

DEPARTMENT OF COMPUTER SCIENCE

John Placer, Chairperson, Suite 124-C, Science and Technology Building

MS In Computer Science

Applicants to the master of science degree in computer science must meet the admission requirements of the Graduate School, have an undergraduate degree in computer science or a related field, be able to demonstrate significant study in computer science, including a study of computer architecture and software design, be proficient programmers in at least one high-level programming language, submit three letters of recommendation, and have satisfactory scores on the general portion of the Graduate Record Examinations. Applicants whose native language is not English must additionally submit a satisfactory score on the Test of English as a Second Language (TOEFL). Each applicant's credentials will be reviewed by the director of graduate studies, who will determine if undergraduate deficiencies are present and, if so, will prescribe a method for their removal and determine a precondition for admission.

Requirements for completing the master of science in computer science are as follows:

1. Core courses (12 s.h.): CSCI 6120, 6230, 6420, and one of 5210 or 5220; an additional 18 s.h. of CSCI courses numbered 5000 or above, including 3-6 s.h. of thesis or research project. At least 15 s.h. must be in courses numbered 6000 or above.
2. A minimum cumulative GPA of 3.0 must be submitted for all graduate courses. No more than 6 s.h. of course work evaluated as C may be counted toward the degree.
3. Satisfactory score on a comprehensive examination covering 12 s.h. of course work.
4. Following successful completion of the comprehensive examination, the student must design and complete CSCI 6995 or 7000 under the direction of an advisor. The project or thesis must be successfully defended before the student's examination committee.
5. Students must attend at least five research seminars and present at least one research seminar during the course of study.
6. A minimum cumulative GPA of 3.0 must be submitted for all graduate courses. No more than 6 s.h. of course work evaluated as C may be counted toward the degree.

CSCI: Computer Science

5002. Logic for Mathematics and Computer Science (3) Same as MATH 5002 P: CSCI 3310 or CSCI 3510 or MATE 3223 or 2775 or MATH 2427 or 2775 or 3256 or PHIL 3580 or equivalent. Methods of mathematical logic important in mathematics and computer science applications.

5210. Operating Systems II (3) P: CSCI 4630 or consent of instructor. Theory and practice of concurrent processes in computer operating systems. Process scheduling. Memory and auxiliary storage management.

5220. Program Translation (3) P: CSCI 4627 or consent of instructor. Formal language specification for programming languages. Advanced parsing techniques. Code generation and optimization.

5501, 5502, 5503. Independent Study (1,2,3) Minimum of 3-6 hours per week depending on nature of work assigned. P: CSCI 3601 or equivalent or consent of instructor. Advanced computer science students study topics that supplement regular curriculum.

5774. Programming for Research (3) Same as MATH 5774 For graduate student who wishes to use computer science to meet required research skills in his or her dept. May not count toward MATH major or minor. P: General statistics course or consent of instructor. Emphasis on minimum-level programming skill and use of statistical packages.

5800. Artificial Intelligence (3) P: CSCI 3310 or CSCI 3510 or consent of instructor. Fundamental problems and techniques of artificial intelligence. Heuristic search. Concepts of expert systems.

6100. Cryptography and Information Security (3) P: Consent of instructor. Cryptographic techniques to provide secrecy and authenticity of information communicated over an insecure channel; private-key cryptography, public-key cryptography and deployed cryptography.

6120. Computer Systems Architecture (3) P: CSCI 4520 or consent of instructor. Sequential architectures, instruction sets, addressing modes, and control structures. Introduces parallel architectures.

6130. Networking and Telecommunication (3) P: CSCI 6120 or consent of instructor. Theory and case studies of modern networking protocols and telecommunication methods. Local area and long-haul networks.

6140. Mobile Communications and Wireless Security (3) P: CSCI 6130; or consent of instructor. Signals, access protocols, application requirements, and security issues with a focus on digital data transfer.

6220. Topics in Language Design (3) P: CSCI 3675 or consent of instructor. Semantics and implementation characteristics of languages supporting modern computing paradigms such as functional programming, logic programming, constraint programming, and object-oriented programming.

6230. Software Engineering Foundations (3) Same as SENG 6230 P: Consent of instructor. Software project development using software engineering principles and current software development techniques.

6300. Cryptographic Protocols (3) P: CSCI 6100; or consent of instructor. Design and analysis of cryptographic protocols for various tasks; emphasis on applications beyond providing secrecy and authenticity of messages.

6410. Design and Analysis of Algorithms (3) P: CSCI 3650 or consent of instructor. Methods of designing efficient algorithms, case studies. Analysis of complexity of algorithm.

6420. Computability and Complexity (3) P: CSCI 4602 or consent of instructor. Computability, Church's thesis, formal models of computation. Introduces complexity theory.

6600. Data Base Management Systems (3) P: CSCI 3700 or consent of instructor. Theory and techniques of data base management systems. Examines implementations of DBMS.

6710. Developing e-Commerce Systems (3) P: CSCI 6230; or consent of instructor. Introduces use of concepts, technologies, and building blocks from computer science, practical software engineering, and business development in building e-Commerce systems. Systematic life-cycle approach to developing successful e-Commerce systems essential to wide range of organization and software developers.

6810. Topics in Artificial Intelligence (3) P: CSCI 5800 or consent of instructor. Study of state of the art in selected topic on artificial intelligence.

6820. Computer Graphics (3) P: CSCI 3800 or consent of instructor. Principles and techniques of image rendering. Use of image rendering software.

6905. Topics in Computer Science (3) May be repeated once with change of topic. P: Consent of instructor. Current topic in computer science.

6995. Research Project (3) P: Approval of director of graduate studies. Student selects, investigates, and reports to faculty on challenging research project.

7000. Thesis (3) May be repeated. May count maximum of 3 s.h.

7001. Thesis: Summer Research (1) May be repeated. No credit may count toward degree. Students conducting thesis research may only register for this course during the summer.

Prerequisite(s); C=Corequisite(s); P/C=Prerequisite(s) or Corequisite(s); R=Recommended P, C, or P/C