

COMPUTER SCIENCE (CMPT)

CMPT 107 - Computers and Society 2 Credits

The impact of the digital computer on modern society. Use of application packages and computer language for problem solving. Computer organization. History of computation. Not for math/computer science majors. 2 hours lecture.

CMPT 108 - Computers and Programming 3 Credits

Develop programming competence in a language such as BASIC or Pascal and an introduction to the use of a word processing package. Problems will be primarily of a non-mathematical nature. Discussion of the impact of the computer revolution on society. Not for mathematics or computer science majors. 3 hours lecture.

CMPT 261 - Business Data Processing 3 Credits

Prerequisite(s): CSIT 111. Applications in accounts receivable, payroll and inventory; language Cobol. Not for major elective credit. 3 hours lecture.

CMPT 273 - Introduction to Computers in Business 3 Credits

Prerequisite(s): Not for math/science majors or students who have taken INFO 173 or 273. An introduction to the use of information systems in business. Topics that will be covered include computer hardware and software, systems analysis, management information systems, data communications and application development. Students will be introduced to business software packages which will include database management, spreadsheeting and business word processing. 3 hours lecture.

CMPT 280 - Assembly Language and Computer Architecture 3 Credits

Prerequisite(s): CSIT 112. Computer structures, the conventional machine level, introduction to assembler language. 3 hours lecture.

CMPT 281 - Theory of Digital Machines 3 Credits

Prerequisite(s): CMPT 280 and CSIT 270. Microprogramming level of a computer, the operating system level, gates, sequential and combinational circuits, flip-flops, registers, number codes. 3 hours lecture.

CMPT 288 - Introduction to Cognitive Science 3 Credits

Prerequisite(s): ANTH 100 or CMPT 183 or LNGN 210 or PHIL 100 or PSYC 101. An introduction to the multidisciplinary field of cognitive science. Topics include: the mind-body problem, thought as computation and the computer model of the mind, the role of representation in mental activity. Emphasis will be upon the methodological approaches found in artificial intelligence, cognitive psychology, cognitive anthropology, cognitive neuroscience, linguistics, and philosophy. Cross listed with Linguistics LNGN 288, Philosophy PHIL 288, and Psychology PSYC 288. 3 hours lecture.

CMPT 289 - Introduction to APL 3 Credits

Develops programming competence in the APL language. APL is an acronym for "A Programming Language". Applications in the field of sciences, mathematics, and business. Free elective credit only. 3 hours lecture. 3 hours lecture.

CMPT 300 - Introduction to Science Databases 1 Credit

Prerequisite(s): CSIT 337 and CSIT 212. This course presents and discusses the concepts of the databases used in scientific applications and their differences with respect to other databases. 1 hour lecture.

CMPT 363 - Introduction to Numerical Computing 3 Credits

Prerequisite(s): CSIT 111 and MATH 221. Fundamentals of numerical computation, with emphasis on basic algorithms and their efficient implementation: appropriate treatment of theoretical bases. Topics include floating point arithmetic, roundoff error and propagation, numerical solution of nonlinear equations, interpolation and approximation, and numerical integration. The Fortran language will be taught and used in programming assignments. 3 hours lecture.

CMPT 381 - File Processing 3 Credits

Prerequisite(s): CSIT 212. Secondary storage and its physical constraints. Types of fields and records. Sequential, direct, indexed, ISAM, and VSAM file organization. Sequential, random, and secondary access methods. Searching, sorting, updating and retrieving from files. File maintenance. 3 hours lecture.

CMPT 382 - System Analysis and Design 3 Credits

Prerequisite(s): CSIT 112. A major project includes forms design, sequential files, files, merge, sort, and editing programs. 3 hours lecture.

CMPT 384 - Systems Software 3 Credits

Prerequisite(s): CMPT 280 and CSIT 212. Design and implementation of assemblers, linkage editors and loaders, libraries, macro processors, and text editors; their relationship to an operating system. 3 hours lecture.

CMPT 387 - Principles of Data Communications 3 Credits

Prerequisite(s): CMPT 281. Fundamentals of data communication topics. Analog Digital, Broadband-Baseband, TDM-FDM, AM-FM techniques. Error codes and protocols. 3 hours lecture.

CMPT 474 - Software Engineering 3 Credits

Prerequisite(s): CMPT 381 and CMPT 384. This course is designed to introduce the principles and methods for the design, coding, and verification of large software systems. Topics include software design techniques, programming methodology, programming testing, and software reusability. 3 hours lecture.

CMPT 486 - Design of Computer Interfaces 3 Credits

Prerequisite(s): CMPT 385. Basic digital and analog computing circuits and interface circuits, computer-telecommunication interfaces. 3 hours lecture.

CMPT 487 - Local Area Networks (LAN's) 3 Credits

Prerequisite(s): CMPT 387. Overview, topology, taxonomy, transmission, technology media and control protocols of microcomputer LAN's. 3 hours lecture.

CMPT 493 - Advanced Database Theory 3 Credits

Prerequisite(s): CMPT 483. This course continues the introduction to data management. Topics include: security, integrity, concurrency and recovery, query optimization, file structures and other performance issues. 3 hours lecture.

CMPT 508 - Topics in a Computer Language 1 Credit

Prerequisite(s): CSIT 501 and departmental approval for students with Deferred or Conditional status. An introduction to a selected computer language, with a view to becoming proficient in programming that language. Each time the course is offered, only one programming language will be taught, but the language could vary from one semester to another. This course may be repeated once for a maximum of 2.0 credits as long as the language is different. May not be used for credit by Mathematics or Computer Science majors. 1 hour lecture.

CMPT 576 - Object-Oriented Software Development 3 Credits

Prerequisite(s): CMPT 581, CSIT 571 and departmental approval for students with Deferred or Conditional status. Introduction to the major features of the object-oriented paradigm and their realization in an object-oriented programming language. Introduction to major methods and tools used in object-oriented analysis and design. Implementation and testing issues. 3 hours lecture.

CMPT 578 - Introduction to Artificial Intelligence 3 Credits

Prerequisite(s): CSIT 571 and departmental approval for students with Deferred or Conditional status. An introduction to artificial intelligence including representations of knowledge, problem solving, games, heuristics and backtracking, expert systems, theorem proving, the language LISP and PROLOG. 3 hours lecture.

CMPT 581 - Systems Software Design 3 Credits

Prerequisite(s): CSIT 545 and departmental approval for students with Deferred or Conditional status. Assemblers, macroprocessors, linkers and loaders, introduction to compilers and run facilities. Required of majors. 3 hours lecture.

CMPT 587 - Microcomputers and Computer Interfaces 3 Credits

Prerequisite(s): CSIT 545 and departmental approval for students with Deferred or Conditional status. Introduction to geneology, manufacture and hardware design of microprocessors, microcomputer architecture, instruction sets and programming, microcomputer peripherals and interfaces. 3 hours lecture.

CMPT 588 - Fundamentals of Programming Languages 3 Credits

Prerequisite(s): Departmental approval for students with Deferred or Conditional status. A comparative approach to modern programming languages with emphasis on non-imperative languages, and an introduction to parallel languages. 3 hours lecture.

CMPT 589 - Computer Simulation of Discrete Systems 3 Credits

Prerequisite(s): CSIT 545 and departmental approval for students with Deferred or Conditional status. Introduction to simulation and discrete simulation models. Queuing theory and stochastic processes. Simulation methodology including generation of random numbers and variates, design of simulation experiments, analysis of data generated by simulation experiments and validation of models. Survey of current simulation languages and selected applications. 3 hours lecture.

CMPT 593 - Structured System Design and Analysis 3 Credits

Prerequisite(s): CSIT 555 and departmental approval for students with Deferred or Conditional status. A study of the design of large scale computer systems relative to the constraints imposed by hardware, software and particular types of applications. Recent work in automated system design will be discussed. 3 hours lecture.

CMPT 678 - Neurocomputing 3 Credits

Prerequisite(s): CSIT 571 and departmental approval for students with Deferred or Conditional status. Basic neural network concepts, definitions, and building blocks; learning laws; simple implementations; associative networks; mapping networks; survey of applications. 3 hours lecture.

CMPT 696 - Local Area Networks 3 Credits

Prerequisite(s): CSIT 540 and departmental approval for students with Deferred or Conditional status. Fundamental issues and concepts underlying Local Area Network (LAN) development via microcomputers: topology, transmission media and technology, error control, protocols. 3 hours lecture.