

# CERTIFICATE IN GAME ENGINEERING

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Units required for Certificate: 12

## Program Description

This certificate is intended to give students an opportunity to explore the science and engineering of computer games, and to prepare students for careers in those fields of computing which utilize or are heavily impacted by advances in computer gaming. These include such areas as video and strategy game development, 3-D graphics, modeling and animation and their support tools, intelligent decision making, specialized user interface hardware, machine learning, and working in interdisciplinary teams.

## Academic Certificates

In addition to completing the requirements for the Bachelor of Sciences in Computer Science degree program, students enrolled in the major may also complete one of the (optional) 9-12 unit Academic Certificate programs. Each certificate includes 9 required units which can overlap with elective coursework taken to satisfy the major requirements, with some of the certificates requiring 3 additional units (1 additional course) beyond the degree requirements. Students interested in earning a certificate in addition to their degrees should meet with an academic advisor.

## Requirements for Certificates

Certain combinations of courses gives students a deeper understanding of specialized areas in Computer Science. Completion of any of the following course lists entitles the student to receive a certificate indicating that they concentrated their elective study in the particular area. The Computer Science Department will try and offer on a regular basis all courses required for each certificate, but course cancellations and scheduling conflicts do sometimes occur causing students difficulty in completing their desired course study. In such situations, students may need to forgo completion of their certificate. Printed certificates must be requested directly from the Computer Science Department office after a student graduates.

## Program Requirements

Code	Title	Units
CSC 155	3D Graphics and Shader Programming	3
CSC 165	Computer Game Architecture and Implementation	3
CSC 180	Intelligent Systems	3
Select one of the following:		3
CSC 126/ ART 142	3D Computer Modeling	
CSC 127/ ART 142	3D Computer Animation	
CSC/CPE 159	Operating System Pragmatics	
CSC 177	Data Analytics and Mining	
<b>Total Units</b>		<b>12</b>