

INFORMATION TECHNOLOGY (IT)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

IT 403 - Introduction to Internet Technologies

Credits: 4

Introductory course exploring the fundamentals of Internet communications with an emphasis on the World Wide Web. Students develop an understanding of the Internet's underlying technologies and learn how to utilize them as contributing members of the Web community. Students become proficient with creating and publishing Web pages using HTML and CSS. No prior knowledge or experience is assumed. No credit if credit earned for CIS 405. (Note CIS 405 is offered at UNH Manchester, and is not related to CS 405 at UNH Durham.)

Equivalent(s): CIS 405, CIS 410F, CIS 495, CS 403

IT 502 - Intermediate Web Design

Credits: 4

An intermediate level exploration of the theory and practice of Web design. Students learn the fundamentals of design theory applicable to the World Wide Web and examine tools and techniques for applying that knowledge to their projects. Additional topics include information architecture, usability, accessibility, optimization, typography, and market visibility. Working knowledge of XHTML and CSS required. Prereq: CS 403.

Equivalent(s): CS 502

IT 505 - Database Programming

Credits: 0 or 4

Introduces database programming in the microcomputer environment. Students use a procedural programming language such as Visual Basic to manipulate data managed by a database management system. Emphasis is on the relational database model. Topics include connections, queries (including use of SQL), relations, constraints, transaction processing, concurrency issues, exception handling, and report generation. Prereq: a programming course. Computer Science majors not allowed.

IT 520 - Computer Architecture

Credits: 4

Fundamentals of computer organization, including binary systems, data representation (and compression), machine language, program execution, memory and process issues. Operating systems and networking basics. Not open to CS majors. Prereq: a programming course.

IT 604 - Server-side Web Development

Credits: 4

An intermediate-level examination of the theory and practice of developing server-side applications for the World Wide Web. Students will learn practical techniques for designing and implementing data-driven Web sites through the use of server-side processing. Working knowledge of HTML, CSS, and some programming language is required. Prereq: IT 403 and a programming course.

Equivalent(s): CS 504

IT 605 - Client-side Web Development

Credits: 4

An intermediate-level examination of the theory and practice of developing client-side applications for the World Wide Web. Students will learn practical techniques for designing and implementing dynamic Web sites through the use of client-side processing. Working knowledge of HTML, CSS, and some programming language is required. Prereq: IT 403 and a programming course.

IT 609 - Network/Systems Administration

Credits: 4

Introduces the central issues in administration of a networked computer system. Topics include the client-server model (including support of mail, FTP, Telnet, the Web), disk and file systems, backup and recovery, and security. Privacy and other legal/social issues will be discussed. Prereq: IT 520 and a programming course, or permission of the instructor.

Equivalent(s): CS 509

IT 612 - Scripting Languages

Credits: 4

This course is a study of the class of programming languages and tools known as scripting languages. Topics include: a general discussion of language design and its relationship to the intended computing environment, introduction to the command-line environment, the role of scripts in controlling and connecting other programs and components, basic functionality of at least two scripting languages, and the syntax use of regular expressions. Programming projects in multiple languages will be required. Prereq: IT 505 or CS 515.

IT 630 - Data Science and Analytics

Credits: 4

An introduction to various disciplines that contribute to what is commonly known as Data Science. Students will learn how to gather, analyze, classify data utilizing various techniques. Study of tools and programming techniques to analyze data. Pre-requisite: CS 416 or CS 417 or Permission of Instructor.

Mutual Exclusion: No credit for students who have taken CS 750, MATH 738.

IT 666 - Computer Security

Credits: 4

Provides students with the skills required to recognize and diagnose potential security issues in computer and network systems. Through readings, case studies, exercises, research papers, exams and personal experience, students will discuss and debate security policies and legislation, system procedures, security tools and techniques and the patterns that attackers use to foil security systems. Other topics include types of attacks, viruses, intrusion detection and tracking, firewalls, trust relationships and authentication, secure connections, and cryptography. At the conclusion of the course, student will have a heightened sense of security in the actions they take when using and maintaining computer systems. Prereq: IT 520 or permission of the instructor. No credit if credit earned for CIS 615.

Equivalent(s): CIS 615

IT 696 - Independent Study

Credits: 1-6

Individual projects developed and conducted under the supervision of a faculty member. Prereq: permission of faculty supervisor and department chairperson. Only open to Information Technology majors.

Repeat Rule: May be repeated for a maximum of 8 credits.

IT 699 - Internship

Credits: 1

Provides the opportunity to apply academic experience in settings associated with future professional employment. A written proposal for the internship must be approved by the instructor. The proposal must specify what the student will learn from the internship, why the student is properly prepared for the internship and what supervision is available during the internship. A mid-semester report and final report are required. Students may receive compensation for their internship work. Prereq: permission. Information Technology majors only. Cr/F.

Repeat Rule: May be repeated for a maximum of 4 credits. May be repeated up to 3 times.

Equivalent(s): IT 600

IT 704 - Advanced Web Development

Credits: 4

An advanced exploration of various topics in Web development. Topics covered each semester will be chosen to reflect the current state of stable and accepted Web technologies, with a decided emphasis on open-source solutions. Both client-side and server-side technologies are likely to be included, with particular attention given to concepts and techniques used to facilitate efficient Web development. Prereq: IT 604.

IT 705 - Project Management for Information Technology

Credits: 4

This course focuses on a core set of project management essentials that can affect the bottom line of project technical and business performance. These are termed "best practices," and those addressed are: formal risk management, agreement on interfaces, metrics based scheduling/tracking, frequent binary completion milestones, incremental development, people aware management style, and change management. The emphasis is on information technology projects; however, the basic principles are pertinent to a wider class of project domains. Prereq: Senior standing in IT or permission.

Attributes: Writing Intensive Course

IT 725 - Network Technology

Credits: 4

Introduction to fundamental concepts of computer networks and exploration of widely-used networking technologies. Topics include principles of congestion and error control; network routing; local, wireless and access networks; application protocol design; and network programming. In-depth discussion of the Internet suite of protocols. Prereq: IT 520.

Equivalent(s): CS 725

IT 775 - Database Technology

Credits: 4

Topics include database architecture, schema design and definition, entity-relationship diagrams, data retrieval and update, and indexing performance. Architectures for single-user, multi-user, client-server, and web access are introduced. The relational data model is emphasized but alternative database models, such as semi-structured and object models, are introduced. Database administration topics include examination of metadata information, data integrity, and management of users and privileges, performance tuning, transactions, isolation levels, and security. Ethics of data protection are introduced. Students develop skill in SQL. Not open to CS majors. Prereq: IT 505.

Mutual Exclusion: No credit for students who have taken CS 775.

IT 780 - Topics in Information Technology

Credits: 4

Material not normally covered in course offerings.

Repeat Rule: May be repeated for a maximum of 8 credits.

IT 791 - Senior Project I

Credits: 2

First semester of the capstone design experience. Industry best practices and tools are surveyed and applied in team projects. Students begin development on software projects proposed by faculty or external sponsors, including initial stages of design, implementation, and documentation, with an interim presentation of progress expected toward the end of the semester. Principles of security, testability, and maintainability are stressed. Pre- or Coreq: IT 705. Information Technology majors only.

IT 792 - Senior Project II

Credits: 2

Continuation of IT 791: Senior Project I. Students complete the project, a final presentation of results is expected toward the end of the semester. Successful completion of this course fulfills the Capstone Experience requirement for Information Technology majors. Prereq: IT 791.

Attributes: Writing Intensive Course

Equivalent(s): IT 710