

COMPUTER SCIENCE (COMS)

COMS-101 Computer Information Systems

3 Units

54 hours lecture; 54 hours total

Examination of information systems and their role in business. Focus on information systems, database management systems, networking, e-commerce, ethics and security, computer systems hardware and software components. Application of these concepts and methods through hands-on projects developing computer-based solutions to business problems. A strong focus on terminology as it relates to Computer Information Systems.

Transfers to both UC/CSU

COMS-120 Introduction to Programming Concepts And Methodologies

3 Units

54 hours lecture; 54 hours total

This course is an introduction to the basic principles of programming using an object-oriented programming language. Topics include the software development life-cycle, program design tools and programming environments, documentation, coding, data types, arrays, control structure, algorithms, file input/output, error handling, parameters, as well as principles of testing and designing test data.

Transfers to both UC/CSU

COMS-161 Introduction to Database Management Systems

3 Units

54 hours lecture; 54 hours total

This course provides the students with an introduction to the core concepts in data and information management. It is centered around the core skills of identifying organizational information requirements, modeling them using conceptual data modeling techniques, converting the conceptual data models into relational data models and verifying its structural characteristics with normalization techniques, and implementing and utilizing a relational database using an industrial-strength database management system. The course will also include coverage of basic database administration tasks and key concepts of data quality and data security. In addition to developing database applications, the course helps the students understand how large-scale packaged systems are highly dependent on the use of Database Management Systems (DBMSs). Building on the transactional database understanding, the course provides an introduction to data and information management technologies that provide decision support capabilities under the broad business intelligence umbrella.

Transfers to CSU only

COMS-164 Introduction to Cybersecurity: Ethical Hacking

3 Units

54 hours lecture; 54 hours total

Recommended Preparation: Completion of COMS-190 with a minimum grade of C.

This course introduces the network security specialist to the various methodologies for attacking a network. Students will be introduced to the concepts, principles, and techniques, supplemented by hands-on exercises, for attacking and disabling a network within the context of properly securing a network. The course will emphasize network attack methodologies with an emphasis on student use of network attack techniques and tools and appropriate defenses and countermeasures. Students will receive course content information through a variety of methods: lectures and demonstration of hacking tools will be used in addition to a virtual environment. Students will experience a hands-on practical approach to penetration testing measures and ethical hacking.

Transfers to CSU only

COMS-165 Microsoft Excel

3 Units

54 hours lecture; 54 hours total

An introduction to Microsoft Excel with hands-on training. Provides an introduction to the basic concepts of an electronic spreadsheet as well as specific commands and functions. Advanced topics will include making macros, creating a database, understanding interactive menus, and using business graphics. Spreadsheet documents will be produced for a variety of applications for business use.

Transfers to CSU only

COMS-215 Programming Concepts and Methodology I

3 Units

54 hours lecture; 18 hours lab; 72 hours total

Recommended Preparation: Completion of COMS-120 with a minimum grade of C.

This is an introductory course to the fundamental concepts of computer science. Students will be exposed to a high level programming theories and methodologies, including object-oriented programming.

Transfers to both UC/CSU

COMS-216 Programming Concepts & Methodology II

3 Units

54 hours lecture; 18 hours lab; 72 hours total

Prerequisite: Completion of COMS-215 with a minimum grade of C.

Application of software engineering techniques to the design and development of large programs; data abstraction and structures and associated algorithms.

Transfers to both UC/CSU

COMS-217 Assembly Programming Course

3 Units

54 hours lecture; 54 hours total

The organization and behavior of real computer systems at the assembly-language level. The mapping of statements and constructs in a high-level language onto sequences of machine instructions is studied, as well as the internal representation of simple data types and structures. Numerical computation is examined, noting the various data representation errors and potential procedural errors.

Transfers to both UC/CSU

COMS-218 Discrete Structures

3 Units

54 hours lecture; 54 hours total

Prerequisite: Completion of COMS-215 with a minimum grade of C.

Recommended Preparation: Completion of MATH-108 with a minimum grade of C.

This course will introduce the discrete structures used in Computer Science, with an emphasis on their applications. Topics covered include: Functions, Relations and Sets; Basic Logic; Proof Techniques; Basics of Counting; Graphs and Trees; and Discrete Probability.

Transfers to both UC/CSU