M.S. in Computational Science

The University of Texas at El Paso offers studies leading to degrees of Doctor of Philosophy (PhD) and Master of Science (MS) in Computational Science (CPS). This is an interdisciplinary program that combines computer science, mathematics, and other science and engineering disciplines across different departments in the Colleges of Science, Engineering, and Health Sciences, yielding an integrated knowledge base for the effective solution of complex systems in which computer usage plays a fundamental role. A CPS student is expected to acquire an integrated understanding of techniques such as mathematical modeling, algorithmic design, computer simulation, scientific visualization, statistical processing of large datasets, and high-performance computing on parallel and distributed systems.

Admission Requirements

1. Bachelors or master's degree in any field of mathematics, science, or engineering from an accredited institution in the United States, or proof of equivalent education in a foreign institution;
2. Demonstration of academic achievement and potential as indicated by the results of the Graduate Record Examination (GRE) and upper-level undergraduate and/or graduate coursework;
3. Applicants from countries where English is not the first language are required to demonstrate English proficiency. Please consult the graduate school (http://catalog.utep.edu/admissions/graduate/graduate-student/) website for required scores;
4. A statement of academic and professional interests and goals from the applicant; and
5. Three letters of recommendation from people knowledgeable of the field.

Prospective students who have insufficient skills in mathematics, natural sciences, computers, and programming should contact the Program Director to discuss procedures leading to acceptance into the program. Students who will not be fully prepared for the PhD program can be admitted to the MS program.

A CPS student is expected to maintain an overall cumulative grade point average of 3.0 or better, and to complete the program, must take at least six (6) hours in each of the following areas: Computer Science, Mathematics, and Science/Engineering classes.

Degree Plan

Required Credits: 31-34

Code	Title	Hours
MS in Computational Science (All courses require a grade of C or better)		
Required Courses:		
CPS 5310	Mathematical & Comp. Modeling	3
CPS 5320	Advanced Scientific Computing	3
CPS 5401	Introduction to Comp Science	4
CPS 5397	Graduate Research	3
MATH 5329	Numerical Analysis	3
Prescribed Electives:		
Select two courses from Prescribed Electives (p. 2)		6
Thesis/Non-Thesis/Professional Option:		
Select one of the options		6-9
Select one course from Prescribed Electives or Free Electives (p. 2)		3
Total Hours		**31-34**

Academic Track - Thesis Option

Code	Title	Hours
CPS 5398	Graduate Thesis	3
CPS 5399	Graduate Thesis	3
Thesis Defense		
Total Hours		**6**

Academic Track - Non-Thesis Option

Code	Title	Hours
Select three additional courses from the list of Prescribed or Free electives (p. 2)		9
Comprehensive Exam		
Total Hours		**9**

Professional Track

Code	Title	Hours
Select three additional courses from the list of Prescribed or Free electives (p. 2)		9
Computational science related internship outside UTEP		
Total Hours		**9**

Prescribed Electives

Code	Title	Hours
CS 5334	Parallel & Concurrent Program	3
CS 5350	Advanced Algorithms	3
MATH 5330	Comp Methods of Linear Algebra	3
MATH 5343	Numer Solution Part Diff Equat	3
MATH 5345	Numerical Optimization	3
STAT 5329	Statistical Programming	3
STAT 5385	Applied Regression Models	3

Free Electives

Code	Title	Hours
All graduate level courses offered in the Colleges of Science and Engineering can be used as free electives. Students should consult with research mentor and graduate advisor to decide on courses that will best fit their career goals.		

Program Director

Ming-Ying Leung (http://facultyprofile.utep.edu/default.aspx?ID=mleung)

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