CS 150 Introduction to Data and Information Management  (3 credits)
Pre-Req: IT 101
The course introduces information management and relational databases; data collection, storage and retrieval; query/report design and generation; logical database structures; basic transaction architecture; and systems analysis for database design.

CS 180 Programming Fundamentals  (3 credits)
Pre-Req: IT 101
Students will develop basic programming and problem-solving skills through a variety of assignments that explore the use of fundamental control and data structures using the Java programming language. Students learn about the concepts of classes and objects without being exposed to the advanced principles of object orientation. Testing and debugging techniques, the development of sound programming logic, and the writing of well-structured code are also emphasized.

CS 213 The World Wide Web  (3 credits)
Pre-Req: IT 101. This course may not be used toward the CS major.
This course explores the World Wide Web as an educational resource. Emphasis is on the use of HTML and JavaScript as programming tools to develop web pages that include text, graphics, animation, internal and external linkages, frames, forms and, with JavaScript, alert boxes, remote windows, events and cookies. In addition, such concepts as the architecture of the web, the use of browsers, effective search strategies, multimedia and web security are addressed to familiarize students with the web as a business tool and resource. Teaches a contemporary IT technology by using a computer-based software package. Students are expected to perform operational exercises to gain experience and facility with the particular technology designated for this course section. Students have a broad choice of technology appropriate for those with some experience beyond IT 101.

CS 230 Introduction to Programming with Python  (3 credits)
Pre-Req: IT 101
This course introduces students to the fundamentals of programming and algorithmic thinking using the Python programming language. Students learn the fundamental constructs and key concepts that are common to all modern programming languages using this relatively straightforward, popular, and versatile language. Their understanding is reinforced throughout the course by the development of several standalone applications, in which the importance of writing efficient, clear, and well-structured code is also emphasized. This course is intended for any motivated student interested in learning how to program. No prior knowledge of Python or other programming languages is required.

CS 280 Object-Oriented Application Development  (3 credits)
Pre-Req: CS 180
This course teaches object-oriented programming and development using the Java programming language. Students will complete several programming assignments designed to reinforce their comprehension of object-oriented concepts, including encapsulation, class hierarchies and polymorphism. Developing both Java applications and applets will strengthen their understanding of abstract classes and interfaces, event-driven programming and exception handling. This course will include required lab sessions and regularly scheduled lab hours.

CS 298 Data Driven Decision Making  (3 credits)
Pre-Req: IT 101

CS 299 Experimental Course in CS  (3 credits)
Experimental courses explore curriculum development with specific content intended for evolution into a permanent course. A topic may be offered twice before it becomes a permanent course. Students may repeat experimental courses with a different topic for credit.

CS 350 Database Management Systems  (3 credits)
Pre-Req: CS 150 or (AC 340 for AIS or ISAC major) or (MA 346 for DA/DT students)
This course is a comprehensive introduction to data management in organizations. It establishes the data management foundation in the computing and AIS majors. Topics include conceptual and logical data modeling, entity relationship and relational data modeling, and database design and implementation using the SQL programming language. Students will complete exercises in database modeling, design and programming.

CS 360 Business Systems Analysis and Modeling  (3 credits)
Pre-Req: CS 150 or (AC 340 and AIS or ISAC major)
This course begins with business functional analysis and ends with object-oriented information systems design. Students are introduced to tools and techniques enabling effective analysis, design and documentation of an information system. Students learn formal methodologies that form the basis of object-oriented systems engineering practices. Models that focus on the articulation of business functions, integrating process, data and behavioral abstractions form the core of formal methods in systems development using the Unified Modeling Language (UML).

Focus: Communication Intensive
CS 380 Multi-Tiered Application Development  (3 credits)
*Pre-Req: CS 150 and (CS 180 or CS 213)*
This class provides a hands-on introduction to a number of tools and
 technologies that are utilized to develop e-business applications and
 considers the impact of these technologies on e-business solutions.
It assumes the student has basic proficiency in programming (e.g.,
JavaScript or Java) and basic Web-site use and introduces tools to
develop dynamic, data-driven Web applications. The primary objective of
the course is to learn how to develop database driven web applications
that enable businesses to interact with their customers, employees and
suppliers. This will be a hands-on course and numerous programming
assignments and related project work will be expected.

CS 401 Directed Study in Computer Systems  (3 credits)
Permits superior students to study special topics. Allows repetition for
credit.

CS 402 Advanced Computing Topics Seminar  (3 credits)
*Pre-Req: CS 213 or CS 180*
Discusses current topics in computing based on readings in the
professional literature, guest speakers, and field and individual research
projects.

CS 421 Internship in Computer Systems  (3 credits)
*Pre-Req: Computer science major, (CS 350 or CS 360), at least 66 completed
and in progress credits, and internship coordinator permission*
Provides an opportunity to develop an extensive project relating
computer systems concepts to a specific organization in combination
with a work assignment. Involves both full-time employment with an
organization and close work with a faculty member.

CS 440 Advanced Net-Centric Computing  (3 credits)
*Pre-Req: CS 180 and CS 240*
Building on the foundation of CS240, Advanced Net-Centric Computing
provides students with an in-depth understanding of the planning, design,
implementation, and operation of organizational information technology
infrastructures. It covers network and transport layer protocols and
related addressing and routing issues at a detailed level. The course
focuses on network and systems architecture design for the entire
enterprise at the campus, metropolitan area, and wide area network
levels. It helps students understand issues related to ensuring business
continuity, including network and IT systems security and management.
It pays special attention to the integration of processing, storage
and communication capabilities, and the continuing convergence of
telecommunications and networking technologies in the enterprise
context.

CS 480 Advanced Application Development Technology  (3 credits)
*Pre-Req: CS 280*
This course gives CIS majors the opportunity to explore emerging
application development technologies. The instructor will choose
a particular development technology to present or students will be
assigned emerging technologies in the commercial arena to investigate.