



2009-2010
Career and Technical
Programs

Computer
Information
Technology
(541) 463-5826

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

Career Pathway
Certificate of
Completion,
Computer Game
Programming in C++

Computer Simulation and Game Development

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 simulation or game programs 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.

Employment Trends The Oregon Labor Market Information System projects statewide 132 annual openings for Computer Programmer, and 11 annual openings for Lane County. For the decade ending in 2014, the statewide projected increase is 15.4% and for Lane County 14.2%. Related job categories such as Software Engineers show similar employment trends.

Wages Statewide average hourly wage is \$33.39 and \$69,447 annually. Lane County average hourly wage is \$25.67 and \$53,384 annually.

Costs in Addition to Tuition (estimates)*

Books and Materials.....	\$1,500
Laptop Computer.....	\$1,500
CIT Lab Fees.....	\$ 355
Total	\$3,355

* Subject to change without notice.

Prerequisites Students must qualify for MTH 111 and WR 121 either by placement testing or completing prerequisite courses. Students should consult with a counselor or advisor to plan a program of study.

Second Year Requirements A personal laptop is required for 2nd-year students in the Computer Simulation and Game Programming degree program. If you receive financial aid, some of those funds may be used for this purchase. Please contact the CIT Department or go to <http://www.lanecc.edu/cit> 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 Larry Scott, Computer Simulation and Game Development Co-op Coordinator, Bldg. 19, Rm. 154, (541) 463-5458, scottl@lanecc.edu.

Program Lead Jim Bailey, Bldg. 19, Rm. 146, (541) 463-3148, baileyj@lanecc.edu

Program Advisor Shirley Lukacs, Bldg. 16, Rm. 162M, (541) 463-3244, lukacss@lanecc.edu

Program Counselor Debby Ganser, Bldg. 16, Rm. 162L, (541) 463-5034, ganserd@lanecc.edu

Computer Simulation and Game Development

Computer Simulation and Game Development

Two-Year Associate of Applied Science Degree

First Year

CIS 100 Computing Careers Exploration ^{D,G}	Fall	2
CIS 125G Software Tools 1: Game Development ^{D,G}		4
CS 133G Beginning C++ Programming for Games ^{D,G,S}		4
ART 245 Drawing for Media ^{D,G}		4
Total Credits		14

Winter

FA 221 Computer Animation ^{*,D,G}	3
CS 233G Intermediate C++ Programming for Games ^{*,D,G,S}	4
MTH 111 College Algebra ^{*,D,S}	5
Elective Course ¹	3
Total Credits	15

Spring

FA 222 Computer Animation 2 ^{*,D,G}	3
CS 253 Computation for Computer Graphics ^{*,D,G,S}	4
CS 260 Data Structures ^{*,D,G,S}	4
PE/Health requirement ^R	3
Elective Course ¹	3
Total Credits	17

Second Year

CIS 135G Software Tools 2: Game Development ^{*,D,G,S}	Fall	4
CS 234G Advanced C++ Programming for Games ^{*,D,G,S}		4
WR 121 English Composition: Exposition and Introduction to Argument ^{*,W}		4
MTH 231 Discrete Math 1 ^{*,D,G,S}		4
Total Credits		16

Winter

CS 235G Software Tools 3: Game Development ^{*,D,G,S}	4
Speech course ²	4
FA 261 Writing for Interactive Media ^{*,D,G}	3
MTH 232 Discrete Math 2 ^{*,D,G,S}	4
Total Credits	15

Spring

CS 297G Simulation and Game Development Capstone ^{*,D,G,S}	4
CS 280SGD Co-op Ed: Simulation and Game Development (second-year standing required) ^{D,G}	3
CG 203 Human Relations at Work ^H	3
MTH 233 Discrete Math 3 ^{*,D,G,S}	4
Total Credits	14-15

Elective courses: See program counselor or advisor for course suggestions.

Speech course: See program counselor or advisor for course suggestions.

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Standard footnotes:

- * Prerequisite required
- A Meets Arts/Letters requirement
- B Must be passed with grade of "B-" or better to use as a prerequisite
- D Degree or certificate requirement; must be passed with grade of "C-" or better
- G Must be taken for a grade, not P/NP; major requirement

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.

Employment Trends The Oregon Labor Market Information System project statewide 132 annual openings for Computer Programmer, and 11 annual openings for Lane County. For the decade ending in 2014, the statewide projected increase is 15.4% and for Lane County 14.2%. Related job categories such as Software Engineer, Web Developer, Systems Analyst, Database Programmer show projected increases statewide and for Lane County of 20-25%.

Wages Statewide average hourly wage is \$33.39 and \$69,447 annually. Lane County average hourly wage is \$25.67 and \$53,384 annually.

Costs in Addition to Tuition (estimates)*

Books and lab fees \$150-\$200
 Students taking courses using CIT labs are assessed a one-time fee up to \$28 per term. See the CIT department for details.
 * Subject to change without notice.

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.

Certificate Lead Jim Bailey, Bldg. 19, Rm. 146, (541) 463-3148, baileyj@lanec.edu

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Courses required	Credits
CS 133G Beginning C++ Programming for Games ^{D,G}	4
CS 233G Intermediate C++ Programming for Games ^{*,D,G}	4
CS 260 Data Structures ^{*,D,G}	4
CS 234G Advanced C++ Programming for Games ^{*,D,G}	4

Total Credits 16

- H Meets Human Relations/Social Science requirement
- M Meets Mathematics requirement
- P Meets PE/Health requirement
- R Required for AAS degree
- S Meets Science/Math/Computer Science requirement
- W Meets Written Communications or English Composition requirement