

# Certificate in Computer Programming

# UMSL

UMSL is a NSA/DHS National Center of Academic Excellence in Cyber Defense Education



College of Arts and Sciences

**Department of Mathematics and Computer Science**

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## Undergraduate Certificate in Computer Programming



The undergraduate Certificate in Computer Programming is an 18 credit hour program. It is designed to provide a quick, yet broad training in technologies leading to secure and interesting careers in computer programming or education. A minimum GPA of 2.5 is required for admission.

A minimum of four courses must be taken in residence in the Department of Mathematics and Computer Science at UMSL. Courses may be substituted with the permission of the program director.


In addition to university scholarships, the department awards about \$40k annually in mostly merit scholarships to departmental students see [umsl.edu/cs/scholarships-opportunities](http://umsl.edu/cs/scholarships-opportunities).

<b>Required core courses</b>	<b>3</b>
<a href="#">CMP SCI 1250</a>	Introduction to Computing
<a href="#">CMP SCI 2250</a>	Programming and Data Structures
<a href="#">CMP SCI 2261</a>	Object-Oriented Programming
<b>Choose three of the electives</b>	<b>3</b>
<a href="#">CMP SCI 2700</a>	Computer Organization and Architecture
<a href="#">CMP SCI 2750</a>	System Programming and Tools
<a href="#">CMP SCI 3010</a>	Web programming
<a href="#">CMP SCI 3130</a>	Design and Analysis of Algorithms
<a href="#">CMP SCI 3760</a>	Cyber Threats and Defense
<a href="#">CMP SCI 4010</a>	Advanced Web Development with Java
<a href="#">CMP SCI 4011</a>	Client-Side Technologies
<a href="#">CMP SCI 4020</a>	Introduction to Android Apps: Android Fundamentals
<a href="#">CMP SCI 4220</a>	Introduction to iOS Programming and Apps
<a href="#">CMP SCI 4222</a>	iOS Apps
<a href="#">CMP SCI 4610</a>	Database Management Systems
<a href="#">INFSYS 3844</a>	Developing Business Applications in .NET
<b>Total courses (credit hours)</b>	<b>6(18)</b>

For more information visit [umsl.edu/cs](http://umsl.edu/cs).

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For electronic version of this document and more info visit <http://www.umsl.edu/cs/certificates>

**UMSL|NOW** : Some courses available online. All courses available in the evening - some every semester some on rotation.