The advanced multi-disciplinary degree program in Computational Science and Engineering addresses the current need for sophisticated skills in data and computation in both engineering and the sciences. Such skills require an understanding of tools, techniques, and algorithmic capabilities in a range of subjects including simulation, modeling, analytics, parallelization, visualization, networking, and programming. An awareness of a variety of new algorithms and analytic techniques is essential to maximizing the power of the new data and computational tools.

The MCSE degree is an interdisciplinary non-thesis degree, jointly offered by the departments of Computational Applied Mathematics and Operations Research (CMOR) and Statistics (STAT), which includes core courses from Computational and Applied Mathematics, Statistics, Computer Science, and additional electives, and allows students to tailor their program of study to application areas with computational science and engineering (CSE) focus.

CSE is an exciting and evolving field that integrates computational and applied mathematics, statistics, computer science and disciplines of science and engineering to develop computational tools for computational and data intensive applications. The interdisciplinary nature of the program differentiates the MCSE degree from departmental programs. As a non-thesis degree program within the School of Engineering, it has been designed to provide training and expertise in computational science and engineering and in data engineering and analytics. The MCSE is intended for students interested in technical and managerial positions such as computational scientist, computational engineering, data engineering, and data analyst. The program offers students opportunities to specialize in areas such as scientific computing, high performance computing, data analytics, data engineering, data science, or machine learning.

Computational Science and Engineering does not currently offer an academic program at the undergraduate level.

Master’s Program

- Master of Computational Science and Engineering (MCSE) Degree (https://ga.rice.edu/programs-study/departments-programs/engineering/computational-science-engineering/computational-science-engineering-mcse/)

Director

Matthias Heinkenschloss, Computational Applied Mathematics and Operations Research

Advisory Committee

John Dobelman, Statistics
Matthias Heinkenschloss, Computational and Applied Mathematics and Operations Research

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/!SWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/!SWKSCAT.cat)

Description and Code Legend

Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject codes: Courses from various subjects can be applied towards this program

Department (or Program) Description and Code

- MCSE students are admitted to one of the following two areas of specialization/home departments:
  - Computational Applied Mathematics and Operations Research: CMOR
  - Statistics: STAT

Graduate Degree Description and Code

- Master of Computational Science and Engineering degree: MCSE

Graduate Degree Program Description and Code

- Degree Program in Computational Science and Engineering: CSCE

CIP Code and Description

- CSCE Major/Program: CIP Code/Title: 30.3001 - Computational Science

Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/