CSC 100. Fundamentals in Computer Science. 3 Credits.
Introduction to the fundamentals of computing. Topics include surveys of the following sub-areas of computer science: artificial intelligence, hardware/operating systems, programming languages/software, ethics/social issues, history, electronic communications, problem solving, and programming. The course includes laboratory projects in application software, programming, and electronic communication, as well as a report on one of the first four areas above.
Gen Ed Attribute: Science Distributive Requirement.
Typically offered in Fall, Spring & Summer.

CSC 115. Introduction to Computer Programming. 3 Credits.
The art and science of computing are introduced using a structured programming language, such as Visual BASIC. Topics include loops, branching, arrays, and program development.
Gen Ed Attribute: Science Distributive Requirement.
Typically offered in Fall, Spring & Summer.

CSC 141. Computer Science I. 3 Credits.
An introduction to programming using Java. Topics covered include basic program layout, primitive data types and strings, control structures (loops and decisions) methods, parameters, and text file input/output.
Typically offered in Fall & Spring.

CSC 142. Computer Science II. 3 Credits.
This course introduces the design and implementation of classes and objects, arrays using primitive types and Strings, array of objects, sorting and searching through arrays, recursion, aggregate objects and an introduction to graphical User Interfaces (GUIs).
Typically offered in Fall & Spring.

CSC 200. Fundamentals in Computer Science. 3 Credits.
Topics include regular and context free grammars and languages, computational logic, finite state machines, and parsing.
Typically offered in Fall & Spring.

CSC 220. Foundations of Computer Science. 3 Credits.
Topics include regular and context free grammars and languages, computational logic, finite state machines, and parsing.
Typically offered in Fall & Spring.

CSC 240. Computer Science III. 3 Credits.
This course focuses on more advanced topics in object-oriented programming, including project design, planning, and testing using milestones and checklists. Programming topics include text processing (including StringBuilder and StringTokenizer classes), inheritance, polymorphism, abstract classes, interfaces, generic classes, exception classes, exception throwing and handling, random access files, serialization and an introduction to some basic data structures, such as collection classes and linked lists.
Typically offered in Fall & Spring.

CSC 241. Data Structures & Algorithms. 3 Credits.
Data structures and related algorithms are studied using object-oriented programming, such as Java. Topics include data abstraction, recursion, lists, stacks, queues, linked lists, trees, hashing, searching and sorting algorithms, and the evaluation of algorithm efficiency.
Typically offered in Fall & Spring.

CSC 242. Computer Organization. 3 Credits.
This course teaches introductory topics in computer architecture and hardware design as well as the basics of assembly language. Software is provided to assemble, run, and debug assembly language programs. Additionally, a C compiler demonstrates a realistic usage of pointers, and bitwise operations of assembly language.
Typically offered in Fall & Spring.

CSC 243. Programming Language Concepts/Paradigms. 3 Credits.
An examination of the conceptual underpinnings of programming languages and of the paradigms into which they fall. Topics will be drawn from those comprising the field of programming language such as abstraction, bindings, concurrency, design, encapsulation, history, representation, storage, and types. Programming projects will focus on languages within the functional, declarative, and object-oriented paradigms: such as Common Lisp, ML, Prolog, CLOS; rather than the familiar imperative paradigm.
Typically offered in Fall.

CSC 244. Operating Systems. 3 Credits.
The study of the principles and management of computer resources. Topics include the structure and organization of computer systems, process management, file systems, device drivers, security, and the design and implementation of a computer operating system.
Typically offered in Fall, Spring & Summer.

CSC 245. Data Communications and Networking I. 3 Credits.
An overview of the various aspects of modern data and telecommunications. Discussion of the hardware and software facets of the transmission of information in the forms of voice, data, text, and image. Topics include communication protocols, transmission technologies, analog/digital transmission, communications media, public data networks, LANs, and ISDN.
Typically offered in Fall, Spring & Summer.

CSC 246. Data Communications and Networking II. 3 Credits.
An in-depth study of various aspects of modern data communications systems. Discussion of serial port communications, network performance and design, and Internet protocols. Topics include PC serial port hardware (RS-232, UART) and software (XMODEM protocol), queuing theory, X.25, frame relay, SMDS, BISDN, ATM, TCP/IP, sockets and Internet applications.
Typically offered in Spring.

CSC 247. Computer Security I. 3 Credits.
An introduction to Computer Security and the ethical underpinnings of security. The basic objectives of creating a secure system, attack methods and defenses are discussed.
Typically offered in Fall & Spring.

CSC 250. Programming Language Concepts/Paradigms. 3 Credits.
An examination of the conceptual underpinnings of programming languages and of the paradigms into which they fall. Topics will be drawn from those comprising the field of programming language such as abstraction, bindings, concurrency, design, encapsulation, history, representation, storage, and types. Programming projects will focus on languages within the functional, declarative, and object-oriented paradigms: such as Common Lisp, ML, Prolog, CLOS; rather than the familiar imperative paradigm.
Typically offered in Fall.

CSC 300. Cooperative Programming. 3 Credits.
The student works for an organization involved in the computer field. The student may do work in various areas of the discipline such as programming, networking, or customer support.
Typically offered in Fall, Spring & Summer.

CSC 301. Computer Security I. 3 Credits.
Principles and current technological developments in computer security - a continuation of Computer Security I. Topics include: security requirements, attack models, cryptography, authentication, and system security. Students will also learn practical knowledge through hands-on lab experience.
Typically offered in Fall & Spring.

CSC 302. Computer Security II. 3 Credits.
Principles of visual programming. A second computer language (Visual Basic) is utilized, and a major theme, such as steganography or video games, is covered. Students must write two major projects of significant complexity.
Typically offered in Fall & Spring.

CSC 321. Data Base Management Systems. 3 Credits.
Characteristics of generalized database management systems. Surveys of different database models that are currently used. The design and implementation of a database system.
Typically offered in Fall & Spring.

CSC 331. Operating Systems. 3 Credits.
This course is a general survey of elements of operating systems with in-depth studies of certain features of specific operating systems. Elements of concurrent programming are studied, such as the mutual exclusion problem, semaphores, and monitors. Additionally, the following topics are covered: process scheduling and deadlock avoidance; memory management issues such as paging and segmentation; organization and protection of file systems.
Typically offered in Fall & Spring.

CSC 335. Data Communications and Networking I. 3 Credits.
An overview of the various aspects of modern data and telecommunications. Discussion of the hardware and software facets of the transmission of information in the forms of voice, data, text, and image. Topics include communication protocols, transmission technologies, analog/digital transmission, communications media, public data networks, LANs, and ISDN.
Typically offered in Fall, Spring & Summer.

CSC 336. Data Communications and Networking II. 3 Credits.
An in-depth study of various aspects of modern data communications systems. Discussion of serial port communications, network performance and design, and Internet protocols. Topics include PC serial port hardware (RS-232, UART) and software (XMODEM protocol), queuing theory, X.25, frame relay, SMDS, BISDN, ATM, TCP/IP, sockets and Internet applications.
Typically offered in Spring.
CSC 400. Internship. 6 Credits.
The student works in the area of computer science that is his or her specialty. 
Pre / Co requisites: CSC 400 requires prerequisites of CSC 141 and CSC 142 and CSC 240 and 
CSC 241 and MAT 151 and MAT 161. 
Consent: Permission of the Department required to add. 
Typically offered in Fall, Spring & Summer.

CSC 402. Software Engineering. 3 Credits.
This course explores a variety of processes for developing software, including the PSP 
from the Software Engineering Institute, the SEI's CMMI, and agile processes, including 
exTreme Programming and Scrum. A special emphasis is on how software processes can 
be designed to help software engineers to develop more secure code. Ethical, professional 
and workplace issues are also covered, as well as strategies for testing software in PSP and 
aggregate environments. Teamwork is an important element in this course, and the team work on 
developing a documented software process for their company. 
Pre / Co requisites: CSC 402 requires prerequisite of CSC 241. 
Typically offered in Fall & Spring.

CSC 416. Design/Construction Compilers. 3 Credits. 
Covers the basic topics in compiler design including lexical analysis, syntax analysis, error 
handling, symbol tables, intermediate code generation, and some optimization. Programming 
assignments will build various pieces of a compiler for a small language.  
Pre / Co requisites: CSC 416 requires prerequisites of CSC 220 and CSC 240 and CSC 241 and 
CSC 242. 
Typically offered in Fall.

CSC 417. User Interfaces. 3 Credits. 
This course deals with database-driven graphical user interface applications. The Model-View-
Controller software paradigm is used as a guiding principle for the applications developed. The 
course features applications using Java-based components as well as web-based components 
with a modern server-side scripting language such as PHP. Most of the course work is based 
on developing a complex, large scale web database system with the goal of implementing this 
system within a web application framework.  
Pre / Co requisites: CSC 417 requires prerequisites of CSC 220 and CSC 240 and CSC 241 and 
CSC 242. 
Typically offered in Fall.

CSC 481. Artificial Intelligence. 3 Credits. 
Artificial Intelligence (AI) is concerned with the replication or simulation on a machine 
of the complex behaviors associated with intelligence. Topics will be drawn from any of 
those comprising the field of AI such as agent architectures, automatic truth maintenance, 
constraint satisfaction, expert systems, fuzzy logic, games, genetic algorithms, knowledge 
representation, machine learning, neural networks and connectionism, natural language 
processing, planning, reasoning, robotics, search, theorem proving, and vision. Projects 
requiring coding will focus on an AI language such as Common Lisp or Prolog.  
Pre / Co requisites: CSC 481 requires prerequisites of CSC 220 and CSC 241. 
Typically offered in Fall.

CSC 490. Independent Project in Computer Science. 3 Credits. 
The student designs and implements a software system. Project problems are drawn from 
local industry and university departments. A computer science faculty member supervises each 
project.  
Consent: Permission of the Department required to add.  
Gen Ed Attribute: Writing Emphasis.  
Typically offered in Fall, Spring & Summer.  
Repeatable for Credit.

CSC 495. Topics in Computer Science. 3 Credits. 
Topic announced at time of offering. 
Consent: Permission of the Department required to add. 
Typically offered in Summer.  
Repeatable for Credit.

CSC 496. Topics in Complex Large-Scale Systems. 3 Credits. 
Topics in large scale systems. Topics announced at the time of offering. 
Typically offered in Fall.  
Repeatable for Credit.

CSC 499. Independent Study in Computer Science. 3 Credits. 
In conjunction with the instructor, the student selects study topics via literature search. 
Consent: Permission of the Department required to add.  
Gen Ed Attribute: Writing Emphasis.  
Typically offered in Fall, Spring & Summer.  
Repeatable for Credit.