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

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URL: https://www.oden.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 2024 semester.

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