

# CERTIFICATE IN SCIENTIFIC COMPUTING AND SIMULATION

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Units required for Certificate: 14 minimum

## Program Description

A certificate program in Scientific Computing and Simulation designed for science and engineering majors is offered by the Department of Physics and Astronomy. It focuses on the basic skills of applying the computer to the solution of scientific problems which today encompass a broad range of applications in science and technology. Such skills include modeling and formulating the problem, solving the resulting equations, and displaying the results graphically. Students that earn this certificate will acquire a good grounding in such skills and be better prepared for today's industrial and academic careers.

## Eligibility Information

To receive the certificate in Scientific Computing and Simulation, students must:

- achieve a 2.5 GPA in the certificate program courses;
- must be working towards a degree at Sacramento State or have special approval from the Chair of the Department of Physics and Astronomy.

## Program Requirements

Code	Title	Units
<b>Background Courses (8 Units)</b>		
Select one of the following pairs:		8
PHYS 11A & PHYS 11B	General Physics: Mechanics General Physics: Heat, Light, Sound, Modern Physics	
PHYS 11A & PHYS 11C	General Physics: Mechanics General Physics: Electricity and Magnetism	
MATH 105A & MATH 105B	Advanced Mathematics for Science and Engineering I Advanced Mathematics for Science and Engineering II	
PHYS 5A & PHYS 5B	General Physics: Mechanics, Heat, Sound General Physics: Light, Electricity and Magnetism, Modern Physics	
<b>Computing Courses (6 Units)</b>		
PHYS 162	Scientific Computing: Basic Methods	3
PHYS 163	Scientific Computing: Modeling, Simulation, and Visualization	3
<b>Total Units</b>		<b>14</b>