

Director:

Dr. Son-Young Yi
Associate Professor of Mathematical Sciences
Department of Mathematical Sciences
The University of Texas at El Paso
El Paso, TX 79968
Phone: (915) 747-6864
E-mail: syi@utep.edu

Program Description:

The graduate certificate program in Applied and Computational Mathematics will provide students from diverse backgrounds well-rounded training in core mathematical and computational skills useful for careers in research, teaching, or industrial work in which advanced mathematics or large-scale computation is used in an essential way. The successful students will acquire strong competences in mathematical modeling and analysis, numerical algorithms development, and computational programming.

Admittance Criteria:

Admission to this certificate program is open to all qualified students holding bachelor's degrees in various fields such as engineering, natural science, and secondary education. Prerequisites to admission include Matrix Algebra (MATH 3323 or MATH 4326) and Differential Equations (MATH 2326), or their equivalents, with a minimum grade of "B" in both classes.

Courses:

This certificate program requires the completion of 15 credit hours of courses. This includes 1 required course, MATH 5329 Numerical Analysis, 3 elective courses from a prescribed list, and a 3 credit hour course approved by the graduate advisor.

Table 1 Required and elective courses

Course No.	Course Title	Type	Prerequisite(s)
MATH 5329	Numerical Analysis	Required	MATH 3323
MATH 5311	Applied Mathematics	Prescribed elective	

MATH 5330	Computational Methods of Linear Algebra	Prescribed elective	MATH 3323
MATH 5335	Techniques in Optimization	Prescribed elective	MATH 2326
MATH 5343	Numerical Solutions for PDEs	Prescribed elective	MATH 2326 or MATH 3323
MATH 5XXX STAT 5XXX	Any course from the prescribed elective courses or a graduate-level applied MATH/STAT course	Free elective	Approval of graduate certificate advisor

Table 2 Prerequisite courses

Course No.	Course Title	Prerequisites
MATH 2326	Differential Equations	MATH 1312 or 2313
MATH 3323	Matrix Algebra	MATH 1312, 2313, or 2326
MATH 3325	Principles of Mathematics	MATH 1312, 2313, or 2326
MATH 4326	Linear Algebra	MATH 3325