COMPUTER SCIENCE (CSC)  

College of the Sciences and Mathematics

Courses

CSC 512. Computer Programming I. 3 Credits.  
The principles of algorithmic problem solving are introduced using the Java language.  
This course teaches programming techniques which involve elementary data and control  
structures.  
Typically offered in Fall.

CSC 515. Introduction to Web Development. 3 Credits.  
This course covers website design and programming issues. It develops and uses the Php  
language and MySQL database for server-side programming and information storage/  
retrieval. The JavaScript language is used for client side programming. Offered every spring.  
Typically offered in Fall & Spring.

CSC 516. Introduction to Data Structures and Algorithms. 3 Credits.  
This course introduces the definitions, implementations, and applications of the most basic  
data structures used in computer science. The concept of abstract data type is introduced  
and reinforced by the object concept of C++.  
Pre / Co requisites: CSC 516 requires prerequisite of CSC 512.  
Typically offered in Spring.

CSC 520. Foundations of Computer Science. 3 Credits.  
This course offers an advanced treatment of many of the theoretical subjects underlying other  
computer science subjects.  
Typically offered in Fall.

CSC 525. Operating Systems. 3 Credits.  
This course covers the basic features of operating systems. Examples will be drawn from UNIX  
and other operating systems. This course includes an intensive study of the UNIX operating  
system by way of the UNIX kernel commands and utilities.  
Typically offered in Spring.

CSC 530. Data Structures. 3 Credits.  
This course builds on rudimentary understanding of linked structures and develops complex  
data structures such as trees, hash tables, graphs, etc. It also introduces the basics of  
asymptotic analysis of running time and space in order to provide the justification for various  
data structures.  
Typically offered in Fall.

CSC 535. Networks and Data Communication. 3 Credits.  
This course provides in-depth studies of various aspects of modern telecommunication systems  
such as network design, network implementation, serial port communications, and user  
interfaces.  
Typically offered in Fall.

CSC 540. Programming Languages. 3 Credits.  
This course introduces the theoretical and practical foundations of programming languages  
from the point of view of design and implementation.  
Typically offered in Spring.

CSC 545. Database Systems Concepts. 3 Credits.  
This course emphasizes recent technological advances in database management systems. The  
course centers around data models and languages for those data models. Special attention is  
paid to relational and object-oriented data models and systems which implement these.  
Typically offered in Spring.

CSC 555. Software Engineering. 3 Credits.  
This course focuses on software processes, including the Personal Software Process  
and agile processes (like extreme Programming and Scrum). Another major focus is software  
assurance - processes for building software. Other topics include software engineering  
work culture issues and the professional responsibilities of software engineers.  
Typically offered in Fall.

CSC 560. Analysis of Algorithms. 3 Credits.  
This course introduces the methods to analyze the efficiency of computer algorithms in  
terms of their use of both space and time. Algorithmic design techniques, such as divide and  
conquer, greedy methods, and dynamic programming are illustrated throughout the course.  
The theory of NP-completeness and tractability is introduced.  
Pre / Co requisites: CSC 560 requires prerequisite of CSC 520.  
Typically offered in Spring.

CSC 565. Compiler Design. 3 Credits.  
This course builds on rudimentary understanding of linked structures and develops complex  
data structures used in computer science. The concept of abstract data type is introduced  
and reinforced by the object concept of C++.  
Pre / Co requisites: CSC 565 requires prerequisite of CSC 520 and CSC 530.  
Typically offered in Fall.

CSC 575. Artificial Intelligence. 3 Credits.  
Artificial Intelligence (AI) aims to reproduce or simulate the intelligent capacities of human  
beings such as forming plans of action and conversing in English. This course will combine  
thoretical, practical, and programming aspects of AI. Common Lisp will be used for programming  
projects.  
Pre / Co requisites: CSC 575 requires prerequisite of CSC 520.  
Typically offered in Fall.

CSC 581. Topics in Computer Science. 3 Credits.  
This course will allow instructors to teach a 500-level (not research-oriented) course in a  
computer science topic not specified in the current course list. Different topics will be taught as  
different sections of this course.  
Typically offered in Spring.  
Repeatable for Credit.

CSC 582. Topics in Information Systems. 3 Credits.  
A survey of topics in information systems reflecting the current technological developments  
and research interests.  
Typically offered in Spring.  
Repeatable for Credit.

CSC 583. Topics in Computer Security. 3 Credits.  
A survey of topics in Computer Security reflecting current technological developments and  
research interests in the field.  
Typically offered in Fall.  
Repeatable for Credit.

CSC 584. Topics in Web Technology. 3 Credits.  
The detailed course content varies from one semester to another. The topic will be decided  
based on the technological development in the field and the scholarly interests of the faculty.  
This course may be repeatable for different topics. Students will learn to develop individual  
projects. Topics discussed include but are not limited to: Server-Side Programming using Unix  
or Windows platform; ASP.NET with C#; Google Search Engine Optimization; Client-Side Web  
Programming using Content Management Systems (WordPress, Joomla, or Drupal); Other  
emerging technologies.  
Typically offered in Summer.  
Repeatable for Credit.

CSC 585. User Interface In Java. 3 Credits.  
This course teaches essential features of graphical user interface (GUI) creation using the  
Java Language. The themes are (1) Java GUI applications and Applets using Java graphical  
components; (2) server-side web applications using HTML components with Servlets and  
Java Server Pages; (3) distributed objects (CORBA, RMI) for internet-based functionality.  
Additionally, the GUI projects are integrated with an SQL database using Java JDBC  
programming.  
Typically offered in Summer.

CSC 586. System Administration and Security. 3 Credits.  
This course is a hands on study of the essential parts of operating system administration  
with a strong focus on systems security. Approximately half of the class time is spent in the lab.  
Students work as system administrators on projects devised to illustrate basic system and  
security administrative features. Additionally, various script languages are taught to provide  
the basis for understanding and extending the system capabilities.  
Typically offered in Summer.

CSC 587. Web Services using XML and SOAP. 3 Credits.  
A web service is a service function provided by a web application to another web application  
via the Internet. This course introduces students to the concepts of web services and related  
protocols. In particular, the course uses a hands-on training approach to cover the concepts  
of Extensible Markup Language (XML) and web services. Some related protocols such as  
Simple Object Access Protocol (SOAP), Representational State Transfer (RESTful) web services,  
Universal Description, Discovery, and Integration (UDDI), and Web Services Description  
Language (WSDL) will be discussed.  
Typically offered in Summer.
CSC 588. Wireless Programming and Security. 3 Credits.
This course provides an overview on wireless networking principles and technologies from the viewpoint of computer science majors. Since the subject of wireless communications covers many aspects including cellular telephone network, cordless phone, personal data assistant (PDA), satellite communication, even pager and two-way radio, this course cannot cover all of these systems. Instead, the major themes will focus on the fundamentals and principles. In particular, this course will cover the major differences between wired networks and wireless networks, the protocol stacks of wireless networks, and wireless data services. Security issues and protocols will also be discussed.
Pre / Co requisites: CSC 588 requires a prerequisite of CSC 535.
Typically offered in Fall.

CSC 600. Advanced Seminar. 3 Credits.
This is a research-oriented course which will involve an investigation into an advanced and specialized topic determined according to faculty and student interest.
Typically offered in Fall & Spring.

CSC 603. Advanced Seminar in Security. 3 Credits.
An in-depth investigation into specific areas of Computer Security reflecting research interests and significant technological developments in the field.
Typically offered in Spring.
Repeatable for Credit.

CSC 604. Advanced Seminar Web Technology. 3 Credits.
The detailed course content varies from one semester to another. The topic will be decided based on the technological development in the field and the scholarly interests of the faculty.
Topics discussed include but are not limited to: Server-Side Programming using Unix or Windows platform; ASP.NET with C#; Google Search Engine Optimization; Client-Side Web Programming using Content Management Systems (WordPress, Joomla, or Drupal); Other emerging technologies. Students must proactively search for emerging technologies and prepare to do a presentation and/or conduct individual/group projects.
Typically offered in Summer.

CSC 605. Internship in Computer Science. 3 Credits.
Provide the student with professional development and work experience in the computer science field.
Pre / Co requisites: CSC 605 requires prerequisites of CSC 520 and CSC 530 and CSC 540 and CSC 560.
Typically offered in Fall, Spring & Summer.

CSC 610. Independent Research. 3 Credits.
The student may work in one of three directions: thesis, individual project, or team project. (See 'Thesis Options')
Consent: Permission of the Department required to add.
Typically offered in Fall, Spring & Summer.
Repeatable for Credit.

CSC 620. Thesis. 3 Credits.
Contact department for more information about this course.
Consent: Permission of the Department required to add.
Typically offered in Fall, Spring & Summer.