

Computational Science, Engineering, and Mathematics

*Master of Science in Computational Science, Engineering, and Mathematics
Doctor of Philosophy*

For More Information

Campus address: Peter O'Donnell Building (POB) 4.102A, phone (512) 232-3356, fax (512) 471-8694; campus mail code: C0200

Mailing address: The University of Texas at Austin, Graduate Program in Computational Science, Engineering, and Mathematics, 201 East 24th Street C0200, Austin TX 78712-1229

E-mail: csemgrad@oden.utexas.edu

URL: <https://www.odен.utexas.edu/academics/>

Overview

The program is unique in its interdisciplinary emphasis. Faculty are drawn from a large number of academic departments representing five schools and colleges. The program is designed for outstanding students who desire expertise in multiple disciplines and are willing to take on new challenges by working alongside faculty involved in research at the forefront of computational science.

Areas of Study

Graduate study in computational science, engineering, and mathematics comprises three areas: (1) applicable mathematics, (2) numerical analysis and scientific computation, and (3) mathematical modeling and applications. Within these broad areas, the student may take courses in applied mathematics and statistics, data science, numerical analysis and scientific computing, computational mechanics and physics, parallel computing and computer architecture, and mathematical modeling, and in supporting areas in science and engineering that involve mathematical modeling of physical, biological, social, or engineered systems. Students perform research in a broad range of areas, including scientific computing, uncertainty quantification, machine learning, numerical analysis, optimization, visualization, computational medicine, computational geosciences, computational materials, computational life sciences, computational physical sciences, computational engineering, and many more.

Facilities for Graduate Work

The Oden Institute for Computational Engineering and Sciences provides space and supporting resources for work in computational science, engineering, and mathematics. Extensive computational facilities include an Ethernet network supporting hundreds of general-purpose Linux workstations, and about 10 distributed memory computer clusters with between 64 and 1344 cores each. Faculty members, research staff, and graduate students also have access to large-scale supercomputing resources of the Texas Advanced Computing Center (TACC) and the POB scientific visualization laboratory. Also available are the Kuehne Physics Mathematics Astronomy Library, the Mallet Chemistry Library, the Walter Geology Library, the Perry-Castañeda Library, and the Life Science Library.

Graduate Studies Committee

The following faculty members served on the Graduate Studies Committee (GSC) in the spring 2023 semester.

Narayana R Aluru	Joseph David Kileel
Todd J Arbogast	Chad Matthew Landis
Chandrajit L Bajaj	Dmitrii E Makarov
Michael Baldea	Edward M Marcotte
William Beckner	Per-Gunnar J Martinsson
George Biro	Robert D Moser
Fabrizio Bisetti	Peter Mueller
Tan Thanh Bui	Dev Niyogi
Luis A Caffarelli	J T Oden
Edward Castillo	Annette M Ostling
Joshua Tsukang Chang	David Paydarfar
James R Chelikowsky	Keshav K Pingali
Kevin Clarno	William H Press
Clinton N Dawson	Manuel Karl Rausch
Alexander A Demkov	Gregory J Rodin
Leszek F Demkowicz	Marissa N Rylander
Inderjit S Dhillon	Michael S Sacks
Berkin Dortdivanlioglu	Donald Jason Siegel
Ron Elber	Jon I Tamir
Bjorn Engquist	Takashi Tanaka
Sergey B Fomel	Ufuk Topcu
John Timothy Foster	Yen-Hsi Tsai
Irene M Gamba	Philip L Varghese
Omar Ghattas	Atlas Wang
William Gilpin	Rachel A Ward
Feliciano Giustino	Mary F Wheeler
Oscar Gonzalez	Karen E Willcox
Patrick Heimbach	Thomas Yankeelov
Graeme Andrew Henkelman	Stephen Yi
Marc Andre Hesse	Ali E Yilmaz
Thomas J Hughes	Renato Zanetti
Moriba Jah	Bo Zhao

Admission Requirements

Students entering the program are expected to have an undergraduate degree in engineering, computer sciences, mathematics, or a natural science such as biology, physics, chemistry, or geology.