Purpose To prepare students for entry-level positions in the simulation and game development industries or to transfer to a four-year school for additional education.

Learning Outcomes The graduate will:
- develop programming knowledge and skills with a current commercial programming language.
- design, program, test, debug and document computer simulation or game programs using a variety of current tools and technologies.
- create computer simulations or games using industry standard development tools.
- develop skills and knowledge in computer animation using industry standard tools.
- learn mathematical concepts related to simulation and game development and use those concepts in class projects.
- use appropriate library and information resources to research simulation and game development issues, programming tools and technologies and to support lifelong technical learning.

Job Openings Projected through 2022
Lane County openings - 11 annually
Statewide openings - 170 annually

Wages
Lane County average hourly - $30.32; average annual - $63,074
Oregon average hourly - $38.86; average annual - $80,820

Costs (Estimate based on 2014-15 tuition and fees. Consult Lane's website for updated tuition.)
Resident Tuition and Student Fees ........................................ $10,776
Books and Materials .......................................................... $1,427
Laptop Computer ............................................................. $1,500
CIT Lab Fees ................................................................. $208
Total Estimate $13,911

Computer Simulation and Game Development course fees and other course fees may change during the year - see the online credit class schedule for fees assigned to courses.

Second Year Requirements A personal laptop is required for second-year students in the degree program. If you receive financial aid, some of those funds may be used for this purchase. Please contact the Program Lead for options and system requirements.

Cooperative Education (Co-op) Co-op is a required and important part of the Computer Simulation and Game Development Degree program. It provides relevant field experience that integrates theory and practice while providing opportunities to develop skills, explore career options, and network with professionals and employers in the computer programming field. Contact Gerry Meenaghan, Cooperative Education Coordinator, Bldg. 19, Rm. 231A, 541.463.5883.

Program Lead Jim Bailey, Bldg. 19, Rm. 146, 541.463.3148, baileyj@lanecc.edu

Course Requirements
1. Prerequisites are required for some courses. See course descriptions.
2. All courses must be completed for a letter grade of C, except for the Communications, Writing, Math, PE/Health, and Human Relations requirements and CS 206 which may be completed with a “Pass” grade.

Computer Simulation and Game Development
Two-Year Associate of Applied Science Degree

Prerequisites Students must qualify for MTH 231, CS 161C+ and WR 121 or WR 121_H either by placement testing or completing prerequisite courses.

Students should consult with a counselor or advisor to plan a program of study and choose speech and elective courses.

First Year
Fall
CIS 100 Computing Careers Exploration ..................................... 2
CIS 125G Software Tools 1: Game Development ......................... 4
CS 161C+ Computer Science 1 ............................................. 4
Elective .............................................................................. 4
Total Credits 14

Winter
FA 221 Computer Animation ................................................. 4
CS 162C+ Computer Science 2 ............................................. 4
ART 245 Drawing for Media ................................................. 4
Elective .............................................................................. 4
Total Credits 16

Spring
CIS 126 Game Design: Principles and Practice ............................ 4
CS 260 Data Structures 1 ................................................... 4
FA 222 Computer Animation 2 ............................................. 4
PE/Health requirement ...................................................... 3
Elective .............................................................................. 3
Total Credits 18

Second Year
Fall
CIS 135G Software Tools 2: Game Development ........................ 4
CS 234G Advanced C++ Programming ................................... 4
MTH 231 Discrete Math 1 ................................................... 4
Choice of: .......................................................................... 4
WR 121 Introduction to Academic Writing
WR 121_H Introduction to Academic Writing
CS 206 Co-op Ed: Computer Information Technology Seminar ........................................... 2

Total Credits 18
Computer Simulation and Game Development

Winter

<table>
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<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CS 246 System Design</td>
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<tr>
<td>Communication requirement</td>
<td>4</td>
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<tr>
<td>WR 227 Technical Writing</td>
<td>4</td>
</tr>
<tr>
<td>MTH 232 Discrete Math 2</td>
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<td><strong>Total Credits</strong></td>
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Spring

<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>CS 297 Programming Capstone</td>
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<td>CS 280SGD Co-op Ed: Simulation and Game</td>
<td>3</td>
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<tr>
<td>Human Relations requirement</td>
<td>3-4</td>
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<tr>
<td>CG 203 Human Relations at Work (Recommended)</td>
<td>4</td>
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<tr>
<td>MTH 260 Linear Algebra</td>
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<td><strong>Total Credits</strong></td>
<td>15-16</td>
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Computer Game Programming in C++

Career Pathway Certificate of Completion

**Purpose** To provide students with the knowledge and skills required to program in C++, specifically focused on simulation and game programming.

**Learning Outcomes** The certificate recipient will:

- understand the syntax and semantics of C++ programming.
- demonstrate the ability to solve programming projects using an object-oriented methodology.
- understand and use common data structures to solve programming problems.
- design, develop, test, debug, and document solutions to simulation and computer game problems using a variety of current tools.
- demonstrate the knowledge of common software engineering methodologies.
- develop a portfolio of programs working in a team-oriented environment.

**Certificate Lead** Jim Bailey, Bldg. 19, Rm. 146, 541.463.3148, baileyj@lanecc.edu

**Prerequisites** Students are expected to be comfortable working on a computer, including the ability to create files with a text editor and manage file folders. CS 260 has a prerequisite of MTH 111.

**Courses Required**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CS 161C+ Computer Science 1</td>
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<tr>
<td>CS 162C+ Computer Science 2</td>
<td>4</td>
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<tr>
<td>CS 260 Data Structures</td>
<td>4</td>
</tr>
<tr>
<td>CS 234G Advanced C++ Programming</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td>16</td>
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</table>

**Academic Advising Online**

Free online resources are available for ALL majors! [moodle]

On lanecc.edu, choose the Moodle button. Select Academic Advising, find your specific major, and follow the instructions to Login or select Login as a Guest.

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