Lane Community College SM

2011 - 2012
Career and Technical Programs

Computer Information Technology Department
541.463.5826

lanecc.edu

Computer Programming

Two-Year Associate of Applied Science Degree
Computer Programming

Career Pathways Certificate of Completion,
Web Programming

Career Pathways Certicate,
Geographic Information Systems

Purpose To prepare technicians for entry-level positions as software 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

- Lane County openings - 9 annually, projected through 2018
- Statewide openings - 103 annually, projected through 2018
- Annual National positions - 426,700 current; 414,400 projected through 2018

Wages

- Related job categories such as Software Engineer:
- Average hourly rate in Lane County - $25.36
- Average annual rate in Lane County - $52,754
- Average hourly rate Statewide - $33.20
- Average annual rate Statewide - $69,072

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 the Cooperative Education Division, Bldg. 19, Rm. 231, 541.463.5203.

Program Lead Mari Good, Bldg. 19, Rm. 158, 541.463.5838, *goodm@lanecc.edu*

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 Introduction to Academic Writing *	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
CS 195 Web Authoring 1 D,G	3
CS 133C# Beginning Programming: C# *,D,G	4
CS 179 Introduction to Computer Networks *,D,G	4
Total Credits	17

	Spring
CG 203 Human Relations at Work	3
CS 133JS Beginning Programming JavaScript *,D,G	4
CS 233C# Intermediate Programming: C# *,D,G	4
MTH 095 Intermediate Algebra or higher *	5
Total Credits	16

Computer Programming

Second Year	**Fall**
CIS 244 Systems Analysis *,D,G	4
CS 295A Web Development 1: ASP.NET *,D,G	4
CS 275 Database Systems and Modeling *,D,G	4
WR 227 Technical Writing *	4
Total Credits	16
	Winter
CS 276 Database SQL Programming	4
CS 296A Web Development 2: ASP.NET *,1,G	4
Speech Elective 2	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 or the Program Counselor to help determine which elective sequence best fits your goals. Programming majors are strongly advised to take CS 295P Web Development 1: PHP and CS 296P Web Development 2: PHP as electives.

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

3 Students who complete the Computer Programming Degree will have completed all of the coursework to earn the Database Specialist Career Pathway Certificate. See Computer Information Systems - Health Informatics AAS listing for details.

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.

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@lanecc.edu*

Courses required	**Credits**
CS 195 Web Authoring 1 D,G	3
CS 133JS Beginning Programming JavaScript *,D,G	4
CS 295P Web Development 1: PHP *,D,G	4
CS 296P Web Development 2: PHP *,D,G	4
Total Credits	15

Computer Programming

Geographic Information Systems

Offered by the Social Science Department, 541.463. 5427

Career Pathway Certificate of Completion

Purpose This sequence of courses provides a foundation in geospatial concepts while developing workforce skills. The focus on collaborative projects using real-world data to solve problems makes the GIS course sequence relevant and dynamic.

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.

Cooperative Education (Co-op) Co-op offers students college credit and a grade for on-the-job work experience related to their educational and career goals. Through Co-op, students connect theory and practice, develop skills, expand career knowledge, and make contacts for the future. Work schedules and work sites vary. Contact Lynn Songer, GIS Co-op Coordinator, CEN, Rm. 410, 541.463.5493, *songerl@lanecc.edu*

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	4
Total Credits	16

Elective: GIS280 Coop Ed: Geographic Information Science

Standard footnotes:
* Prerequisite required
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
R Required for AAS degree