

# College of Informatics

**Location:** Griffin Hall 500

**Telephone:** 859-572-5666

**Fax:** 859-572-6176

**Email Address:** [informatics@nku.edu](mailto:informatics@nku.edu)

**Web Address:** <http://informatics.nku.edu/>

**Dean:** Kevin Kirby

**Other Key Personnel:**

Associate Dean: Stephanie Klatzke

Business Officer: Charita Brewer

Director of Advancement: Kendall Fisher

Executive Assistant to the Dean: TBA

Events and Communication Coordinator: Krista Rayford

The College of Informatics offers a contemporary perspective on the disciplines that have **information** at their core. We are home to the departments of communication, computer science, and business informatics. Through our outreach arm, the Center for Applied Informatics, our students have the opportunity to work with companies and other organizations on cutting-edge projects.

The college offers twelve bachelor's degrees, five master's degrees, fourteen minors, and a variety of certificates, both graduate and undergraduate. Several of our programs are available in a variety of forms, including traditional face-to-face, fully online, and hybrid formats. Many of them accommodate working professionals who are only available for coursework in the evening and on weekends.

We have energetic faculty who have a passion for teaching, who are dedicated researchers, and who have a strong sense of civic engagement. Our advising center has a staff to help students advance smoothly through their course of studies here.

Our home is NKU's state-of-the-art informatics center, Griffin Hall. In this open and social space, students have the opportunity to use the newest technologies and collaborate in innovative ways.

Above all, we embrace a culture of silo-breaking transdisciplinarity. In other words, the College of Informatics is not an island. We work together with all the other colleges on campus to advance the full range of NKU's mission. Informatics is networked into almost anything you can imagine, and we invite everyone to connect to us and explore.

## College Advising Center

**Location:** Griffin Hall 404 A-H

**Telephone:** 859-572-7670

**Email Address:** [coiadvicing@nku.edu](mailto:coiadvicing@nku.edu)

**Web Address:** <http://inside.nku.edu/informatics/advising.html>

**Director:** Rebecca Hamm

**Other Key Personnel:**

Assistant Directors: Kara Thompson & Meghan Schmidt

Academic Advisors:

Lisa Brun

Dan Ginn

Tina Hoesl

Jen Ungerleider

Lynn Warner

It is the mission of the COI advising center to advise, teach, assist, and empower you. Our advisors accomplish this by assisting you in college transition, selecting courses for your desired major, and mapping co-curricular experiences into your plan. Ultimately we strive to help you navigate and successfully complete your degree. Our advisors are trained to listen to your concerns in an open and caring way and connect you with campus resources.

There is a lot of information available on our website, but keep in mind that as careers change, so do their degree requirements. Therefore, while many of your questions may be answered after viewing the contents of our site, we strongly recommend that you always consult an advisor at least once a semester with your specific questions.

## Accreditations

Business Informatics is accredited by AACSB-International, the Association to Advance Collegiate Schools of Business.

## Centers

### The Center for Applied Informatics

**Location:** Griffin Hall 330

**Telephone:** 859-572-7610

**Fax:** 859-572-6176

**Email Address:** cai@nku.edu

**Web Address:** <http://inside.nku.edu/informatics/centers/cai.html>

**Director:** Jill Henry

The Center for Applied Informatics (CAI) provides students extensive access to professional development courses, recruiting events and internships/co-op experiences that enable applied learning in a real-world environment. Via the CAI, the university directly contributes to the development of the commonwealth and tri-state area by connecting the best informatics students, professional staff, and awarding-winning faculty, versed in the latest research and industry best practices, with businesses and organizations seeking expertise. This collaboration forms the building blocks of student academic success and business innovation both locally and worldwide. At any given time, our students, faculty, and staff are engaging a variety of applied research projects, composed of the communicative, technical, and creative elements that are informatics.

### The Center for Information Security

**Telephone:** 859-572-5571

**Web Address:** <http://inside.nku.edu/informatics/centers/cis.html>

**Director:** James Walden

The Center for Information Security (CIS) is a multidisciplinary center for information security research and education. NKU has been designated as a National Center for Academic Excellence in Cyber Defense by the National Security Agency and the US Department of Homeland Security. The center ensures coordination of the various security-related academic programs, supports the undergraduate Cyberdefense team and contributes to various outreach activities including NKU's annual Security Symposium.

### The Center for Integrative Natural Science and Mathematics

**Telephone:** 859-572-5381

**Fax:** 859-572-6179

**Web Address:** <http://cinsam.nku.edu/>

Established in 1999 by Kentucky's Council on Post-Secondary Education as the Program of Distinction at NKU, the Center for Integrative Natural Science and Mathematics (CINSAM) is dedicated to enhancing teaching, learning, and application of science and mathematics at all educational levels throughout the region. It prepares outstanding future teachers by promoting integrative science courses and by providing opportunities for collaboration among education, science, and mathematics faculty and their students at all grade levels from pre-school to college graduate. CINSAM's vision is to facilitate NKU becoming a nationally recognized leader in Science, Technology, Engineering and Mathematics (STEM) education and scholarship.

## Department of Business Informatics

**Location:** Griffin Hall 400

**Telephone:** 859-572-6366

**Fax:** 859-572-5398

**Email Address:** bis@nku.edu

**Web Address:** <http://bis.nku.edu>

**Department Chair:** TBA

Program Director(s):

BIS Program Coordinator: TBA

HIN Program Director: Gary Ozanich

Library Informatics Program Lead: Mary Chesnut

### Other Key Personnel:

Senior Operations Coordinator: Sue Murphy-Angel

Academic Coordinator: Christa Witt

Academic Specialist: Aaron Zlatkin

**Full-Time Faculty:** Kalyani Ankem, Susan Brudvig, Tony Burk, Teuta Cata, Mary Chesnut, James Hughes, Kevin Jiang, Sarah Mann, Brad Metzger, Brandi Neal, Gary Ozanich, Vijay Raghavan, Joseph Rubleske, Toru Sakaguchi, Charles Slaven, Crystal Summers, Lynn Warner, Threasa Wesley, Xiaoni Zhang

**Thinking about the discipline:** The business informatics department offers three complementary contexts for the study and application of information technology: business, healthcare, and library science. These programs focus on the broad information systems aspect of business theory and practice. Students will develop skills in:

- Automating business processes such as project management and workflow analysis.
- Managing information functions such as information systems analysis and design.
- Quantitative analysis and decision making such as developing management dashboards and business data analytics

On the edge of a digital revolution, the world of business and healthcare is relying more and more on technology for business process management, data analysis, and project management. NKU's Department of Business Informatics will prepare students to enter the marketplace and start their careers in business, government institutions, educational organizations, healthcare facilities, and other knowledge based organizations.

Business informatics careers (for example, business and healthcare data analysts) are projected to be some of the fastest-growing careers through 2025.

**Special opportunities for our students:** Internships and co-ops may be used as electives in Business Informatics programs.

**Special admission requirements:** The Business Information Systems degree is AACSB-accredited and therefore prospective majors must meet selective admission requirements co-established with the Haile/U.S. Bank College of Business. This selective admission requires students to complete the 10 courses listed in the Selective Admission Courses section of the "Degree Requirements: B.S. - Business Information Systems " table with a C- or better and have a minimum GPA of 2.50.

**Special graduation requirements:** The Bachelor of Science in Business Information Systems requires completion of the minor in Business.

## Bachelor of Science

### Business Information Systems, B.S.

Available in both traditional and fully-online formats.

**Special graduation requirements:** Requires completion of the minor in Business.

◆ Indicates prerequisite.

These prerequisites are not included in the program totals in the table below, but they must be completed IN ADDITION TO other program requirements.

### Degree Requirements (94-97 credits)

#### Selective Admission Courses (31 credits)

- ENG 101 College Writing - WC (3 credits) ◆ \*
- MAT 114 Finite Mathematics - QR (3 credits) ◆ \*
  
- CMST 101 Public Speaking - OC (3 credits) \*
- OR
- CMST 110 Introduction to Communication Studies - OC (3 credits)
  
- ACC 200 Principles of Accounting I-Financial (3 credits) ◆ \*
- ACC 200L Financial Accounting Lab (1 credit)
- ACC 201 Principles of Accounting II-Managerial (3 credits) ◆ \*
- BUS 230 Legal Environment (3 credits) ◆ \*
- ECO 200 Principles of Macroeconomics - SB (3 credits) ◆ \*
- ECO 201 Principles of Microeconomics - SB (3 credits) ◆ \*
- ENG 102 Advanced College Writing - WC (3 credits) ◆ \*
- STA 205 Statistical Methods - QR (3 credits) ◆
- OR
- STA 205R Statistical Methods with Recitation - QR (3 credits)

#### Courses in Business (24 credits)

- BIS 380 Quantitative Analysis with Excel (3 credits) ◆
- MGT 300 Behavior in Organizations: Understanding Organizational Life (3 credits) ◆
- MGT 490 Business Policy (3 credits) ◆
- BIS 300 Management Information Systems (3 credits) ◆ \*
- FIN 305 Principles of Finance (3 credits) ◆ \*
- MGT 305 Operations Management in Business (3 credits) ◆ \*
- MKT 205 Principles of Marketing (3 credits) ◆ \*

## Note:

\*These courses complete the required minor in Business.

## Courses in Informatics (12 credits)

- INF 110 Introduction to Application Development (3 credits)  
OR
- INF 120 Elementary Programming - NS (3 credits) ♦
  
- INF 282 Introduction to Databases (3 credits) ♦
  
- INF 284 Introduction to Computer Networks (3 credits) ♦  
OR
- CIT 285 Cybersecurity Fundamentals (3 credits)
  
- INF 286 Introduction to Web Development (3 credits) ♦

## Core Courses in Business Information Systems (27 credits)

- BIS 305 Advanced Business Programming (3 credits) ♦
- BIS 310 Systems Analysis and Design (3 credits) ♦
- BIS 330 IT Project Management (3 credits) ♦
- BIS 364 Visualizing Data for Business Analysis (3 Credits) ♦
  
- BIS 382 Principles of Information Security (3 credits) ♦  
OR
- HIN 382 Healthcare Information Security and Privacy (3 credits) ♦
  
- BIS 430 Business Process Analysis (3 credits) ♦
- BIS 485 Strategic Information Systems Management (3 credits)  
(capstone)

## Guided Electives - select one of the tracks below or any two courses from the following (6 credits)

- BIS 373 Collaboration Systems with SharePoint (3 Credits) ♦
- BIS 384 Business Analytics (3 credits) ♦
- BIS 394 Topics: Information Systems (3 credits) ♦
- BIS 396 Applied Business Informatics (1-3 credits) ♦
- BIS 397 Information Systems Projects (1-3 credits) ♦
- BIS 402 Programming for E-Business (3 credits) ♦
- BIS 420 Business Intelligence & Enterprise Appl. (3 credits) ♦
- BIS 435 Database Management Systems (3 credits) ♦
- BIS 440 Global Information Technology Management (3 credits) ♦
- BIS 494 Topics: Information Systems (3 credits) ♦

Total Credits 94

### Business Analytics Track (6 credits)

- BIS 384 Business Analytics (3 credits) ♦
- BIS 420 Business Intelligence & Enterprise Appl. (3 credits) ♦

Total Credits 94

### Information Assurance Track (6 credits)

- ACC 310 Accounting Information Systems (3 credits) ♦
  - ACC 330 Fraud Examination (3 credits) ♦
- Note: BIS 382 must be the selected option in the Business Information Systems core.

Total Credits 94

### Computer Security Track (6 credits)

- CIT 371 Unix Systems (3 credits) ♦
- And select one of the following courses:*
- CIT 430 Computer Forensics (3 credits) ♦
- OR
- CIT 480 Securing Computer Systems (3 credits) ♦
- OR
- CIT 481 Cybersecurity Capstone (3 credits) ♦
- Note: BIS 382 must be the selected option in the Business Information Systems core.

Total Credits 94

### Collaboration Systems Track (9 credits)

- BIS 373 Collaboration Systems with SharePoint (3 Credits) ♦
- Select two of the following courses:*
- CMST 381 Computer-Mediated Communication (3 credits) ♦
  - CMST 303 Organizational Communication (3 credits) ♦
  - CMST 335 Communication and Conflict (3 credits) ♦

Total Credits 97

### Healthcare Information Systems Track (6 credits)

- HIN 355 Foundations of Health Informatics (3 credits)
- HIN 356 Health Information Management (3 credits) ♦

Note: HIN 382 must be the selected option in the Business Information Systems core.

Total Credits 94

## Health Informatics, B.S.

This program provides the student with the specialized skills and knowledge required for a Health Informatics professional. This includes a working knowledge of health care delivery systems and encompasses both technical and clinical knowledge. Knowledge domains include systems and processes; basic health sciences, security, privacy, confidentiality, ethical issues; health system organization; public policy and payment models; project management; health information system design and healthcare data analytics.

### Core Courses (52 credits)

Core Courses in the BS HIN Program

- BIO 208 Human Anatomy and Physiology I - NS (4 credits) ♦
- BIO 208L Human Anatomy and Physiology I Laboratory - SL (0 credits)
- BIO 272 Medical and Biological Terminology (3 credits) ♦
- BIS 101 Fundamentals of Business Computing (3 credits)
- BIS 111 Problem Solving and Creativity - SB (3 credits)
- BIS 275 Introduction to Business Analysis (3 credits)
- BIS 300 Management Information Systems (3 credits) ♦
- BIS 310 Systems Analysis and Design (3 credits) ♦
- BIS 330 IT Project Management (3 credits) ♦
- BIS 380 Quantitative Analysis with Excel (3 credits) ♦
- BIS 384 Business Analytics (3 credits) ♦
- BIS 430 Business Process Analysis (3 credits) ♦
- BIS 435 Database Management Systems (3 credits) ♦
- CMST 403 Health Communication (3 credits) ♦
- INF 110 Introduction to Application Development (3 credits)
- INF 128 Principles of Informatics - SB (3 credits)
- INF 282 Introduction to Databases (3 credits) ♦
- INF 284 Introduction to Computer Networks (3 credits) ♦

### Major Courses (22 credits)

- HIN 101 Introduction to Health Informatics (1 Credits)
- HIN 200 Introduction to Healthcare Operations (3 Credits)
- HIN 275 Information Management and Revenue Cycle (3 credits)
- HIN 355 Foundations of Health Informatics (3 credits)
- HIN 356 Health Information Management (3 credits) ♦
- HIN 382 Healthcare Information Security and Privacy (3 credits) ♦
- HIN 450 Quality Management in Healthcare (3 credits) ♦
- HIN 485 Health Informatics Capstone (3 credits) ♦

### Elective Courses (9 credits)

Elective Courses in the HIN Program.

- BIS 305 Advanced Business Programming (3 credits) ♦
- BIS 364 Visualizing Data for Business Analysis (3 Credits) ♦
- BIS 373 Collaboration Systems with SharePoint (3 Credits) ♦
- BIS 394 Topics: Information Systems (3 credits) ♦
- BIS 420 Business Intelligence & Enterprise Appl. (3 credits) ♦
- HIN 392 Directed Research in Health Informatics (1-3 credits) ♦
- HIN 396 Applied Health Informatics (1-3 credits) ♦
- HIN 397 Health Informatics Project (1-3 credits) ♦

## Library Informatics, B.S.

Available exclusively in a fully-online format.

By completing a bachelor's degree in library informatics a student will be prepared to work in the expanding career fields of information evaluation and management. Professional positions are available in a wide variety of settings: libraries, corporate information centers, research divisions, government agencies, public service institutions, and more. Courses in this program focus on three broad areas of expertise for information specialists:

- **Organizing information:** Through coursework, students will learn to use technology, identification schemes, and classification models to manage information more effectively. Examples of specific course topics include the subject classification systems, meta-data programs, information policy, information entrepreneurship, preservation of original sources, and the unique organizational demands of multiple media materials.
- **Accessing information:** Coursework will guide students in the development of effective and efficient information retrieval and will build skills to devise effective search strategies for a wide variety of database structures and search engine protocols. Examples of specific course topics include the use of tertiary reference guides to streamline information seeking; publication and dissemination cycles; the structure of information searches to retrieve specific information characteristics; cost-benefit analyses of information searches; and ethical and legal issues in using information.
- **Assessing information:** Course content centers on evaluating usability, reliability, and sufficiency of information sources. Specific study would include applying critical thinking skills to the analysis of resources; matching information sources to specific audience needs; judging the relative value of various information packages; and evaluating decision-making models using data and opinion sources.

♦ Indicates prerequisite.

These prerequisites are not included in the program totals in the table below, but they must be completed IN ADDITION TO other program requirements.

## Degree Requirements (45 credits)

### Core Courses

- LIN 300 Information in Our Society (3 credits)
- LIN 301 Introduction to Meta Information System (3 credits) ♦
- LIN 302 Digital Searching Interfaces (3 credits)
- LIN 303 Critical Reading (3 credits)
- INF 282 Introduction to Databases (3 credits) ♦
- LIN 400 Current Trends in Information Studies (3 credits)
- LIN 496 Senior Capstone (3 credits) ♦



- LIN 175 Information Literacy - SB (3 credits)
- LIN 414 Advanced Information Literacy Skills (3 credits) ♦
- BIS 101 Fundamentals of Business Computing (3 credits)
- INF 110 Introduction to Application Development (3 credits)
- BIS 300 Management Information Systems (3 credits) ♦

### Select three courses from the following (9 credits)

- CIT 247 Networking Fundamentals (3 credits) ♦
- INF 186 Media Web Coding (3 credits) ♦
- INF 284 Introduction to Computer Networks (3 credits) ♦
- LIN 305 Government Information (3 credits)
- LIN 394 Topics (3 credits)
- LIN 405 Intellectual Property and Information Rights (3 credits) ♦
- LIN 420 Management in Library and Information Centers (3 credits) ♦
- LIN 499 Independent Study: Library Informatics (1-3 credits) ♦
- PHI 310 Information Ethics (3 credits)
- JOU 440 Current Topics in Media Ethics (3 credits) ♦

### Note:

Students are responsible for meeting all prerequisites set forth by the department offering the course.

## Post baccalaureate Certificate

### Information Systems Management Certificate

This post baccalaureate certificate is available to students with an undergraduate degree and consists of 15 credit hours required.

♦ Indicates prerequisite.

These prerequisites are not included in the program totals in the table below, but they must be completed IN ADDITION TO other program requirements.

### Requirements for Post baccalaureate Certificate (15 credits)

- INF 110 Introduction to Application Development (3 credits)
- BIS 300 Management Information Systems (3 credits) ♦
- BIS 330 IT Project Management (3 credits) ♦
- BIS 440 Global Information Technology Management (3 credits) ♦
- BIS 485 Strategic Information Systems Management (3 credits) (capstone)

## Undergraduate Certificate

### Business Informatics Certificate

**Available in both traditional and fully-online formats.**

The business informatics certificate is available to current students and consists of 12 credit hours.

◆ Indicates prerequisite.

## Requirements for Certificate (12 credits)

- INF 110 Introduction to Application Development (3 credits)
- INF 282 Introduction to Databases (3 credits) ◆
- BIS 300 Management Information Systems (3 credits) ◆
- BIS 330 IT Project Management (3 credits) ◆

## Minor

### Business Analytics Minor

The department offers a minor in Business Analytics that consists of 27 credit hours (21 hours required, and 3 credit hours each from two different groups. This minor will help students develop strong analytical skills and technological expertise in business analytics.

◆ Indicates prerequisite

These prerequisites are not included in the program totals in the table below, but they must be completed IN ADDITION TO other program requirements.

## Requirements for Minor (27 credits)

### Core Courses (21 credits)

- INF 110 Introduction to Application Development (3 credits)
- BIS 111 Problem Solving and Creativity - SB (3 credits)
- INF 282 Introduction to Databases (3 credits) ◆
  
- MKT 205 Principles of Marketing (3 credits) ◆ OR
- BIS 275 Introduction to Business Analysis (3 credits)
  
- BIS 300 Management Information Systems (3 credits) ◆
- BIS 380 Quantitative Analysis with Excel (3 credits) ◆
- BIS 384 Business Analytics (3 credits) ◆

### Select one course from the following (3 credits)

- BIS 364 Visualizing Data for Business Analysis (3 Credits) ◆
- BIS 420 Business Intelligence & Enterprise Appl. (3 credits) ◆
- BIS 430 Business Process Analysis (3 credits) ◆
- BIS 435 Database Management Systems (3 credits) ◆

## Select one course from the following (3 credits)

- DSC 311 Data Analytics (3 credits) ♦
- ECO 310 Introduction to Econometrics (3 credits) ♦
- MKT 300 Marketing Tools (3 credits) ♦
- MGT 305 Operations Management in Business (3 credits) ♦
- XXX 396 Internship: Business Analytics related - must be approved by academic department (3 credits)

## Health Informatics Minor

The department offers a minor in health informatics that consists of 25 credit hours. After completing the minor, the successful student will have competence in the underlying skills necessary to become a health informaticist. Students will be able to demonstrate knowledge in the health informatics field and in information systems as it relates to healthcare. Students will be able to analyze, synthesize, and problem solve using a variety of techniques and tools.

♦ Indicates prerequisite.

These prerequisites are not included in the program totals in the table below, but they must be completed IN ADDITION TO other program requirements.

## Requirements for minor (25 credits)

- INF 282 Introduction to Databases (3 credits) ♦
- HIN 101 Introduction to Health Informatics (1 Credits)
- HIN 200 Introduction to Healthcare Operations (3 Credits)
- HIN 355 Foundations of Health Informatics (3 credits)
- HIN 356 Health Information Management (3 credits) ♦
- BIS 300 Management Information Systems (3 credits) ♦
- BIS 330 IT Project Management (3 credits) ♦
- Select two additional HIN or BIS electives (6 credits)

## Information Systems Minor

The department offers a minor in Information Systems that consists of 24 credit hours (18 hours required, 3 credits of electives at the 100 level and above, and 3 credit hours of electives at the 300/400/500 level).

♦ Indicates prerequisite.

These prerequisites are not included in the program totals in the table below, but they must be completed IN ADDITION TO other program requirements.

## Requirements for Minor (24 credits)

### Core Requirements

- INF 110 Introduction to Application Development (3 credits) OR
- INF 120 Elementary Programming - NS (3 credits) ♦

- INF 282 Introduction to Databases (3 credits) ♦
- BIS 300 Management Information Systems (3 credits) ♦
- BIS 275 Introduction to Business Analysis (3 credits)
- BIS 310 Systems Analysis and Design (3 credits) ♦
- BIS 330 IT Project Management (3 credits) ♦

Select one course from the following (3 credits)

- INF 186 Media Web Coding (3 credits) ♦
- INF 284 Introduction to Computer Networks (3 credits) ♦
- INF 286 Introduction to Web Development (3 credits) ♦

Select one course from the following (3 credits)

- BIS 305 Advanced Business Programming (3 credits) ♦
- BIS 380 Quantitative Analysis with Excel (3 credits) ♦
- BIS 382 Principles of Information Security (3 credits) ♦
- BIS 384 Business Analytics (3 credits) ♦
- BIS 402 Programming for E-Business (3 credits) ♦
- BIS 357 Enterprise Resource Planning (3 credits) ♦
- BIS 420 Business Intelligence & Enterprise Appl. (3 credits) ♦
- BIS 430 Business Process Analysis (3 credits) ♦
- BIS 435 Database Management Systems (3 credits) ♦
- BIS 440 Global Information Technology Management (3 credits) ♦

## Library Informatics Minor

♦ Indicates prerequisite

Core Courses (21 credits)

- LIN 175 Information Literacy - SB (3 credits)
- LIN 300 Information in Our Society (3 credits)
- LIN 301 Introduction to Meta Information System (3 credits) ♦
- LIN 302 Digital Searching Interfaces (3 credits)
- LIN 400 Current Trends in Information Studies (3 credits)

Select two courses from the following (6 credits)

- LIN 303 Critical Reading (3 credits)
- LIN 305 Government Information (3 credits)
- LIN 394 Topics (3 credits)
- LIN 405 Intellectual Property and Information Rights (3 credits) ♦
- LIN 414 Advanced Information Literacy Skills (3 credits) ♦
- LIN 420 Management in Library and Information Centers (3 credits) ♦

- LIN 499 Independent Study: Library Informatics (1-3 credits) ♦

## Department of Communication

**Location:** Griffin Hall 400

**Telephone:** 859-572-5436

**Fax:** 859-572-6187

**Email Address:** communication@nku.edu

**Web Address:** <http://comm.nku.edu>

**Department Chair:** Stephen Yungbluth

**Program Director(s):**

Communication Studies Program Director: Andrea Lambert South  
Electronic Media & Broadcasting Program Director: Chris Strobel  
Health Communication Program Director: Andrea Lambert South  
Journalism Program Co-Directors: Michele Day, Jacqueline Emerine  
Media Informatics Program Director: Chris Strobel  
Public Relations Program Director: Gregory De Blasio

**Other Key Personnel:**

General Education Director: Jeff Fox  
Student Media Adviser: Michele Day  
Senior Operations Coordinator: Sue Murphy-Angel  
Academic Coordinator: Christa Witt  
Academic Specialist: Aaron Zlatkin

**Full-Time Faculty:** Wesley Akers, Alyssa Appelman, Steve Bien-Aime, Sookie Cho, Whitney Darnell, Michele Day, Gregory De Blasio, Sara Drabik, Jacqueline Emerine, Jeff Fox, John Gibson, Zachary Hart, Stacie Jankowski, Stephen Johnson, Stephanie Klatzke, Jessica Kratzer, Yasue Kuwahara, Andrea Lambert-South, Mark Leeman, Manu Pokharel, Lex Pulos, Gaut Ragsdale, J. Michael Skaggs, Tracy Songer, Christopher Strobel, David Thomson, Steven Weiss, Stephen Yungbluth

**Thinking about the discipline:** The Department of Communication fosters an integrated approach to the study and practice of communication and emphasizes the fundamental role communication plays in virtually all human endeavors.

Students majoring in communication studies, electronic media and broadcasting, health communications, journalism, media informatics, or public relations will take courses that teach basic and advanced skills in computer-mediated, digital, spoken, visual, aural, and written communication. They also promote an understanding of communication principles and theories as well as an awareness of the personal, social, psychological, and cultural impacts of communication. The department's courses also emphasize situational analysis, issue identification, problem solving, message construction, storytelling, and effective presentation.

Communication students aspire to become professional communicators in fields such as broadcast, online, and print journalism; 3D, animation, computer-mediated, audio, and video storytelling; organizational communication; public relations; and health communication.

**Special opportunities for our students:** The communication department provides numerous opportunities for practical and applied experiences through an active internship program, projects and practicum courses, and student organizations. The department is home to NorseMedia, which creates media for NKU's web presence and cable television station, as well as Norse PROvisions, a student-run public relations firm. In addition, the NKU student newspaper (*The Northerner*) and online radio station (Norse Code Radio) are housed in the department. Students also have the opportunity to join a variety of discipline-specific student organizations such as the MINjas, NKU E-Sports, Norse Film Society, Public Relations Student Society of America, and Society for Professional Journalists. High achieving students are also eligible to join the communication honor society, Lambda Pi Eta.

**Special graduation requirements:** All majors and minors must earn a letter grade of C- or better and a 2.0 GPA in their major or minor courses.

Interdisciplinary Minors:

- Popular Culture Studies Minor

## Bachelor of Arts

### Communication Studies, B.A.

**Available in both traditional and fully-online formats.**

The communication studies program provides: (1) a strong general background in practice, theory, history, and criticism of communicative acts; (2) opportunities for students to improve their communication skills; (3) a variety of courses to enrich the programs of students in other disciplines; (4) training for students who plan to enter professional fields such as public relations, human resources, sales, training/development, law, ministry, teaching, business, and politics; and (5) a background for graduate study in communication studies or related fields.

Students majoring in communication studies must complete 42 credit hours of study as outlined below, including "CMST 101 Public Speaking - OC (3 credits)" or "CMST 110 Introduction to Communication Studies - OC (3 credits)" for the oral communication requirement of their general education program. Students may not double count Communication Department courses toward the Communication Studies major and other majors and minors in the Communication Department unless the course is required as the only option in the Communication Studies major and other majors and minors in the Communication Department.

**Special graduation requirements:** All majors and minors must earn a letter grade of C- or better and a 2.0 GPA in their major or minor courses.

♦ Indicates prerequisite.

## Degree Requirements (39 credits plus 3 Foundation of Knowledge credits)

### Foundation of Knowledge coursework (3 credits)

Students must take one of the following two courses to fulfill their Oral Communication requirement in their general education curriculum.

- CMST 101 Public Speaking - OC (3 credits)  
OR
- CMST 110 Introduction to Communication Studies - OC (3 credits)

### Core Courses (33 credits)

- CMST 220 Interpersonal Communication (3 credits) ♦
- CMST 230 Small Group Communication (3 credits) ♦
- CMST 300 Research Methods in Communication Studies (3 credits) ♦
- CMST 303 Organizational Communication (3 credits) ♦

- CMST 310 Argumentation (3 credits) ♦  
OR
- CMST 340 Strategies of Persuasion (3 credits) ♦  
OR
- CMST 410 Rhetorical Theory and Criticism (3 credits) ♦
  
- CMST 355 Culture and Communication (3 credits) ♦
- CMST 370 Advanced Public Speaking (3 credits) ♦
- CMST 430 Communication Theories (3 credits) ♦
- Select two 200/300/400-level CMST courses (6 credits)
- Select one CMST, EMB, HCOM, JOU, MIN, POP, PRE, or 400/500-level COM course not used as a general education course.

## Professional Skills Courses (6 credits)

Select two courses from the following

- BIS 101 Fundamentals of Business Computing (3 credits)
- CMST 396 Internship: Communication (3 credits) ♦
- ENG 340 Business Writing (3 credits) ♦
- ENG 347 Technical Writing (3 credits) ♦
- ENG 349 Web Writing for the Professions (3 credits) ♦
- INF 286 Introduction to Web Development (3 credits) ♦
- JOU 220 News Writing (3 credits) ♦
- JOU 305 Science in the Media (3 credits) ♦
- LDR 300 Foundations of Leadership (3 credits) ♦
- MGT 205 Business Management Principles (3 credits) ♦
- MKT 205 Principles of Marketing (3 credits) ♦

### Note:

These courses may not be used to complete a minor, focus, or second major requirements. Other courses may be substituted if approved by an advisor.

## Electronic Media and Broadcasting, B.A.

The electronic media and broadcasting program fully embraces the department's academic-and-applied mantra by developing our students' skills as electronic storytellers. Students will build their stories upon the theoretical and aesthetic foundations that define effective media, learning to write and create media from radio to corporate video to documentaries to live television to digital cinema and more. Successful students will graduate with the conceptual proficiencies and practical skills to build a body of work, showcasing individual achievement in preparation for roles in creating informative and entertainment programming.

Students majoring in electronic media and broadcasting must complete 55-61 credit hours of study as listed below, including "CMST 101 Public Speaking - OC (3 credits)" or "CMST 110 Introduction to Communication Studies - OC (3 credits)" for the oral communication requirement of the general education program, and "EMB 100 Media Literacy - AH (3 credits)" for a culture and creativity requirement of the general education program. Students may not double count Communication Department courses toward the Electronic Media and Broadcasting major and other majors and minors in the Communication Department unless the course is required as the only option in the Electronic Media and Broadcasting major and other majors and minors in the Communication Department.

**Special graduation requirements:** All majors and minors must earn a letter grade of *C-* or better and a 2.0 GPA in their major or minor courses.

◆ Indicates prerequisite.

## Degree Requirements (55-61 credits, plus 6 Foundation of Knowledge credits)

### Foundation of Knowledge coursework (6 credits)

Take one of the two CMST courses below to fulfill the Oral Communication requirement and take the EMB course to fulfill a culture and creativity requirement.

- CMST 101 Public Speaking - OC (3 credits)  
OR
- CMST 110 Introduction to Communication Studies - OC (3 credits)
- EMB 100 Media Literacy - AH (3 credits)

### Core Courses (31 credits)

- EMB 101 Electronic Media Appreciation 1 (1 credit)
- EMB 102 Electronic Media Production Assistance 1 (1 credit) ◆
- EMB 110 Introduction to Mass Media (3 credits)
- EMB 140 Introduction to Media Aesthetics (3 credits)
- EMB 201 Electronic Media Appreciation 2 (1 credit) ◆
- EMB 202 Electronic Media Production Assistance 2 (1 credit) ◆
- EMB 210 Single Camera Production (3 credits) ◆
- EMB 215 Audio Production (3 credits) ◆
- MIN 221 Visual Fundamentals for Digital Media (3 credits) ◆
- EMB 260 Writing for the Media (3 credits) ◆
- EMB 335 Sports Media Production (3 credits) ◆  
OR
- EMB 396 Internship: Electronic Media and Broadcasting (3-6 credits) ◆  
OR
- EMB 397 Projects (3 credits) ◆
- EMB 400 Media Criticism (3 credits) ◆
- EMB 435 Media Studies (3 credits) ◆

### Studies (3 credits)

Select one course from the following

- CMST 220 Interpersonal Communication (3 credits) ◆
- CMST 303 Organizational Communication (3 credits) ◆
- EMB 380 Documentary Theory and History (3 credits) ◆



- PSY 304 Consumer Psychology (3 credits) ♦

## Content Creation (12 credits)

Select four courses from the following

- EMB 305 Multicamera Video Production (3 credits) ♦
- EMB 308 Electronic News Gathering (3 Credits) ♦
- EMB 310 Newscast Production (3 credits) ♦
- EMB 320 Multitrack Audio Mixing (3 credits) ♦
- EMB 322 Video Editing (3 credits) ♦
- EMB 326 Digital Compositing (3 credits) ♦
- EMB 421 Narrative Production (3 credits) ♦
- EMB 423 Documentary Production (3 credits) ♦
- EMB 450 Screenwriting (3 credits) ♦

## Law/Ethics (3 credits)

Select one course from the following

- EMB 460 Production Management (3 credits) ♦
- JOU 485 Mass Communication Law (3 credits) ♦
- JOU 440 Current Topics in Media Ethics (3 credits) ♦
- LIN 405 Intellectual Property and Information Rights (3 credits) ♦

## Select one 300-or 400-level College of Informatics course (3 credits)

(BIS, CIT, CMST, CSC, DSC, EMB, HCOM, HIN, INF, JOU, LIN, MIN, POP, or PRE)

## International Media (3-9 credits)

Select one Study Abroad/Away course or three International Studies courses.

### Study Abroad/Away (3 credits)

- EMB 395 Special Topics: Study Away (3 credits) ♦
- OR
- EMB 495 Special Topics: Study Abroad (1-3 credits) ♦

## International Studies (9 credits)

With consultation of advisor, select three courses focusing upon international study. Possible courses include the following

- ANT 201 World Cultures - SB (3 credits) (cannot be used for general education)
- ANT 358 Art and Culture (3 credits) ♦
- ANT 382 Visual Anthropology (3 credits) ♦
- ANT 386 Economy, Wealth and Culture (3 credits) ♦

- CIN 201 Survey of World Cinema (3 credits)
- CMST 355 Culture and Communication (3 credits) ♦
- EMB 370 International Media (3 credits) ♦
- HIS 111 Global Viewpoints in History - AH (3 credits) (cannot be used for general education)
- PHI 309 Global Ethics (3 credits) ♦
- POP 250 International Popular Culture - AH (3 credits) (cannot be used for general education)
- PSC 322 International Politics in Film (3 credits) ♦
- PSC 410 International Political Economy (3 credits) ♦
- PSC 480 International Law (3 credits) ♦
- SOC 101 Global Inequalities - SB (3 credits) (cannot be used for general education)

## Health Communication, B.A.

The explosion of social media and other interactive communication technologies is dramatically changing the ways in which consumers obtain and make sense of health related information. For example, peer to peer communication (e.g., within Facebook support group) about a medical condition is as important to understanding and coping as communication with providers. Providers and other health care professionals must be fully aware of and appreciate all the different sources of information that are key to sensemaking and understanding. Creating messages that are clear, easy to understand, and address the emotional and logical processing of health information is crucial and lead to positive health outcomes. The messages also must address cultural differences and health disparities in terms of behavior and care that are present in a diverse society.

The health communication program will produce graduates who are skilled, effective and literate communicators. They will be able to facilitate the sensemaking and decision making processes related to health information and be well equipped to communicate across many contexts and rapidly changing media platforms. Students completing this program will be prepared for a wide array of emerging health communication careers in industry, the non-profit sector and government.

Depending on students' areas of interest, they are encouraged to select a minor that will complement this major and strengthen their skill set. For example, if a student has an interest in video production related to health communication, a minor in Electronic Media and Broadcasting would be appropriate.

Students majoring in health communication must complete 60 credit hours of study as outlined below, earn a C- or better in each course for the major and satisfy the University's graduation requirements, including CMST 101 Public Speaking - OC (3 credits) or CMST 110 Introduction to Communication Studies - OC (3 credits) for the general education oral communication requirement, JOU 110 Introduction to Mass Communication - SB (3 credits) or INF 128 Principles of Informatics - SB (3 credits) to fulfill the general education individual and society requirement, and SWK 105 Social Work and the Community - SB (3 credits) to fulfill the general education cultural pluralism requirement. It is recommended students take PSY 100 Introduction to Psychology - SB (3 credits) to fulfill the general education individual and society requirement and STA 205 Statistical Methods - QR (3 credits) to fulfill the mathematics general education requirement. Students may not double count Communication Department courses toward the Health Communication major and other majors and minors in the Communication Department unless the course is required as the only option in the Health Communication major and other majors and minors in the Communication Department.

**Special graduation requirements:** All majors and minors must earn a letter grade of C- or better and a 2.0 GPA in their major or minor courses.

## Degree Requirements (51 credits plus 9 Foundation of Knowledge credits)

### Foundations of Knowledge coursework (9 credits)

- CMST 101 Public Speaking - OC (3 credits)
- OR

- CMST 110 Introduction to Communication Studies - OC (3 credits)
- INF 128 Principles of Informatics - SB (3 credits)  
OR
- JOU 110 Introduction to Mass Communication - SB (3 credits)
- SWK 105 Social Work and the Community - SB (3 credits)

## Core Courses (27 credits)

- CMST 220 Interpersonal Communication (3 credits) ♦
- CMST 300 Research Methods in Communication Studies (3 credits) ♦
- CMST 333 Lifespan Communication (3 credits) ♦
- CMST 403 Health Communication (3 credits) ♦
- HCOM 305 Patient-Provider Communication (3 credits) ♦
- HCOM 450 Health Campaigns (3 credits) ♦
- HCOM 480 Communication Technology and Health (3 credits) ♦
- HCOM 496 Health Communication Internship (3 credits) ♦
- JOU 305 Science in the Media (3 credits) ♦

## Professional Skills Courses (6 credits)

Choose two courses from the list below.

- ENG 349 Web Writing for the Professions (3 credits) ♦
- JOU 220 News Writing (3 credits) ♦
- MGT 205 Business Management Principles (3 credits) ♦
- MKT 205 Principles of Marketing (3 credits) ♦
- HSC 410 Healthcare Management (3 credits) ♦

## Health Issues/Domains (6 credits)

Choose two courses from the list below.

- HEA 320 Drug and Alcohol Education (3 credits) ♦
- HIN 200 Introduction to Healthcare Operations (3 Credits)
- HIN 355 Foundations of Health Informatics (3 credits)
- HSR 300 Ethics & Issues in Human Svc Profession (3 credits) ♦
- HSR 305 Principles of Assessment in Human Svcs (3 credits) ♦
- HSR 312 Crisis Intervention (3 credits)
- HSR 314 Death, Dying, and Grief (3 credits) ♦
- PSY 315 Psychology of Human Sexuality (3 credits) ♦
- PSY 333 Abnormal Psychology (3 credits) ♦
- PSY 340 Social Psychology (3 credits) ♦
- PSY 505 Drug Policy (3 credits) ♦
- PSY 510 Psychopharmacology (3 credits) ♦

## Diversity and Health Courses (6 credits)

Choose two courses from list below.

- HCOM 315 Sociocultural Aspects of Health (3 credits) ♦
- HCOM 495 Study Abroad (1-3 credits)
- HSC 413 Aging in Today's Society (3 credits)
- HSR 303 Multicultural Issues in Human Services (3 credits)
- SOC 480 Global Aging Issues and Policies (3 credits) ♦
- SWK 455 Multicultural Family Experiences (3 credits)

## Communication Electives (6 credits)

Choose two courses from the list below.

- CMST 220 Interpersonal Communication (3 credits) ♦
- CMST 230 Small Group Communication (3 credits) ♦
- CMST 303 Organizational Communication (3 credits) ♦
- CMST 333 Lifespan Communication (3 credits) ♦
- CMST 340 Strategies of Persuasion (3 credits) ♦
- CMST 355 Culture and Communication (3 credits) ♦
- CMST 440 Communication Training and Development (3 credits) ♦
- HCOM 485 Communicating Health Policy (3 credits) ♦
- HCOM 494 Special Topics: Health Communication (3 credits)
- HCOM 499 Independent Study (1-3 credits)
- JOU 321 Digital Publishing (3 credits) ♦
- JOU 340 Feature Writing (3 credits) ♦
- JOU 450 Media Skills (3 credits) ♦
- PRE 375 Principles of Public Relations (3 credits) ♦
- PRE 377 Public Relations Case Studies and Campaigns (3 credits) ♦
- PRE 410 Electronic Public Relations (3 credits) ♦

## Journalism, B.A.

Journalists will always provide the news that people need by finding out what is happening in their neighborhoods, their cities, their states, and their nation and by informing citizens about items they need to know. Students who study journalism learn how to write well and quickly. They learn how to do research and analyze what they find. They learn how to ask the right questions, find the right documents, and communicate what they've discovered in an engaging way. Changing technology has opened opportunities for journalists such as blogging, editing, and shooting video and photos for newspapers, radio, television, and online news organizations. They also find work in related fields, such as public relations and advertising. Many journalism majors also go on to graduate school or law school.

Students majoring in journalism must complete 39 credit hours of study as outlined below, and take "CMST 101 Public Speaking - OC (3 credits)" or "CMST 110 Introduction to Communication Studies - OC (3 credits)" for the oral communication requirement of their general education program, and take "JOU 110 Introduction to Mass Communication - SB (3 credits) - SB (3 credits)" as one of the courses for the Individual & Society requirement in their general education program. Students may not double count Communication Department courses toward the Journalism major and other majors and minors in the Communication Department unless the course is required as the only option in the Journalism major and other majors and minors in the Communication Department.

**Special graduation requirements:** All majors and minors must earn a letter grade of *C-* or better and a 2.0 GPA in their major or minor courses.

◆ Indicates prerequisite.

## Degree Requirements (39 credits plus 3 Foundation of Knowledge credits)

### Foundation of Knowledge coursework (3 credits)

- JOU 110 Introduction to Mass Communication - SB (3 credits)

### Core Courses (27 credits)

- EMB 140 Introduction to Media Aesthetics (3 credits)
- JOU 220 News Writing (3 credits) ◆
- JOU 230 News Reporting and Writing (3 credits) ◆
- JOU 346 Copy Editing and Design (3 credits) ◆
- JOU 380 News Media Workshop (3 credits) ◆
- JOU 440 Current Topics in Media Ethics (3 credits) ◆
- JOU 450 Media Skills (3 credits) ◆
- JOU 480 Advanced News Media Workshop (3 credits) ◆
- JOU 485 Mass Communication Law (3 credits) ◆

### Select four courses from the following (12 credits)

- CEP 300 Cooperative Education (1-3 credits)
- EMB 308 Electronic News Gathering (3 Credits) ◆
- JOU 305 Science in the Media (3 credits) ◆
- JOU 321 Digital Publishing (3 credits) ◆
- JOU 325 Photojournalism (3 credits) ◆
- JOU 330 Public Affairs Reporting (3 credits) ◆
- JOU 331 Specialty Reporting (3 credits) ◆
- JOU 340 Feature Writing (3 credits) ◆
- JOU 370 Principles of Advertising (3 credits) ◆
- JOU 382 Data Journalism (3 credits) ◆
- JOU 394 Special Topics in Journalism (3 credits) ◆
- JOU 396 Internship (3 credits) ◆
- JOU 421 Mass Communication History (3 credits) ◆
- JOU 499 Independent Study: Journalism (1-3 credits) ◆

## Media Informatics, B.A.

The media informatics program resides at the intersection of communication, arts, technology, and code. Students in this diverse and challenging major collaborate to create and design websites, 3D animation, apps, and video games, that educate, inform, inspire, and entertain. Coursework focuses on both cutting edge technology and foundational understanding of theories and techniques needed to create compelling and inventive experiences for the next generation.

The media informatics curriculum will prepare students to create and deliver content with the end goal of developing engaging and effective interactive, immersive, and animated storytelling.

Students majoring in media informatics must complete 54 credit hours of study as outlined below, and take "CMST 101 Public Speaking - OC (3 credits)" or "CMST 110 Introduction to Communication Studies - OC (3 credits)" for the oral communication requirement of their general education program.

Also, MIN students are required to take "INF 120 Elementary Programming - NS (3 credits)" to fulfill the natural science without a lab requirement of the general education program.

In addition, MIN students are required to take "EMB 100 Media Literacy - AH (3 credits)" or "JOU 110 Introduction to Mass Communication - SB (3 credits)" to fulfill either a culture and creativity or individual and society requirement of the general education program. Students may not double count Communication Department courses toward the Media Informatics major and other majors and minors in the Communication Department unless the course is required as the only option in the Media Informatics major and other majors and minors in the Communication Department.

**Special graduation requirements:** All majors and minors in the Department of Communication must earn a letter grade of C- or better and a 2.0 GPA in their major or minor courses.

♦ Indicates prerequisite.

## Degree Requirements (54 credits, plus 9 Foundation of Knowledge credits)

### Foundation of Knowledge coursework (9 credits)

Take INF 120 to fulfill the Natural Science without a lab requirement.

Take EMB 100 to fulfill a Culture and Creativity requirement OR JOU 110 to fulfill an Individual and Society requirement.

Take CMST 101 OR CMST 110 to fulfill the Oral Communication requirement.

- INF 120 Elementary Programming - NS (3 credits) ♦
- EMB 100 Media Literacy - AH (3 credits)  
OR
- JOU 110 Introduction to Mass Communication - SB (3 credits)
- CMST 101 Public Speaking - OC (3 credits)  
OR
- CMST 110 Introduction to Communication Studies - OC (3 credits)

### Core Courses (39 credits)

- EMB 140 Introduction to Media Aesthetics (3 credits)
- INF 286 Introduction to Web Development (3 credits) ♦
- MIN 221 Visual Fundamentals for Digital Media (3 credits) ♦
- MIN 240 Introduction to Interactive Media (3 credits) ♦
- MIN 244 Principles of Digital 3D Animation (3 credits) ♦
- MIN 245 3D Modeling Fundamentals (3 credits) ♦
- MIN 250 Analog Game Design (3 credits) ♦
- MIN 252 Non-Linear Interactive Storytelling (3 credits) ♦

- MIN 309 3D Hard Surface Modeling (3 credits) ♦
- OR
- MIN 340 Media Scripting for Interactivity (3 credits) ♦
  
- MIN 352 Project Research Management (3 credits) ♦
- MIN 381 Computer-Mediated Communication (3 credits)
- MIN 420 Professional Practices (3 credits) ♦
- MIN 452 Advanced Portfolio Production (3 credits) ♦

## Electives (choose 5 classes - 15 credits)

Select any of the following courses:

- Any additional MIN prefix course
- ARTM 331 Digital Arts & Effects (3 credits) ♦
- ARTM 360 Robotic Art (3 credits) ♦
- ARTM 394 Topics in New Media Art (3 credits) ♦
- EMB 326 Digital Compositing (3 credits) ♦
- JOU 440 Current Topics in Media Ethics (3 credits) ♦

## Select one 300- or 400- level College of Informatics course (3 credits)

(BIS, CIT, CMST, CSC, DSC, EMB, HCOM, HIN, INF, JOU, LIN, MIN, POP, or PRE)

## Public Relations, B.A.

Students electing to major in public relations will enter a program of interdisciplinary study leading to career opportunities within organizations and PR firms. The major has an academic and applied orientation where students learn principles, skills, and practices that prepare them for entry to mid-level positions in public relations. Students take courses in public relations, communication studies, journalism, and electronic media and broadcasting. Skills emphasized in these courses are research, strategic planning, writing, presenting, analyzing, and creating.

Students majoring in public relations must complete 42 credit hours of study as outlined below, and take "CMST 101 Public Speaking - OC (3 credits)" or "CMST 110 Introduction to Communication Studies - OC (3 credits)" for the oral communication requirement of their general education program. Students may not double count Communication Department courses toward the Public Relations major and other majors and minors in the Communication Department unless the course is required as the only option in the Public Relations major and other majors and minors in the Communication Department.

**Special graduation requirements:** All majors and minors must earn a letter grade of C- or better and a 2.0 GPA in their major or minor courses.

♦ Indicates prerequisite.

## Degree Requirements (42 credits, plus 3 Foundation of Knowledge credits)

### Foundations of Knowledge coursework (3 credits)

Students must take one of the following two courses to fulfill their Oral Communication requirement in their general education curriculum.

- CMST 101 Public Speaking - OC (3 credits)  
OR
- CMST 110 Introduction to Communication Studies - OC (3 credits)

### Core Courses (39 credits)

- JOU 110 Introduction to Mass Communication - SB (3 credits)  
OR
- EMB 100 Media Literacy - AH (3 credits)
  
- JOU 220 News Writing (3 credits) ♦
- CMST 220 Interpersonal Communication (3 credits) ♦
- CMST 303 Organizational Communication (3 credits) ♦
- PRE 375 Principles of Public Relations (3 credits) ♦
- JOU 485 Mass Communication Law (3 credits) ♦
- PRE 400 Public Relations Planning and Account Management (3 credits) ♦
  
- CMST 340 Strategies of Persuasion (3 credits) ♦  
OR
- JOU 370 Principles of Advertising (3 credits) ♦
  
- PRE 376 Public Relations Writing (3 credits) ♦
  
- PRE 385 Public Relations Research Methods (3 credits) ♦
- PRE 377 Public Relations Case Studies and Campaigns (3 credits) ♦
  
- PRE 394 Topics in Public Relations (3 credits)  
OR
- Select one 300/400-level elective in CMST, EMB, HCOM, JOU, MIN, POP or PRE (3 credits)
  
- PRE 396 Public Relations Internship (3 credits) ♦  
OR
- PRE 499 Independent Study in Public Relations (1-3 credits) ♦

### Select one course from the following (3 credits)

- JOU 321 Digital Publishing (3 credits) ♦
- PRE 410 Electronic Public Relations (3 credits) ♦
- CMST 370 Advanced Public Speaking (3 credits) ♦

## Minor

### Communication Studies Minor



The minor in communication studies requires 21 credit hours including CMST 220 Interpersonal Communication (3 credits), CMST 303 Organizational Communication (3 credits), CMST 355 Culture and Communication (3 credits), CMST 403 Communication Theories (3 credits) , and three other CMST courses. Students must take CMST 101 Public Speaking - OC (3 credits) or CMST 110 Introduction to Communication Studies - OC (3 credits) to fulfill their oral communication general education requirement, but these courses cannot be used as one of the three CMST courses for the minor. Students may not double count any Communication Department courses toward the Communication Studies minor and other majors and minors in the Communication Department unless the course is required as the only option in the Communication Studies minor and other majors and minors in the Communication Department.

CMST minors must earn a letter grade of C- or better as well as a 2.0 GPA in their minor courses.

## Requirements for Minor (21 credits)

### Required Course (12 credits)

- CMST 220 Interpersonal Communication (3 credits) ♦
- CMST 303 Organizational Communication (3 credits) ♦
- CMST 355 Culture and Communication (3 credits) ♦
- CMST 430 Communication Theories (3 credits) ♦

### Electives (9 credits)

Students must take three CMST courses (total of 9 hours) not listed above and not including CMST 101 or CMST 110.

## Electronic Media and Broadcasting Minor

The electronic media and broadcasting minor introduces students to theoretical and aesthetic foundations that serve as the springboards for creating effective audio and video media.

EMB minors must earn a letter grade of C- or better as well as a 2.0 GPA in their minor courses. Students may not double count Communication Department courses toward the Electronic Media and Broadcasting minor and other majors and minors in the Communication Department unless the course is required as the only option in the Electronic Media and Broadcasting minor and other majors and minors in the Communication Department.

♦ Indicates prerequisite.

## Requirements for Minor (21 credits)

- EMB 110 Introduction to Mass Media (3 credits)
- EMB 140 Introduction to Media Aesthetics (3 credits)
- EMB 210 Single Camera Production (3 credits) ♦
- EMB 215 Audio Production (3 credits) ♦
- MIN 221 Visual Fundamentals for Digital Media (3 credits) ♦
- Select two 300/400-level EMB courses (6 credits)

## Journalism Minor

JOU minors must earn a letter grade of *C-* or better as well as a 2.0 GPA in their minor courses. Students may not double count Communication Department courses toward the Journalism minor and other majors and minors in the Communication Department unless the course is required as the only option in the Journalism minor and other majors and minors in the Communication Department.

◆ Indicates prerequisite.

## Requirements for Minor (21 credits)

- JOU 220 News Writing (3 credits) ◆
- JOU 230 News Reporting and Writing (3 credits) ◆
- JOU 485 Mass Communication Law (3 credits) ◆
- JOU 440 Current Topics in Media Ethics (3 credits) ◆
- Select two 300/400-level JOU courses (EMB 308 may count as one of these two courses) (6 credits)

## Foundation of Knowledge Course Requirement (3 credits)

- JOU 110 Introduction to Mass Communication - SB (3 credits)

## Media Informatics Minor

The media informatics minor introduces the students to the skills and knowledge set that serve as the foundation for designing effective user experiences with websites, apps, 3D animation, and videogame design.

MIN minors must earn a letter grade of *C-* or better as well as a 2.0 GPA in their minor courses. Students may not double count Communication Department courses toward the Media Informatics minor and other majors and minors in the Communication Department unless the course is required as the only option in the Media Informatics minor and other majors and minors in the Communication Department.

◆ Indicates prerequisite.

## Requirements for Minor (21 credits, plus 3 Foundation of Knowledge credits)

### Foundation of Knowledge coursework (3 credits)

Take INF 120 to fulfill the Natural Science requirement.

- INF 120 Elementary Programming - NS (3 credits) ◆

### Core Requirements (15 credits)

- EMB 140 Introduction to Media Aesthetics (3 credits)
- INF 286 Introduction to Web Development (3 credits) ◆
- MIN 221 Visual Fundamentals for Digital Media (3 credits) ◆
- MIN 240 Introduction to Interactive Media (3 credits) ◆
- MIN 244 Principles of Digital 3D Animation (3 credits) ◆

Select two courses from the following (6 credits)

Select two additional MIN prefix courses.

## Department of Computer Science

**Location:** Griffin Hall 400

**Telephone:** 859-572-6930

**Email Address:** cs@nku.edu

**Web Address:** http://cs.nku.edu

**Department Chair:** Maureen Doyle

**Associate Chair:** Marius Truta

**Program Director(s):**

Undergraduate Computer Science Director: Richard Fox

Undergraduate Computer Information Technology Director: TBA

Undergraduate Data Science Director: Maureen Doyle

Cybersecurity Certificate Director: Yi Hu

Geographic Information Systems Certificate Director: Hongmei Wang

Software Development Certificate Director: TBA

### Other Key Personnel:

Senior Operations Coordinator: Sue Murphy-Angel

Academic Coordinator: Christa Witt

Academic Specialist: Aaron Zlatkin

**Full-Time Faculty:** Seth Adjei, Alina Campan, Nicholas Caporusso, Samuel Cho, Scot Cunningham, Maureen Doyle, Richard Fox, Charles Frank, Wei Hao, Yi Hu, Rasib Khan, Qi Li, Timothy McCord, Gary Newell, Kenneth Roth, Emily Taylor, Bradford Thomas, Cynthia Thomas, Marius Truta, Anthony Tsetse, James Walden, Hongmei Wang, Jeff Ward, Gail Wells, Junxiu Zhou.

**Thinking about the discipline:** We offer three undergraduate major: computer information technology, computer science and data science, five undergraduate minors: computer forensics, computer information technology, computer science, data science, and information security, as well as multiple certificates. By majoring in one of the computing fields, a student gets a behind-the-scenes look at the digital world, moving from being a user of information technology to being a creator and/or administrator. Students with degrees in computer science often become software engineers; students with degrees in computer information technology often run large networks or complex websites; students with degrees in data science often use software to model and visualize information.

**Special opportunities for our students:** Students in the computing majors have many opportunities to engage with projects and activities outside the classroom. Each fall, NKU sends teams of computer science majors to the regional Association for Computing Machinery programming competition. Each spring it sends a team of computer information technology majors to the regional Collegiate Cyber Defense Competition. Students interested in research work can get paid to work on projects with faculty members in a variety of areas, from web security to data mining. These student researchers often travel to conferences to present their work. Many students in the department work part time for NKU's Center for Applied Informatics, developing mobile applications and websites for local companies and nonprofit organizations. Students often earn cooperative education credit for this work. The student chapter of the Association for Computing Machinery (ACM), runs both social and educational events. Placement testing information for mathematics courses can be obtained from the Department of Mathematics and Statistics (Mathematics-Education-Psychology Center 401).

**Special admission requirements:** There are no specific admission requirements for the programs in this department.

Special graduation requirements: Students must earn a grade of C- or better in each course that counts as part of a major or minor for all programs offered by the department. Placement testing is available for some computer information technology, computer science and informatics courses.

**You should also know**: More information is available from the College of Informatics advising center (Griffin Hall 404).

## Bachelor of Science

### Computer Information Technology, B.S.

A major in computer information technology requires between 51 and 54 credit hours of coursework, depending on whether a student places out of selected courses.

Students in computer information technology study a core of courses that include basic informatics topics and fundamentals of computer and network administration. Students may choose between four tracks: network and system administration, web and database administration, cybersecurity, and non-specialist. This program is available in flexible course and program scheduling that offers options to complete your requirements. In addition to the traditional 16-week daytime and online courses available, NKU offers several accelerated 7-week evening, online, and hybrid courses. This allows you to customize your schedule in a format that works for you and your life.

Special graduation requirements: Students must earn a grade of C- or better in each course that counts as part of a major or minor for all programs offered by the department.

◆ Indicates prerequisite.

These prerequisites are not included in the program totals in the table below, but they must be completed IN ADDITION TO other program requirements.

### Degree Requirements (30-36 credits)

#### Core Courses in Informatics (7-13 credits)

- INF 100 Orientation to College of Informatics (1 credit)
- INF 120 Elementary Programming - NS (3 credits) ◆ (or placement)
- INF 282 Introduction to Databases (3 credits) ◆  
OR
- CSC 350 Database Programming (3 credits)
  
- INF 284 Introduction to Computer Networks (3 credits) ◆
- INF 286 Introduction to Web Development (3 credits) ◆ (placement exam available)

#### Core Courses in Computer Information Technology (15 credits)

- CIT 130 Information Technology Fundamentals (3 credits) ◆
- CIT 271 Windows Administration (3 credits) ◆
- CIT 285 Cybersecurity Fundamentals (3 credits)
- CIT 371 Unix Systems (3 credits) ◆
- CIT 383 Scripting I (3 credits) ◆

## Core Courses in Other Disciplines (9 credits)

- STA 205 Statistical Methods - QR (3 credits) ♦  
OR
- STA 205R Statistical Methods with Recitation - QR (3 credits)  
OR
- STA 250 Probability and Statistics I (3 credits) ♦
  
- PHI 310 Information Ethics (3 credits)
- ENG 347 Technical Writing (3 credits) ♦

## Network and System Administration Track (18 credits)

- CIT 247 Networking Fundamentals (3 credits) ♦
- CIT 447 Network Design/Troubleshooting (3 credits) ♦
- CIT 470 Advanced Network and System Administration (3 credits) ♦
- CIT 484 Network Security (3 credits) ♦
- Select two 300/400-level CIT courses not included above (6 credits)

## Total Credits 48-54

## Web and Database Administration Track (18 credits)

- CSC 260 Object-Oriented Programming I (3 credits) ♦
  
- CSC 360 Object-Oriented Programming II (3 credits) ♦  
OR
- CIT 483 Scripting II (3 credits) ♦
  
- CSC 301 Web Programming (3 credits) ♦
- CIT 436 Web Server Administration (3 credits) ♦
- CIT 472 Database Administration (3 credits) ♦
  
- CSC 456 Advanced Web Application Development (3 credits) ♦  
OR
- One 300/400-level CIT course (3 credits)

## Total Credits 48-54

## Cybersecurity Track (18 credits)

- CIT 247 Networking Fundamentals (3 credits) ♦
- CIT 430 Computer Forensics (3 credits) ♦
- CIT 484 Network Security (3 credits) ♦
- CIT 485 Advanced Cybersecurity (3 credits) ♦

- Select two 300- or 400-level CIT courses not including the above (6 credits)  
**NOTE:** BIS 382, CSC 482 and CSC 483 may count toward these electives.

## Total Credits 48-54

### Non-Specialist Track (18 credits)

- CSC 260 Object-Oriented Programming I (3 credits) ♦
- CSC 360 Object-Oriented Programming II (3 credits) ♦  
OR
- CIT 483 Scripting II (3 credits) ♦
- CIT 436 Web Server Administration (3 credits) ♦  
OR
- CIT 438 Cloud Computing (3 Credits) ♦  
OR
- CIT 472 Database Administration (3 credits) ♦
- CIT 470 Advanced Network and System Administration (3 credits) ♦  
OR
- CIT 485 Advanced Cybersecurity (3 credits) ♦
- Two 300- or 400-level CIT courses (6 credits)

## Total Credits 48-54

## Computer Science, B.S.

A major in computer science requires between 60 and 63 credit hours of coursework, depending on placement. Students in computer science begin their study with a basic core of informatics coursework, then move on to a chain of courses designed to build their software development skills. The program is rounded out by a set of electives sampled from a variety of application areas (such as artificial intelligence, computer graphics, and computer security). The major culminates in a team-project capstone course in software engineering. Because of the large number of mathematics courses required for the computer science major, many computer science majors choose a minor in mathematics.

This program is available in flexible course and program scheduling that offers options to complete your requirements. In addition to the traditional 16-week daytime and online courses available, NKU offers several accelerated 7-week evening, online, and hybrid courses. This allows you to customize your schedule in a format that works for you and your life.

Special graduation requirements: Students must earn a grade of C- or better in each course that counts as part of a major or minor for all programs offered by the department.

♦ Indicates prerequisite.

These prerequisites are not included in the program totals in the table below, but they must be completed IN ADDITION TO other program requirements.

## Degree Requirements (61-64 credits)

## Courses in Informatics (9-12 credits)

- INF 100 Orientation to College of Informatics (1 credit)
- INF 120 Elementary Programming - NS (3 credits) ♦
- INF 284 Introduction to Computer Networks (3 credits) ♦  
OR
- CIT 247 Networking Fundamentals (3 credits) ♦
  
- INF 286 Introduction to Web Development (3 credits) ♦ (placement exam available)
- CSC 350 Database Programming (3 credits)

## Courses in Computer Science (36 credits)

- CSC 260 Object-Oriented Programming I (3 credits) ♦
- CSC 360 Object-Oriented Programming II (3 credits) ♦
- CSC 362 Computer Systems (3 credits) ♦
- CSC 364 Data Structures and Algorithms (3 credits) ♦
- CSC 402 Advanced Programming Methods (3 credits) ♦
- CSC 439 Software Testing and Maintenance (3 credits) ♦
- CSC 440 Software Engineering (3 credits) ♦
- CSC 460 Operating Systems (3 credits) ♦
- CSC 485 Theory of Computation (3 credits) ♦
- CSC 491 Comprehensive Examination (0 credits) ♦
- Select one 300/400-level CSC course not included above (3 credits)
- Select two CSC 400-level CSC courses not included above; only one of CSC 415 or CSC 416 may count towards this requirement. MAT 360 may count for either a 300-level or 400-level course. (6 credits)

## Courses in Mathematics and Statistics (15 credits)

- MAT 128 Calculus A - QR (3 credits) ♦
- MAT 227 Calculus B (3 credits) ♦
- MAT 228 Calculus C (3 credits) ♦
- STA 250 Probability and Statistics I (3 credits) ♦
- MAT 385 Discrete Mathematics (3 credits) ♦

## Data Science, B.S.

A major in data science requires between 82 and 85 credit hours, depending upon ACT/SAT scores or successful completion of placement testing. Students have the opportunity to complete one of two optional tracks, determined by selection of guided electives. The computation-intensive track involves selecting all three guided electives from computer science, data science, mathematics, and statistics courses. The business analytics track involves selecting all three guided electives from the business informatics courses.

Depending upon the selection of the three guided elective courses, the student may also earn a minor in applied statistics, business informatics, computer science, or mathematics.

Special graduation requirements: Students must earn a grade of C- or better in each course that counts as part of a major or minor for all programs offered by the department.

◆ Indicates prerequisite.

These prerequisites are not included in the program totals in the table below, but they must be completed IN ADDITION TO other program requirements.

## Degree Requirements (82-85 credits)

### Courses in Informatics (6-9 credits)

- INF 120 Elementary Programming - NS (3 credits) ◆
- INF 128 Principles of Informatics - SB (3 credits)
- INF 286 Introduction to Web Development (3 credits) ◆

### Courses in Business Informatics (15 credits)

- BIS 275 Introduction to Business Analysis (3 credits)
- BIS 300 Management Information Systems (3 credits) ◆
- BIS 330 IT Project Management (3 credits) ◆
- BIS 384 Business Analytics (3 credits) ◆
- BIS 430 Business Process Analysis (3 credits) ◆

### Courses in Computer Science (12 credits)

- CSC 260 Object-Oriented Programming I (3 credits) ◆
- CSC 350 Database Programming (3 credits)
- CSC 360 Object-Oriented Programming II (3 credits) ◆
- CSC 364 Data Structures and Algorithms (3 credits) ◆

### Courses in Data Science (19 credits)

- DSC 101 Introduction to Data Science (1 credit)
- DSC 200 Data Wrangling (3 credits) ◆
- DSC 311 Data Analytics (3 credits) ◆
- DSC 321 Data Visualization (3 credits) ◆
- DSC 411 Data Mining (3 credits) ◆
- DSC 421 Big Data (3 credits) ◆
- DSC 496 Data Science Capstone (3 credits) ◆

### Courses in Mathematics and Statistics (18 credits)

- MAT 128 Calculus A - QR (3 credits) ◆
- MAT 227 Calculus B (3 credits) ◆
- MAT 228 Calculus C (3 credits) ◆
- MAT 234 Linear Algebra (3 credits) ◆
- STA 250 Probability and Statistics I (3 credits) ◆
- STA 341 Statistics II (3 credits) ◆



## Courses in Other Disciplines (3 credits)

- ECO 201 Principles of Microeconomics - SB (3 credits) ♦

## Guided Electives (9 credits)

Select three courses from the following:

- BIS 310 Systems Analysis and Design (3 credits) ♦
- BIS 382 Principles of Information Security (3 credits) ♦
- BIS 420 Business Intelligence & Enterprise Appl. (3 credits) ♦
- CSC 301 Web Programming (3 credits) ♦
- CSC 362 Computer Systems (3 credits) ♦
- CSC 402 Advanced Programming Methods (3 credits) ♦
- CSC 425 Artificial Intelligence (3 credits) ♦
- CSC 450 Database Systems (3 credits) ♦
- CSC 460 Operating Systems (3 credits) ♦
- CSC 464 Design and Analysis of Algorithms (3 credits) ♦
- CSC 482 Computer Security (3 credits) ♦
- DSC 396 Data Science Practicum (1-3 credits) ♦
- DSC 431 Network Analysis (3 credits) ♦
- DSC 494 Advanced Topics: Data Science (1-3 credits) ♦ \*
- DSC 499 Advanced Independent Study: Data Science (1-3 credits) ♦
- MAT 325 Differential Equations (3 credits) ♦
- MAT 329 Calculus III (4 credits) ♦
- MAT 375 Applied Mathematical Models (3 credits) ♦
- STA 312 Elementary Survey Sampling (3 credits) ♦
- STA 316 Regression Analysis (3 credits) ♦
- STA 317 Introduction to Time Series Analysis (3 credits) ♦
- STA 327 Categorical Data Analysis (3 credits) ♦
- STA 340 Probability II (3 credits) ♦
- STA 360 Statistical Computing (3 credits) ♦
- STA 370 Introduction to Statistical Consulting (3 credits) ♦

\*DSC 494 may be repeated for credit toward the guided electives as topics vary.

## Undergraduate Certificate

### Cybersecurity Certificate

**Available in both traditional and fully-online formats.**

This certificate is for students wanting to earn academic credentials in computer security. The required courses in this program will all be offered *online*, thus allowing a greater flexibility in being able to complete this certificate. The job market is growing rapidly for people able to effectively secure computers. Computer security is a very challenging technical field, requiring hands-on knowledge of a broad range of technologies as well as an effective understanding of government laws and policies related to computer crime. Students completing this program will have demonstrated an understanding of all NSA-specified core knowledge units of computer security.

◆ Indicates prerequisite.

## Requirements for Certificate (18 credits)

- BIS 382 Principles of Information Security (3 credits) ◆
- CIT 285 Cybersecurity Fundamentals (3 credits)
- CIT 371 Unix Systems (3 credits) ◆
- CIT 485 Advanced Cybersecurity (3 credits) ◆
- INF 284 Introduction to Computer Networks (3 credits) ◆
- INF 282 Introduction to Databases (3 credits) ◆  
OR
- CSC 350 Database Programming (3 credits)

## Minor

### Computer Forensics Minor

The computer forensics minor prepares students for work on a forensics team in either a law enforcement or corporate setting.

A minor in computer forensics requires between 27 and 30 credit hours, depending upon ACT/SAT scores or successful completion of placement testing. Although the balance of information technology and criminal justice coursework required for the study of computer forensics may seem daunting at first glance, two of the courses in the minor, " INF 120 Elementary Programming - NS (3 credits)" and " JUS 101 Introduction to Criminal Justice - SB (3 credits)," also satisfy general education requirements. This minor is particularly well suited for students majoring in either computer information technology or criminal justice, in which case the credit hours required amount to 21 or fewer.

Special graduation requirements: Students must earn a grade of C- or better in each course that counts as part of a major or minor for all programs offered by the department.

◆ Indicates prerequisite.

## Requirements for Minor (27-30 credits)

- INF 120 Elementary Programming - NS (3 credits) ◆ (or placement)
- CIT 130 Information Technology Fundamentals (3 credits) ◆
- CIT 285 Cybersecurity Fundamentals (3 credits)
- CIT 371 Unix Systems (3 credits) ◆
- CIT 430 Computer Forensics (3 credits) ◆
- INF 284 Introduction to Computer Networks (3 credits) ◆
- JUS 101 Introduction to Criminal Justice - SB (3 credits)
- JUS 204 Criminal Investigation (3 credits) ◆
- JUS 320 Advanced Crime Scene Technology and Criminalistics (3 credits) ◆
- JUS 404 Evidence Preparation and Courtroom Testimony (3 credits) ◆

### Computer Information Technology Minor

The minor in computer information technology emphasizes the fundamentals of networking and system administration, and consists of 21 hours of coursework.

Special graduation requirements: Students must earn a grade of C- or better in each course that counts as part of a major or minor for all programs offered by the department.

◆ Indicates prerequisite.

## Requirements for Minor (21 credits)

- CIT 130 Information Technology Fundamentals (3 credits) ◆
- INF 284 Introduction to Computer Networks (3 credits) ◆
  
- INF 110 Introduction to Application Development (3 credits)  
OR
- INF 120 Elementary Programming - NS (3 credits) ◆  
OR
- CSC 260 Object-Oriented Programming I (3 credits) ◆
  
- CIT 271 Windows Administration (3 credits) ◆  
OR
- CIT 371 Unix Systems (3 credits) ◆
  
- Select one 300/400-level CIT course not listed above (3 credits)
- Select 6 credit hours of INF, CIT, or CSC courses not included above (6 credits)

## Computer Science Minor

The minor in computer science emphasizes the fundamentals of software development, and requires between 21 and 24 hours of coursework, depending ACT/SAT scores or successful completion of placement testing. The minor is valuable for students majoring in the sciences or business who wish to develop a range of contemporary programming skills. It is also valuable for secondary education majors planning to teach computer science. (The Computer Science Teachers Association website has detailed information on teaching in this field.)

Special graduation requirements: Students must earn a grade of C- or better in each course that counts as part of a major or minor for all programs offered by the department.

◆ Indicates prerequisite.

## Requirements for Minor (21-24 credits)

- INF 120 Elementary Programming - NS (3 credits) ◆ (or placement)
- CSC 260 Object-Oriented Programming I (3 credits) ◆
- CSC 360 Object-Oriented Programming II (3 credits) ◆
  
- CSC 362 Computer Systems (3 credits) ◆  
OR
- CSC 364 Data Structures and Algorithms (3 credits) ◆

- Select 6 credit hours of CSC courses not counted above (6 credits)
- Select 6 credit hours of INF, CSC, or CIT courses not included above (6 credits)

## Data Science Minor

The minor in Data Science provides students with a solid foundation in statistics, analytics and programming. It is a transdisciplinary program developed to prepare students to process, analyze and present data from different domains and sources. Students take courses in data analytics and visualization, databases, probability and statistics, business analytics, and an elective that deepens the student's knowledge in programming, statistics, or big data.

Special graduation requirements: Students must earn a grade of C- or better in each course that counts as part of a major or minor for all programs offered by the department.

## Requirements for Minor (22 credits)

Students take the 7 required courses below (19 hours) and 1 course from the list of electives (3 hours).

### Required Courses (19 credits)

Students must take all 7 courses below.

- DSC 101 Introduction to Data Science (1 credit)
- DSC 200 Data Wrangling (3 credits) ♦
- DSC 311 Data Analytics (3 credits) ♦
- DSC 321 Data Visualization (3 credits) ♦
- INF 282 Introduction to Databases (3 credits) ♦
- OR
- CSC 350 Database Programming (3 credits)
  
- INF 286 Introduction to Web Development (3 credits) ♦
- STA 250 Probability and Statistics I (3 credits) ♦

### Elective Course (3 credits)

Students must take 1 course from the list below.

- BIS 305 Advanced Business Programming (3 credits) ♦
- CIT 383 Scripting I (3 credits) ♦
- CSC 260 Object-Oriented Programming I (3 credits) ♦
- CSC 270 Mathematics Software Programming (3 credits) ♦
- DSC 411 Data Mining (3 credits) ♦
- DSC 421 Big Data (3 credits) ♦
- EGT 267 Programming for Engineering Applications (3 credits) ♦
- STA 314 Design and Analysis of Experiments (3 credits) ♦
- STA 360 Statistical Computing (3 credits) ♦

## Geographic Information Systems Minor

A geographic information system (GIS) is a computer-based system for capturing, storing, querying, analyzing, and displaying geographically referenced data. GIS has been used for many purposes, such as natural resource management, crime analysis, emergency management, and transportation planning. New applications continue to emerge from the integration of GIS with other technologies, such as global-positioning systems (GPS), remote sensing and wireless networks.

The NKU GIS minor is an interdisciplinary program offered through the departments of History and Geography, Computer Science, and Political Science, Criminal Justice, and Organizational Leadership. It is designed for individuals whose career paths will require them to regularly use GIS technology in their work.

### Core Classes (13 credits)

- GEO 415 Cartography (3 credits) ♦
- GEO 418 Geographic Information Systems (4 credits) ♦
- GEO 419 Remote Sensing of Environment (3 credits) ♦
- GEO 518 Geographic Information Analysis (3 credits) ♦

### Electives (6-7 credits)

Select two courses from the list below (ENV 408 and ENV 408L, if selected, must be taken together).

- BIS 330 IT Project Management (3 credits) ♦
- CIT 472 Database Administration (3 credits) ♦
- CSC 440 Software Engineering (3 credits) ♦
- CSC 450 Database Systems (3 credits) ♦
- CSC 480 Computer Graphics (3 credits) ♦
- ENV 408 Ecology of the City (4 credits) ♦
- ENV 408L Ecology of the City Laboratory (0 credits)
- GEO 314 Maps and Map Interpretation (3 credits) ♦
- GEO 492 Directed Research: Geography (1-3 credits) ♦
- GEO 592 Directed Research in Geography (1-3 credits) ♦
- GLY 415 Earth Science Applications of GIS (3 Credits) ♦

## Information Security Minor

The information security minor prepares students for work as specialists on corporate information security teams.

A minor in information security requires between 27 and 30 credit hours, depending upon ACT/SAT scores or successful completion of placement testing. This minor is particularly well suited for students majoring in either computer information technology or business informatics.

Special graduation requirements: Students must earn a grade of C- or better in each course that counts as part of a major or minor for all programs offered by the department.

♦ Indicates prerequisite.

### Requirements for Minor (27-30 credits)

## Core Requirements

- INF 120 Elementary Programming - NS (3 credits) ♦ (or placement)
- CIT 130 Information Technology Fundamentals (3 credits) ♦
- CIT 247 Networking Fundamentals (3 credits) ♦
- CIT 285 Cybersecurity Fundamentals (3 credits)
- CIT 371 Unix Systems (3 credits) ♦
  
- STA 205 Statistical Methods - QR (3 credits) ♦  
OR
- STA 205R Statistical Methods with Recitation - QR (3 credits)  
OR
- STA 250 Probability and Statistics I (3 credits) ♦
  
- BIS 300 Management Information Systems (3 credits) ♦
- BIS 330 IT Project Management (3 credits) ♦
- BIS 382 Principles of Information Security (3 credits) ♦

## Select one course from the following (3 credits)

- CIT 430 Computer Forensics (3 credits) ♦
- CIT 484 Network Security (3 credits) ♦
- CIT 485 Advanced Cybersecurity (3 credits) ♦
- CSC 482 Computer Security (3 credits) ♦
- CSC 483 Cryptology (3 credits) ♦