COMPUTATIONAL SCIENCES, MINOR

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Computational Sciences minor provides the necessary skills to use computers to study and solve scientific, engineering and data-centric problems across a wide range of disciplines. The minor complements the areas of theory and experimentation found in traditional scientific and engineering studies through the use of computational modeling, algorithm design, and event-driven programming. Students will customize the minor by selecting two advanced courses in their discipline or related areas that build upon the computational foundations provided in prescribed courses. The minor will prepare students with the skills necessary to apply computational methods in a variety of scientific and engineering disciplines.

What is Computational Sciences?

Computational Sciences is the study and application of computational methods to understand, analyze and solve complex problems. It includes the design, development and evaluation of models and simulations of natural systems and complements traditional methods of theory and laboratory experiments. It seeks to provide a deeper understanding of scientific and engineering problems through the mathematical modeling of complex systems. A core topic is the design, implementation and evaluation of algorithms, both numerical and non-numerical, that address problems across a broad range of science and engineering disciplines.

You Might Like This Program If...

- You like to analyze and solve complex problems.
- You excel in mathematics.
- You want to apply computational methods to your discipline.

Program Requirements

Requirement	Credits
Requirements for the Minor	18

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (https://senate.psu.edu/students/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
Prescribed Courses: Require a grade of C or better		
CMPSC 204	Introduction to Computational Sciences Programming	3
CMPSC 205	Intermediate Computational Sciences Programming	3
CMPSC 301	Event Driven Programming for Computational Sciences	3
CMPSC 348	Data Science and Machine Learning for Computational Sciences	3
Supporting Courses and Related Areas		
Supporting Courses and Related Areas: Require a grade of C or better		
Select 6 credits of 400-level courses from the approved list of supporting courses		6

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (https://senate.psu.edu/students/policies-and-rules-for-undergraduate-students/32-00-advising-policy/)

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Career Paths

The Computational Sciences minor prepares graduates with the skills to use computational methods to simulate and model natural systems and processes. These skills allow the graduates to enhance their understanding of complex problems.

Careers

Careers in a broad range of sciences, engineering and business increasingly rely on understanding and applying computational tools. Graduates with a minor in Computational Sciences can pursue careers within their discipline that allow them to apply the latest computational tools used to analyze, understand and solve complex problems.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN COMPUTATIONAL SCIENCES (https://career.engr.psu.edu/)

Opportunities for Graduate Studies

Graduates of this minor can pursue graduate studies in fields that require the design and development of models and simulations of complex problems.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (https://www.eecs.psu.edu/students/graduate/EECS-Graduate-Prospective.aspx)

Contact

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