



**2009-2010
Career and Technical
Program**

**Computer
Information
Technology
(541) 463-5826**

**Two-Year Associate
of Applied Science
Degree, Computer
Programming**

**Career Pathway
Certificate of
Completion, Web
Programming**

**Career Pathway
Certificate of
Completion,
Geographic
Information
Systems**

Computer Programming

Purpose To prepare technicians for entry-level positions as web developers.

Learning Outcomes The graduate will:

- design, implement, test, debug and document web based computer programs using a variety of current tools and technologies.
- design, implement, test, debug and document at least one other type of computer program such as: game program, database program, object oriented program.
- understand the relationship between computer programs and organizational processes.
- interpret the mathematical concepts of a programming related problem-solving task and translate them into programming logic and expressions.
- use appropriate library and information resources to research programming tools and technologies and support lifelong technical learning.

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 2016, the statewide projected increase is 14.2% and for Lane County 15.4%. 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 \$31.68 and \$69,447 annually. Lane County average hourly wage is \$26.24 and \$53,384 annually.

Costs in Addition to Tuition (estimates)*

Books and Materials.....	\$2,500
CIT Lab Fees	\$ 168
Total	\$2,668

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 must qualify for WR 121, either by placement testing or completing prerequisite courses, and by the third term, qualify to begin MTH 095. Each student should consult with a counselor or advisor to plan a program of study.

Cooperative Education (Co-op) Co-op is a required and important part of the Computer Programming 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 Programming Co-op Coordinator, Bldg. 19, Rm. 154, (541) 463-5458, scottl@lanecc.edu.

Program Lead Mari Good, Bldg. 19, Rm. 158, (541) 463-5838, goodm@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 Programming

First Year		Fall
CIS 100 Computing Careers Exploration ^{D,G}		2
CIS 102 Problem Solving with Computers ^{D,G}		4
CIS 140 Operating Systems: Managing Windows ^{D,G}		4
WR 121 English Composition: Exposition and Introduction to Argument ^{*,W}		4
PE/Health requirement ^R		3

Total Credits 17

		Winter
ART 288 Introduction to Web Design ^{D,G}		2
CIS 125D Software Tools 1: Databases ^{D,G}		4
CIS 125H Software Tools 1: XHTML ^{D,G}		3
CS 133 Beginning Programming ^{*,D,G,S}		4
CS 179 Introduction to Computer Networks ^{*,D,G,S}		4

Total Credits 17

		Spring
CG 203 Human Relations at Work ^H		3
CS 133JS Beginning Programming Javascript ^{*,D,G,S}		4
CS 233 Intermediate Programming ^{*,D,G,S}		4
MTH 095 Intermediate Algebra or higher ^{*,M}		5

Total Credits 16

Second Year		Fall
CIS 244 Systems Analysis ^{*,D,G}		4
CS 295 Web Development 1 ^{*,D,G}		4
CS/CIS/GIS Elective ^{1,D,G} (see below).....		4
WR 227 Technical Writing ^{*,A}		4

Total Credits 16

		Winter
CS 275 Data Base Program Development ^{*,D,G}		4
CS 296 Web Development 2 ^{*,1,G,S}		4
Speech Elective ² (see approved list below).....		4
CS/CIS/GIS Elective ^{1,D,G} (see below).....		4

Total Credits 16

		Spring
CIS 297 Programming Capstone ^{*,D,G}		5
CS 280PR Co-op Ed: Computer Programming (second-year standing required) ^{D,G}		3
CS/CIS/GIS Elective ^{*,1,D,G} (see below).....		4
Open Elective.....		4

Total Credits 16

1. For more specific information about the Fall/Winter/Spring CS/CIS/GIS elective sequences please contact the Program Academic Advisor (Shirley Lukacs) or the Program Counselor (Debbie Ganser) to help determine which elective sequence best fits your goals.

2. List of approved speech electives:
- SP 100 Basic Communication
 - SP 111 Fundamentals of Public Speaking
 - SP 112 Persuasive Speech
 - SP 130 Business and Professional Speech
 - SP 219 Small Group Discussion

Web Programming

Career Pathway Certificate of Completion

Purpose To prepare technicians for entry-level positions as web programmers.

Learning Outcomes The certificate recipient will:

- design, implement, test, debug and document web based computer programs using a variety of current tools and technologies.
- understand the use of web programming to support organizational processes.
- interpret the mathematical concepts of a programming related problem-solving task and translate them into programming logic and expressions.
- use appropriate library and information resources to research programming tools and technologies and support lifelong technical learning.

Employment Trends The Oregon Labor Market Information System projects 132 annual openings statewide 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 (estimate)*

Books and lab fees \$200-300
 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.

Program Lead Mari Good, Bldg. 19, Rm. 158, (541) 463-5838, goodm@lanec.edu

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

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

Courses required	Credits
ART 288 Introduction to Web Design ^{D,G}	2
CIS 125H Software Tools 1: XHTML ^{D,G}	3
CS 133JS Beginning Programming Javascript ^{*,D,G,S}	4
CS 295 Web Development 1 ^{*,D,G}	4

Total Credits 13

Computer Programming

Geographic Information Systems

Offered by the Social Science Department

Career Pathway Certificate of Completion

Learning Outcomes The graduate will understand:

- basic cartographic principles of global reference and coordinate systems, maps and generalization.
- types of maps including reference, thematic, topographic, aerial photography.
- skills and techniques used to create, analyze, and display spatial data using geographic information system software.
- principles of information analysis including how information is designed, organized, analyzed, visualized, used and misused.
- use of software tools to communicate information effectively through descriptive statistics and narratives, graphical visualization and mapping applications.
- project management of basic GIS tasks such as data management, cartographic design, and document conversion and analysis.

Courses required

	Credits
GIS 245 Maps and Spatial Information ^{D,G}	4
GIS 246 Introduction to GIS ^{D,G}	4
GIS 248 Applications in GIS ^{D,G}	4
CIS 247 Information Analysis and Visualization ^{D,G,S}	4
Total Credits	16

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

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

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