CH 2131
Descriptive Environmental Chemistry
Surveys inorganic chemistry with an environmental emphasis, geochemical cycles, aqueous equilibria, redox, bacterial processes, heavy metals, and atmospheric chemistry. Prerequisites: General Chemistry I and II. 1 hour Lecture & 2 hours Laboratory—2 credits

CH 3157
Inorganic Synthesis Laboratory
Inorganic and organometallic compounds are prepared using a variety of synthetic techniques and apparatus not encountered in the lower division laboratory courses. Students may select syntheses from the course collection or may suggest new ones from other sources such as the current literature. The course emphasizes the writing of a legal laboratory notebook. Prerequisites: Organic Chemistry I and II. Weekly individual laboratory conference and 3 hours Laboratory—2 credits

CH 4150
Separation Methods
The course will focus on the development of methods for laboratory scale separations which are driven by distribution equilibria or by external fields. The fundamental principles that govern separation at the molecular level will be discussed. The theory of chromatographic retention will be covered, followed by the study of the instrumentation required for gas, liquid and supercritical fluid chromatography and electrophoretic techniques. The application of theory and instrumentation to the development of methods will be stressed. Prerequisites: Biomedical Instrumentation or Instrumental Analysis. 1 hour lecture and 2 hours laboratory – 2 credits

Employment Program

CH 2370
Employment Program
Each student in Chemistry and Biochemistry is required to spend 500 hours in approved jobs related to the student's major. Registration for each Employment Program must occur prior to the beginning of a relevant experience. Registration materials are available from Career Services, located in Segal Hall. 500 hours of On-the-Job Training—4 credits

COMPUTER AND BUSINESS INFORMATION SYSTEMS

IT 1011
Information Technology Concepts
This course introduces many fundamental concepts of computers and information technology. Lectures and discussions include computer hardware and software, Internet and World Wide Web, data file and database, telecommunications and networks, and future technology trends. 1.5 hours Lecture and Discussion–1.5 credits. Prerequisites: None. It is strongly recommended that it be taken with IT 1012 Computer Applications.

IT 1012
Computer Applications
This course introduces the basics of popular and useful computer applications. Emphasis is placed on a working knowledge of windows operating system, word processing, spreadsheet, and presentation software at the introductory level. MS Windows and Office software are used for hands-on exercises. 1.5 hours Lecture and Hands-on – 1.5 credits. Prerequisites: None. It is strongly recommended that it be taken with IT 1011 Information Technology Concepts.

IT 1031
Intermediate Computer Applications
This course extends computer applications into real world projects. Emphasis is placed on a working knowledge of word processing, spreadsheet, and database management software at the intermediate level. MS Office software is used for hands-on exercises. 3 hours Lecture and Hands-on – 3 credits. Prerequisites: IT 1011 Information Technology Concepts and IT 1012 Computer Applications for non CBIS students and successful performance on CBIS departmental diagnostic exam for CBIS students

IT 2118
Web Design
This course introduces the generally accepted web design principles that underlie the construction of Web pages and applets. Students will create a variety of web pages using HTML, JavaScript, and web design application software. Students will also learn the fundamentals of XML data and integration. 3 hours Lecture and Hands-on – 3 credits Prerequisites: IT 1011 Information Technology Concepts and IT 1012 Computer Applications for non CBIS students and IT 1031 Intermediate Computer Applications for CBIS students

IT 2216

Introductory Programming

This course teaches the programming logic and the process of writing a computer program using C/C++ programming language. Students will obtain an understanding of sequence, selection, and repetition statements, files, arrays, functions, and subprograms. 3 hours Lecture and Hands-on – 3 credits. Prerequisites: IT 1011 Information Technology Concepts and IT 1012 Computer Applications for non CBIS students and IT 1031 Intermediate Computer Applications for CBIS students

IT 2218

Advanced Programming

This course is a continuation of the Web Design and Introductory Programming courses. Object-oriented program design with emphasis on the Java programming language will be taught. Additional topics include GUI controls, exceptions, threads, and applets. 3 hours Lecture and Hands-on – 3 credits. Prerequisites: IT 2216 Introductory Programming and IT 2118 Web Design

IT 3000/4000

Selected Topics in IT

These courses are designed to permit the timely introduction of new topics in areas of information technology. 1 to 3 hours Lecture and Discussion – 1 to 3 credits. Prerequisite: As determined by CBIS Department Chairperson

IT 3103

Information Systems

This course studies the characteristics and features of the major types of information systems, major components of information systems, and their applications in business. 3 hours Lecture and Discussion – 3 credits. Prerequisites: IT 1011 Information Technology Concepts and IT 1012 Computer Applications for non CBIS students and IT 1031 Intermediate Computer Applications for CBIS students

IT 3104

Database Management Concepts
(Formerly IT 3104 Database Management)

This course examines the purposes, advantages, issues, and problems associated with the use of a data base. The process of data base design from information modeling to physical design is discussed with emphasis on conceptual and implementation design. 3 hours Lecture and Hands-on – 3 credits. Prerequisites: IT 1031 Intermediate Computer Applications and IT 3117 Data Structures and File Organization

IT 3117

Data Structures and File Organization

This course introduces the concept of data types and data structures and discusses their importance in information technology. Several data structures such as arrays, lists, trees, and graphs and their implementations are discussed. 3 hours Lecture & Discussion – 3 credits. Prerequisites: None

IT 3202

Office Automation

This course studies the impact of current technology on productivity in the modern office. Elements of office automation are reviewed with specific emphasis on document processing. Students will apply this emphasis to Educational Business applications. 3 hours Lecture and Hands-on – 3 credits. Prerequisites: IT 1011 Information Technology Concepts and IT 1012 Computer Applications for non CBIS students and IT 1031 Intermediate Computer Applications for CBIS students

IT 3203

Hardware and Software

This course presents a detailed view of computer hardware structure and function, and discusses the principles governing operating systems. Topics include operating systems, computer repair, construction, and maintenance. Students will have hands-on exercises in building and maintaining a personal computer system. 3 hours Lecture and Hands-on – 3 credits. Prerequisites: IT 1011 Information Technology Concepts and IT 1012 Computer Applications for non CBIS students and IT 1031 Intermediate Computer Applications for CBIS students

IT 3205

Geographic Information Systems

This course introduces the principles of a geographic information system with emphasis on the analysis of land use, population studies, and demographic distributions. Many applications in Environmental Science will be discussed. 3 hours Lecture and Hands-on – 3 credits. Prerequisites: IT 1011 Information Technology Concepts and IT 1012 Computer Applications for non CBIS students and IT 1031 Intermediate Computer Applications for CBIS students

IT 3220
Computer-Aided Design
This course teaches how to use CAD (computer aided design) software to do landscape and draft designs. Students will apply CAD software to Ornamental Horticulture applications. 3 hours Lecture and Hands-on – 3 credits. Prerequisites: IT 1011 Information Technology Concepts and IT 1012 Computer Applications for non CBIS students and IT 1031 Intermediate Computer Applications for CBIS students

IT 3222
Database Design
This course covers various aspects of physical design in the database development process. Topics include, but are not limited to: denormalization, development and utilization of data base tables, queries, forms, and reports, with emphasis on the support of a Web site. 3 hours Lecture and Hands-on – 3 credits. Prerequisite: IT 3104 Database Management Concepts

IT 4028
Visual Basic Programming
This course teaches the use of Visual Basic to create programs in Windows environment. Students learn how to produce graphical user interfaces in the object-oriented programming paradigm. 3 hours Lecture and Hands-on – 3 credits. Prerequisites: IT 1011 Information Technology Concepts and IT 1012 Computer Applications for non CBIS students and IT 1031 Intermediate Computer Applications for CBIS students

IT 4041
Senior Research in IT
Selected seniors engage in supervised investigations of certain topics in information technology. 1-3 hours of student/instructor interaction – 1 to 3 credits. Prerequisite: Permission of CBIS Department Chairperson

IT 4042
UNIX Based Operating System
(Formerly IT 4042 UNIX Operating System)
This course teaches commands in UNIX based operating systems, shell programming tools for effective completion of system related tasks, and customization of a local environment or a whole system. UNIX and/or LINUX operating systems are explored through hands on exercises and comparison to the DOS and Windows operating systems. 3 hours Lecture and Hands-on – 3 credits. Prerequisites: IT 1011 Information Technology Concepts and IT 1012 Computer Applications for non CBIS students and IT 1031 Intermediate Computer Applications for CBIS students

IT 4109
Network Concepts
(Formerly IT 4109 Data Communications)
This course introduces concepts of telecommunications and computer networks. Topics include network history, communication mediums, network hardware and software, network standards (OSI model and Internet model), and various network topologies and structures. This course lays the groundwork for network design and administration (IT 4235). 3 hours Lecture and Hands-on – 3 credits. Prerequisite: IT 3203 Hardware and Software

IT 4110
Computer Graphics
This course presents fundamental concepts in computer graphics. Emphasis is placed on current methods and techniques, such as presentation graphics, photo editors, and animators, to create graphical displays for print and the Web. 3 hours Lecture and Hands-on – 3 credits. Prerequisites: IT 1011 Information Technology Concepts and IT 1012 Computer Applications for non CBIS students and IT 1031 Intermediate Computer Applications for CBIS students

IT 4119
Network Security (Formerly IT 3119 Internet Security)
This course discusses the principles, techniques, and tools that are used to provide security for a local area network and/or Web site. Students will be able to recognize security risks, choose techniques that will minimize those risks, and use tools that will implement these techniques. 3 hours Lecture and Discussion – 3 credits. Prerequisites: IT 1011 Information Technology Concepts and IT 1012 Computer Applications for non CBIS students and IT 1031 Intermediate Computer Applications for CBIS students

IT 4131
Auto CAD
This course teaches how to use CAD (computer aided design) software to do landscape and draft designs. Students will apply CAD software to Environmental Science applications. 3 hours Lecture and Hands-on – 3 credits. Prerequisites: IT 1011 Information Technology Concepts and IT 1012 Computer Applications for non CBIS students and IT 1031 Intermediate Computer Applications for CBIS students

IT 4146
Systems Analysis and Design
This course introduces the systems life cycle approach to solving business problems. Students gain a working knowledge of problem analysis, requirements discovery, entity-relationship diagram, data flow diagram, and physical design in the development of information systems. 3 hours Lecture and Hands-on – 3 credits. Prerequisite: IT 1031 Intermediate Computer Applications

IT 4208
Senior Projects in IT
This course allows students to demonstrate their ability to gain and communicate new knowledge and techniques. Students explore contemporary topics of their interest in information technology that result in a research paper and a project involving an application in information technology. 3 hours Lecture and Hands-on – 3 credits. Prerequisite: Senior standing or permission of CBIS Department Chairperson

IT 4235
Network Design and Administration
(Formerly IT 4235 Computer Networks)
This course builds on the foundation established in IT 4109. Network design, configurations, administration, and applications are discussed. Students gain a working knowledge of the analysis, design, installation, and administration of computer networks. 3 hours Lecture and Hands-on – 3 credits. Prerequisites: IT 4109 Network Concepts

Employment Program

IT 2370
Employment Program
Each student in CBIS is required to spend 500 hours in approved jobs related to the student's major. Registration for each Employment Program must occur prior to the beginning of a relevant experience. Registration materials are available from the Office of Career and Life Education, located in Segal Hall—4 credits

CRIMINAL JUSTICE ADMINISTRATION

CJ 1009
Introduction to Criminal Justice
An introductory course on the theory and practice of the criminal justice system, including law enforcement, corrections, and the courts. The course presents concepts, principles and models used in the criminal justice system. Career opportunities in Criminal Justice are discussed. 3 hours Lecture and Discussion—3 credits

CJ 2015
American Police
The function of police, both historically and in a contemporary context, will be examined in regard to their function, their interaction with the public, as well as from individual and group police attitudes and practices. 3 hours Lecture and Discussion - 3 credits

CJ 2124
Criminology
This course utilizes criminological theory to provide the basis for examination of the nature of crime and deviance through presentations of factors that condition criminal and delinquent behavior, legal and social penalties, parole and probation, criminal justice and treatment. 3 hours Lecture and Discussion—3 credits

CJ 2225
Juvenile Delinquency
This course explores the factors that condition juvenile delinquency, treatment of delinquency, the development of current public and private correctional facilities and community-based treatment, with emphasis on the juvenile justice system. 3 hours Lecture and Discussion—3 credits