementation in a general purpose modeling environment, and the design and analysis of computer experiments (e.g., factorial design, Latin hypercube sampling). Extensive programming and team-based research projects. ~~programming language such as C and in a special purpose simulation language such as GPSS, and interpreting simulation results using statistical analysis techniques. PRQ: Admission to the graduate program in computer science or consent of department.~~ CRQ: CSCI 503 or consent of department.

~~675~~ 528. WEB DEVELOPMENT (3). ~~Practical examination~~ Introduction to design and programming of web application~~s~~~~ development. Technical topics include~~ HTML~~,~~ (including HTML5) and CSS. ~~Cascading~~

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~~Style Sheets, JavaScript, and cross-browser compatibility. Aesthetic topics include designing an effective user interface with color, graphics, navigation, and related topics.~~ Basic server-side programming, (e.g., HTTP requests, responses and state); client-side programming, (e.g., document object model updating using Javascript or equivalent); client-server integration, (e.g., Ajax). Extensive laboratory work. One major programming project for each of the four sections in the course. ~~This course~~ mMay not be taken by students with undergraduate credit ~~for~~ in CSCI ~~675~~ 475. PRQ: Admission to the graduate program in computer science or consent of department.

~~677~~ 636. PATTERN RECOGNITION ~~ALGORITHMS AND APPLICATIONS~~ AND DATA MINING I (3). Concepts~~,~~ and algorithms ~~of~~ in pattern recognition~~,~~ and ~~applications in various domains~~ machine learning. Topics include pattern clustering and classification, feature extraction, and selection. Data mining Aapplications in~~clude~~ various domains will be considered ~~automatic image recognition and intelligent mining of biomedical data~~. PRQ: Admission to the graduate program in computer science or consent of department. CRQ: CSCI 501 or CSCI 502 or CSCI 503 or consent of department.

680. TOPICS IN COMPUTER SCIENCE (3).
↓
Each lettered topic may be repeated to a maximum of 9 semester hours when subject changes. Students may repeat multiple lettered topics, each to its maximum. ~~Lettered topic E may not be taken by students with undergraduate credit for CSCI 470 and lettered topic V may not be taken by students with undergraduate credit for CSCI 473.~~ PRQ: Admission to the graduate program in computer science or consent of department.

~~688~~ 511. DATABASE CONCEPTS (3). Principles of database … …. PRQ: ~~CSCI 566.~~ Admission to the graduate program in computer science or consent of department.

~~689~~ 501. ~~OBJECT-ORIENTED DESIGN AND~~ PROGRAMMING PRINCIPLES IN C++ (3). Fundamental elements … …. apply the methodology through ~~an~~ the object-oriented programming language ~~such as~~ C++. PRQ: Admission to the … ….

Other Catalog Change   2017-18 Graduate Catalog

Master of Science in Computer Science
↓
Required Courses (15-17)
CSCI ~~689~~ 501 - ~~Object-Oriented Design and~~ Programming Principles in C++ (3)

~~**Enterprise Computing Systems**~~
~~CSCI 565 - Enterprise Application Environments (4)~~
~~CSCI 641 - Enterprise Operating Systems (3)~~

Database
~~CSCI 566 - Databases (4)~~

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CSCI ~~688~~ 511 - Database Concepts (3)

System Design and Analysis
CSCI ~~567~~ 526 - Introduction to Software Engineering (4)
~~CSCI 663 - Systems Design and Analysis (3)~~

Networking
CSCI ~~630~~ 512 - Computer Networks (3)
CSCI ~~631~~ 612 - Network Applications Programming (3)
↓

Other Catalog Change   2017-18 Graduate Catalog

Mobile Programming
↓
Requirements (14)
CSCI ~~627~~ 523 - Advanced ~~Application Design for~~ iOS Mobile ~~Devices~~ Programming (3)
CSCI ~~628~~ 524 - Advanced Android Mobile Device Programming ~~Topics for Mobile Devices~~ (3)

Choose two of the following (8)
        CSCI 521 - iOS Mobile Device Programming (4)
        CSCI 522 - Android Mobile Device Programming (4)
        ~~CSCI 523 - Microsoft Mobile Device Programming (4)~~

Department of Economics

Course Revisions   2017-18 Graduate Catalog

647. OPTIMAL PORTFOLIO CHOICE (3). A survey … …. PRQ: CSCI ~~689~~ 501 and ECON 591; or consent of department.

649. ALGORITHMIC TRADING (3). High-performance computational … …. PRQ: ECON 647 and CSCI ~~689~~ 501; or consent of department.

Other Catalog Change   2017-18 Graduate Catalog

Certificate of Graduate Study

Financial Engineering (15)
↓
Program prerequisites:
↓
CSCI ~~689~~ 501 - ~~Object-Oriented Design and~~ Programming Principles in C++ (3)

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↓
Two courses, including at least one CSCI course, must be chosen from the courses listed below:
      CSCI ~~531~~ 661 - Parallel and Distributed Programming Models (3)
      CSCI ~~532~~ 662 - Programming Non-traditional Architectures (3)
      ECON 642 - Financial Engineering (3)
      ↓

Department of Psychology

<u>New Courses</u>   2014-15 Graduate Catalog

CIP: 42.0101

633. ASSESSMENT AND TREATMENT OF TRAUMA (3). ~~The course will c~~Covers best methods in clinical interview and self-report assessments of trauma-related sequelae, primarily posttraumatic stress disorder. Evidence-based treatments from a cognitive-behavioral perspective for trauma-related sequelae will be reviewed with the intention of building skills in practice. PRQ: Consent of department.