

COMPUTER SCIENCE (CSCU)

CSCU 200 Introduction to Computers and Data Processing

Students gain experience using word processing, electronic spreadsheet and database management software. The use, misuse, and abuse of computers will be discussed with examples from many fields. Different sections of this course may be offered on different hardware platforms, usually IBM-PC compatibles or Macintoshes, but the same concepts will be studied in each section and therefore the course may be taken for credit only once. 3 credits.

CSCU 240 Discrete Structures

Prerequisite: MATU 101 or MATU 104.

This course is designed for students in math or computer science. Logic is emphasized, and topics include: proof and theory including inductive proofs, propositional and predicate logic, set theory, algorithms including recursion, trees, relations and functions, counting & probability. Elements of the theory of directed and undirected graphs, and the application of these topics to various areas of math and computer science. Additionally, an introduction to complexity of algorithms and recurrence relations are included in the curriculum. This course is offered only through the School of Extended Education. 4 credits.

CSCU 251 Introduction to Computing Systems Organization

Students learn the major components and structure of the hardware and software of both a computer and of a networking system. Students will learn to describe the mechanism of information processing, transfer, and control within a digital computing systems and networks. 3 credits.

CSCU 270 Information System Security

Prerequisite: CSCU 251.

Students learn systematically the concepts, issues, challenges, and technological solutions of computer networks security and develop procedural and technological solutions with hands-on practice. 3 credits.

CSCU 301 Introduction to Programming

This course will introduce students to the basic components of programming; as well as, introducing students to applications of programming skills. This course is designed to introduce the fundamentals of designing, coding, and documenting programs using basic data structures. (Note: Equivalent to CSCU 205, Introduction to Programming for Business Majors, and CSCU 220, Object-oriented Programming I.) 3 credits.

CSCU 302 GIS Methods and Ethics

The purpose of this course is to teach students how to use multiple spatial research methods using Geographic Information Systems that includes both quantitative and qualitative approaches. The course addresses the ethical collection, handling and analysis of data including the sharing of spatial data analysis results that do not cause harm to the public. Students will learn how to assess which spatial research methods are most appropriate to investigate a problem and to generate solutions and better understanding of a situation. 3 credits.

CSCU 303 Foundations in Spatial Communications

The goal of this class is to learn how to most effectively communicate relevant information using spatial data analytics across a variety of formats-including digital and print media. Students will learn skills around the translation of data for a variety of stakeholders such as supervisors, business leaders, decision-makers and the community. Students learn how to create meaningful infographics, maps, images, charts and graphs using spatial thinking and GIS for appropriate audiences. 3 credits.

CSCU 304 Spatial Visualization and Data Analytics

Using diverse GIS tools and technology resources, in this course students will engage in multiple spatial visualization activities. Based on the type of data and outcomes of the data analyses, different conclusions will be drawn. This course will assist students as a professional to better assess which geospatial visualizations are most appropriate as a function of the analysis being conducted. 3 credits.

CSCU 305 Applied Data Wrangling

Approximately 80% of the time is spent finding data that is appropriate to completing a project. In this course students explore and develop skills in the arena of data wrangling. Data wrangling is the process of finding, extracting, storing and organizing data that is appropriate for a particular project. These are common activities for data analysts and data scientists across industries-who often rely on secondary or existing data for analysis. This course also explores the process of assessing data from the user with secondary data. Topics of metadata and appropriate data sourcing and evaluation are taught. 3 credits.

CSCU 315 Organizational Information Systems

Students explore the role of information systems in the operation of an organization. This course introduces the use of information technologies for the access and retrieval of information from internal information systems and from systems on the Information Superhighway. 3 credits.

CSCU 353 Data Communications and Computer Networks

Prerequisite: CSCU 251.

Students explore the principles and techniques of data communications and give special emphasis to networks and distributed systems. The I.S.O. Reference Model for open systems interconnection will be investigated and the function and operation of each protocol layer analyzed. 3 credits.

CSCU 360 Web Design Technologies

Effective use of Internet connectivity and services is strategically critical to many organizations today, because many of their suppliers, customers, and competitors are Internet-based. In this course, students will review many of the associated technologies and some of the business processes used to manage those technologies. 3 credits.

CSCU 361 Operating Systems

The purpose of this course is to help students understand operating system basics and operating system administration. Throughout this course, students will gain an understanding of how operating systems are installed and configured and used in various business settings. Students will also review how to troubleshoot common computer and operating system issues and identify common security threats to computer resources. 3 credits.

CSCU 362 Fundamentals of Software Development

Within this course students will be presented with general aspects of software development, core programming concepts, algorithms, object oriented programming, web servers, database management system (DBMS), Structured Query Language (SQL), and developing desktop applications. 3 credits.

CSCU 373 Introduction to Data Management

The purpose of this course is to teach how to plan and design relational databases. This course will help students as a working professional to understand relational database fundamentals and database design methodology. Students will also review Structured Query Language and relational algebra. This course will also highlight the areas of data governance and security. This knowledge will help to be a valuable member of projects dealing with databases. 3 credits.

CSCU 375 Data Encryptions and Information Security**Prerequisite:** CSCU 251 and CSCU 270.

Students learn the concepts of data encryption, key of decryption, two-key encryption, and its application in data security; information systems security related issues and solutions are also described and experimented. 3 credits.

CSCU 383 Applied Project Management

Most business leaders are already aware of the dynamic nature of today's business environment. Every organization, big or small, has to take into account time, resource allocation, scope, and budget for each new opportunity it wishes to pursue. Project management as a discipline ensures effective communication, collaboration, reporting, forecasting, and risk identification and mitigation, through well-defined processes. This course will prepare future project management team members and leaders with essential skills necessary to help organizations use the standard project management processes in order to ensure that organizational goals are achieved. 3 credits.

CSCU 385 Project Work Structure and Resources Management

Students analyze the concepts of project scope work structure, units of work, variety of project resources, project cost estimation, dynamic allocations, schedule control, and management. 3 credits.

CSCU 397 User Experience and Interaction Design

As technology continues to advance there is a need to understand the multi-disciplinary field of interaction design and have a comprehensive overview of UX best practices. This course will assist as a professional to better assess user experience and interaction design to achieve business success. Students will also assess the effectiveness of user-centered end-to-end product development with consideration of sustainability and agile development. 3 credits.

CSCU 403 Security Threat Detection and Prevention

Students will be introduced to real-time cybersecurity methods and strategies to detect threats. Basic TCP/IP security techniques will be explained in the context of network security solutions. This course will also provide threat mitigation foundations through the design and configuration of firewall solutions to protect enterprise assets. In addition, strategies will be provided to protect IT resources from human flaws and risks. 3 credits.

CSCU 404 Digital Forensics and Incident Response

Through this course, students will learn digital forensics and incident response fundamentals. There will be an introduction to how digital investigations and evidence can be utilized; as well as, the techniques and methods applied in the digital forensics field. Students will learn data recovery and evaluate risks and vulnerabilities to an organization's resources. 3 credits.

CSCU 405 Security Policies and Procedures

Security policies are well-defined plans, rules and practices that support the regulation of access to an organization's system. Students will learn how to develop and apply effective security policies and procedures, related to both technical security and administrative security. In addition, this course will cover IT auditing with respect to the IT infrastructure, policies and operations. 3 credits.

CSCU 407 Wireless and Mobile Security

New security issues have emerged with the growth of the Internet, and it is important to understand vulnerabilities and how to properly secure a network and mobile devices. In this course, students will learn skills to understand mobile device security strengths and weaknesses. Wireless and mobile security methodologies, policies, and procedures will be evaluated to mitigate breaches. 3 credits.

CSCU 408 Database Management**Prerequisite:** CSCU 301.

Students learn data management concepts and the representation and structure of data in the context of applications and system software. The emphasis is on design of databases and developing applications in a client-server environment using SQL as the query language. 3 credits.

CSCU 410 Structured Systems Analysis and Design**Prerequisite:** CSCU 408.

Overview of the system development life cycle. Advanced study of structured systems development. Emphasis on strategies and techniques of structured analysis and structured design for producing logical methodologies for dealing with complexity in the development of information systems. 3 credits.

CSCU 415 Systems Quality Assurance and Testing**Prerequisites:** CSCU 315 or CSCU 410.

This course provides an overview of the principles of Quality Management, framework of ISO 9000:2008, and methods for Software Testing. Students will produce a Quality Assurance Plan as part of a case study. 3 credits.

CSCU 453 Network Implementation**Prerequisite:** CSCU 353.

Students explore the principles and techniques for implementing TCP/IP based networks using Microsoft Window servers and clients, including the skills to configure, customize, optimize, troubleshoot, and integrate networks. This course assists with preparing students to meet the Microsoft certification requirements. For Computing Technology majors only. 3 credits.

CSCU 458 Advanced Web Based Database Systems**Prerequisites:** CSCU 408 and CSCU 453.

This course explores the principles and techniques for managing web-based systems. Students will utilize scripting languages to configure, customize, optimize, and develop interactive web solutions. 3 credits.

CSCU 483 Project Risk Management

This course explores the principles and techniques of dealing with uncertainty and risk in real-world project situations. Students will learn mathematical models of uncertainty, scenarios of disaster, recovery planning, and methods for business continuity. 3 credits.

CSCU 495 Security Capstone Project**Prerequisite:** CSCU 270, CSCU 301, CSCU 405, CSCU 407.

Students will develop a comprehensive and well-developed cybersecurity plan utilizing a diverse array of security methodologies and tools. This project will display applied learning and integrated learning through a security systems analysis, design, and implementation plan. Students will display an understanding of industry best practices and effective policies and procedures to support organizational security. 3 credits.

CSCU 498 Capstone Project**Prerequisite:** Completion of 42 credits in the major.

Students create a complete set of systems analysis, design, and implementation documents for a selected field of emphasis. 3 credits.

CSCU 615 Information Technology Development and Innovation

Students explore the new developments of enterprise-wide application of Information Technologies (IT) in both hardware and software; and evaluate database management Systems (DBMS), Enterprise Inter-networking systems(Intra Net), and Web-based newer enabling systems (Extra Net). 3 credits.

CSCU 641 Internet Based Systems Analysis and Development

Students learn the process of business Systems Lifecycle Analysis, Design, Implementation and Production Management. Students are required to implement and Internet Website as one of the learning outcomes. 3 credits.

CSCU 683 Project Management for Business Majors

Students learn the concepts, current theories, and supportive technologies relating to formal project management. In addition, students develop skills to plan, initiate, monitor, communicate, and manage various types of projects in different industries. 3 credits.

CSCU 685 Risk Management

Overview a variety of risks in the business world, identify risks in relevant contexts, establish policy and procedures for risk mitigation, and apply technological solutions and perform periodic audits. 3 credits.