2009

Computer Science (CMPT)

Montclair State University

		client-based (corporate, governmental, non-profit) or cause-related projects across varied technological platforms. The course requires substantial work outside of class time.
CMDA360	Title	Communication and Media Coop Ed.
	Prerequisites	FILM 260 or TVDM 253 or CMST 280 and School of Communication and Media approval.
	Course Description	Advanced students complete a supervised employment experience, outside the classroom, that complements their program of study in the fields of communication and media. The experience provides students the opportunity to define their career objectives and enhance professional skills and expertise. An MSU faculty member evaluates student progress and awards credit. Students may not exceed 16 credits through enrollment in multiple co-op courses. Previous course CMDA 460 effective through Winter 2014.
CMDA440	Title	Independent Study.
	Prerequisites	CMDA 320 and departmental approval.
	Course Description	Opportunity to obtain credit for independent research projects; students must obtain approval from the division coordinator before registration period for the semester of the independent study; generally not for production projects. May be repeated once for a maximum of 6.0 credits. Previous courses ARFM 450, BDCS 403 and SPCM 403 effective through Spring 2012.
CMDA490	Title	Colloquium Series.
	Prerequisites	Open only to Majors/Minors in the School of Communication & Media Arts.
	Course Description	Students are required to register for and attend the colloquium series each semester. The series provides a forum for students, faculty, and invited guests to share their work and address relevant current issues in news, public policy, government, etc. Meetings take place once a month each semester.
CMPT107	Title	Computers and Society.
	Prerequisites	MATH 051 or MATH 061 or satisfactory score on both of the mathematical components of the MSUPT.
	Number and type of credits	2 hours lecture.
	Course Description	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.
CMPT108	Title	Computers and Programming.

	Prerequisites	MATH 051 or MATH 061 or satisfactory score on both mathematical components of the MSUPT.
	Number and type of credits	3 hours lecture.
	Course Description	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.
CMPT261	Title	Business Data Processing.
	Prerequisites	CMPT 183.
	Number and type of credits	3 hours lecture.
CMPT261	Course Description	Applications in accounts receivable, payroll and inventory; language Cobol. Not for major elective credit.
CMPT273	Title	Introduction to Computers in Business.
	Prerequisites	Not for math/science majors or students who have taken INFO 273.
	Number and type of credits	3 hours lecture.
	Course Description	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.
CMPT280	Title	Assembly Language and Computer Architecture.
	Prerequisites	CSIT 112.
	Special Fee	Special fee.
	Number and type of credits	3 hours lecture.
	Course Description	Computer structures, the conventional machine level, introduction to assembler language.
CMPT281	Title	Theory of Digital Machines.
	Prerequisites	CMPT 280 and CSIT 270.
	Special Fee	Special fee.
	Number and type of credits	3 hours lecture.
	Course Description	Microprogramming level of a computer, the operating system level, gates,

		sequential and combinational circuits, flip-flops, registers, number codes.
CMPT288	Title	Introduction to Cognitive Science.
	Prerequisites	ANTH 100 or CMPT 183 or LNGN 210 or PHIL 100 or PSYC 101.
	Special Fee	Special fee.
	Number and type of credits	3 hours lecture.
	Course Description	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 and Religion PHIL 288, and Psychology PSYC 288.
CMPT289	Title	Introduction to APL.
	Number and type of credits	3 hours lecture.
	Course Description	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.
CMPT300	Title	Introduction to Science Databases.
	Prerequisites	CMPT 250, CMPT 287.
	Special Fee	Special fee.
	Number and type of credits	1 hour lecture.
	Course Description	This course presents and discusses the concepts of the databases used in scientific applications and their differences with respect to other databases.
CMPT363	Title	Introduction to Numerical Computing.
	Prerequisites	CMPT 183 and MATH 221.
	Special Fee	Special fee.
	Number and type of credits	3 hours lecture.
	Course Description	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.
CMPT381	Title	File Processing.

CMPT381	Prerequisites	CMPT 287.
	Number and type of credits	3 hours lecture.
	Course Description	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.
CMPT382	Title	System Analysis and Design.
	Prerequisites	CMPT 184.
	Number and type of credits	3 hours lecture.
	Course Description	A major project includes forms design, sequential files, files, merge, sort, and editing programs.
CMPT384	Title	Systems Software.
	Prerequisites	CMPT 280 and 287.
	Number and type of credits	3 hours lecture.
	Course Description	Design and implementation of assemblers, linkage editors and loaders, libraries, macro processors, and text editors; their relationship to an operating system.
CMPT387	Title	Principles of Data Communications.
	Prerequisites	CMPT 281.
	Special Fee	Special fee.
	Number and type of credits	3 hours lecture.
	Course Description	Fundamentals of data communication topics. Analog Digital, Broadband-Baseband, TDM-FDM, AM-FM techniques. Error codes and protocols.
CMPT474	Title	Software Engineering.
	Prerequisites	CMPT 381 and CMPT 384.
	Special Fee	Special fee.
	Number and type of credits	3 hours lecture.
	Course Description	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.
CMPT486	Title	Design of Computer Interfaces.

	Prerequisites	CMPT 385.
	Special Fee	Special fee.
	Number and type of credits	3 hours lecture.
	Course Description	Basic digital and analog computing circuits and interface circuits, computer-telecommunication interfaces.
CMPT487	Title	Local Area Networks (LAN's).
	Prerequisites	CMPT 387.
	Special Fee	Special fee.
	Number and type of credits	3 hours lecture.
	Course Description	Overview, topology, taxonomy, transmission, technology media and control protocols of microcomputer LAN's.
CMPT493	Title	Advanced Database Theory.
	Prerequisites	CMPT 483.
	Special Fee	Special fee.
	Number and type of credits	3 hours lecture.
	Course Description	This course continues the introduction to data management. Topics include: security, integrity, concurrency and recovery, query optimization, file structures and other performance issues.
CMPT508	Title	Topics in a Computer Language.
	Prerequisites	CSIT 501 and departmental approval for students with Deferred or Conditional status.
	Special Fee	Special fee.
	Number and type of credits	1 hour lecture.
CMPT508	Course Description	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.
CMPT576	Title	Object-Oriented Software Development.
	Prerequisites	CMPT 581, CSIT 571 and departmental approval for students with Deferred or Conditional status.

	Special Fee	Special fee.
	Number and type of credits	3 hours lecture.
	Course Description	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.
CMPT578	Title	Introduction to Artificial Intelligence.
	Prerequisites	CSIT 571 and departmental approval for students with Deferred or Conditional status.
	Special Fee	Special fee.
	Number and type of credits	3 hours lecture.
	Course Description	An introduction to artificial intelligence including representations of knowledge, problem solving, games, heuristics and backtracking, expert systems, theorem proving, the language LISP and PROLOG.
CMPT581	Title	Systems Software Design.
	Prerequisites	CSIT 545 and departmental approval for students with Deferred or Conditional status.
	Special Fee	Special fee.
	Number and type of credits	3 hours lecture.
	Course Description	Assemblers, macroprocessors, linkers and loaders, introduction to compilers and run facilities. Required of majors.
CMPT587	Title	Microcomputers and Computer Interfaces.
	Prerequisites	CSIT 545 and departmental approval for students with Deferred or Conditional status.
	Special Fee	Special fee.
	Number and type of credits	3 hours lecture.
	Course Description	Introduction to geneology, manufacture and hardware design of microprocessors, microcomputer architecture, instruction sets and programming, microcomputer peripherals and interfaces.
CMPT588	Title	Fundamentals of Programming Languages.
	Prerequisites	Departmental approval for students with Deferred or Conditional status.
	Special Fee	Special fee.
	Number and type of credits	3 hours lecture.
	Course Description	A comparative approach to modern programming languages with emphasis on

		non-imperative languages, and an introduction to parallel languages.
CMPT589	Title	Computer Simulation of Discrete Systems.
	Prerequisites	CSIT 545 and departmental approval for students with Deferred or Conditional status.
	Number and type of credits	3 hours lecture.
	Course Description	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.
CMPT593	Title	Structured System Design and Analysis.
	Prerequisites	CSIT 555 and departmental approval for students with Deferred or Conditional
CMPT593	Prerequisites	status.
	Special Fee	Special fee.
	Number and type of credits	3 hours lecture.
	Course Description	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.
CMPT678	Title	Neurocomputing.
	Prerequisites	CSIT 571 and departmental approval for students with Deferred or Conditional status.
	Number and type of credits	3 hours lecture.
	Course Description	Basic neural network concepts, definitions, and building blocks; learning laws; simple implementations; associative networks; mapping networks; survey of applications.
CMPT696	Title	Local Area Networks.
	Prerequisites	CSIT 540 and departmental approval for students with Deferred or Conditional status.
	Special Fee	Special fee.
	Number and type of credits	3 hours lecture.
	Course Description	Fundamental issues and concepts underlying Local Area Network (LAN) development via microcomputers: topology, transmission media and technology,