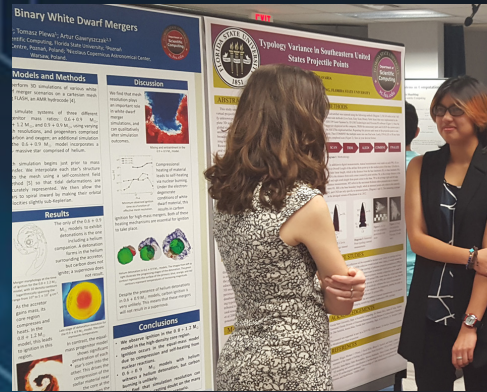


The Department of Scientific Computing

The Department of Scientific Computing (DSC) is an interdisciplinary unit consisting of biologists, computer scientists, data scientists, engineers, geneticists, geophysicists, materials scientists, mathematicians, and physicists, with an even broader spectrum of interests to be represented in the future. The DSC offers an innovative undergraduate program in computational science that imparts a synergy between disciplines, thus providing extensive interdisciplinary, hands on training.

Facilities

The DSC maintains a large and diverse computing infrastructure in support of research and education. Computing resources at DSC include several clusters and computational servers, a laboratory for scientific visualization, a bioinformatics server and more. The DSC Visualization Laboratory provides high-powered visualization resources to the FSU community for research, data analysis of large data collections, and education. DSC also offers a state of the art computer classroom and a seminar room with an 8 x 16 foot projection screen.



Undergraduate Program in

COMPUTATIONAL SCIENCE

AREAS OF INTEREST INCLUDE

**Astrophysics • Bioinformatics
Climate and Weather Modeling
Computational Fluid Mechanics
Computer Game Design • Data Mining
Evolutionary Biology • Genomics
GPU Computing
High-Energy Density Physics
High-Performance Computing
Machine Learning
Materials Science • Medical Imaging
Nano-Materials • Numerical Analysis
Partial Differential Equations
Phylogenetics • Polymers
Population Genetics
Scientific Visualization
Superconductivity • Systems Biology
and Uncertainty Quantification**

Department of Scientific Computing

AT
FLORIDA STATE UNIVERSITY

sc.fsu.edu

What is Computational Science?

Scientific discovery and technical innovation have traditionally depended on experiments and theory. Recently, however, computations have become an equal, and in some settings, the preferred means for advancing science and engineering and have also become indispensable in certain aspects of the social sciences, arts, and humanities. Computational Science focuses on the development, implementation, and application of the new algorithmic, visualization, and software tools needed by scientists, engineers, and others to advance their disciplines through the use of computers. As a result, computational science pervades and influences the work done in all major industrial sectors, in private and government laboratories, and in academia.

Career Opportunities

With the rapidly increasing use of computers for scientific inquiry and technological design, students with the Computational Science degree are well positioned for a wide range of career paths. Graduates of Florida State University's Computational Science program are prepared for employment in industry and government laboratories as well as for entry into graduate schools. These students are ideally positioned to help solve science and engineering problems, as part of interdisciplinary teams, using computers.

Using Computers to Solve the Science and Engineering Problems of Tomorrow

PROGRAM OF STUDY

<https://academic-guide.fsu.edu/computing-mathematics>

Search for "Computational Science"

PREREQUISITE COURSEWORK

- MAC X311 (4) and X312 (4) Calculus I and II
- ISC 3313 (3) Introduction to Scientific Computing or COP 3014 Programming I at FSU or other approved programming course;
- COP XXXX (3) Introductory programming (in C or C++, JAVA or equivalent language)
- Science with lab (4) A laboratory-based science course for science majors (BSC, CHM, GLY, MET, or PHY)

COURSEWORK

- ISC 3222 (3) Symbolic and Numerical Computations
- ISC 4304 (4) Programming for Science Applications
- ISC 4220C (4) Continuous Algorithms for Science Applications
- ISC 4221C (4) Discrete Algorithms for Science Applications
- ISC 4223 (4) Comp. Methods for Discrete Problems
- ISC 4232 (4) Comp. Methods for Continuous Problems
- ISC 4931 (2) Junior Seminar in Scientific Computing (twice for 1 hour each)
- ISC 4932 (1) Senior Seminar in Scientific Computing
- ISC 4943 (3) Practicum in Scientific Computing
- MAS 3105 (4) Applied Linear Algebra
- Approved statistics course at 3000 or 4000 level
- Department of Scientific Computing electives (9 hours) selected from an approved list
- Additional elective courses (9 hours) from the Department of Scientific Computing or other appropriate department at the 3000/4000 level or from approved departmental list

SAMPLE ELECTIVE COURSES

- Computational Evolutionary Biology
- Verification and Validation of Computer Codes
- Visualization •Genome Sequencing
- Molecular Dynamics •Computational Fluid Mechanics
- Bioinformatics •Computational Astrophysics
- Computational Materials Science
- Courses in mathematics, statistics, computer science, any science or engineering discipline