Web Programmer

Regional Program Demand Report

Santa Monica College, LA MSA

emsi

Economic Modeling Specialists Inc.

Introduction and Contents

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Purpose and Goals

This report is designed to integrate and analyze data from multiple sources to help educational institutions discover regional labor market needs for certain postsecondary programs of study. The overall goal is to help a college align their program offerings the economy and labor market of its service region. To do this, the report selects a set of focus occupations, determines the regional job outlook for them, and compares this to the number of recent graduates in related programs at regional educational institutions. While this is a first step toward a supply/demand analysis, for increased accuracy it could be extended with survey-based information from local employers regarding their hiring outlook and recruitment sources.

The occupation employment and wage numbers are from EMSI's national Complete Employment database, which is built using numerous published data sources from the federal Bureau of Labor Statistics, Bureau of Economic Analysis, and Bureau of the Census. In addition, the report uses industry/occupation data and projections created by the State of AnyState. The completions-by-program and program-to-occupation links use data from the U.S. Department of Education.

These data sources have been specially processed and harmonized to provide more complete and detailed data than any individual source used. For more information, see the final page of this report.

Focus College

Santa Monica College

Region Definition

LA MSA:

Los Angeles, Orange

Key Terms and Concepts

Programs: Courses of postsecondary study defined by CIP (Classification of Instructional Programs) codes.

Occupation: A category of workers defined by the Standard Occupational Classification (SOC).

Relating occupations to Programs: EMSI determines these links using information from the U.S. Department of Education.

Replacement Jobs: The estimated number of job openings in an occupation due to retirement, turnover, and other factors aside from job growth. Based on national percentages by occupation.

Annual openings: The sum of new jobs and estimated replacement jobs for a given occupation, divided by the number of years in the timeframe.

Earnings: For industries, total annual earnings per worker is reported; these earnings include wages, salaries, profits, and benefits. Occupational earnings are reported as median hourly wage only.

Jobs: Full-time and part-time positions held by proprietors and payroll employees in the public or private sector. May exceed actual worker count.

Projections: Estimates of future job or population numbers based on (1) recent historical regional trends and (2) published forecasts created by a consensus of state and federal agencies.

Executive Summary

Overview

This report focuses on **2 occupations** which are expected to provide **264 annual job openings** from 2009-2014 in the LA MSA 2-county area. Meanwhile, in 2008, area colleges produced **780 graduates** in **15 programs** related to these occupations. The numbers do not conclusively show an opportunity for area colleges to expand their offerings in this field.[1]

Focus Occupations

The following occupations were selected for analysis in this report:[2]

- Computer programmers
- Numerical tool and process control programmers

Focus Programs

The key occupations above correspond to the following standard postsecondary program titles:[3]

- Artificial Intelligence and Robotics
- Computer Programming/Programmer, General
- Computer Programming, Specific Applications
- Computer Programming, Vendor/Product Certification
- Computer Programming, Other
- Data Processing and Data Processing Technology/Technician
- Web Page, Digital/Multimedia and Information Resources Design
- Computer Graphics
- Computer Software and Media Applications, Other
- Web/Multimedia Management and Webmaster
- Bioinformatics
- Medical Office Computer Specialist/Assistant
- Medical Informatics
- E-Commerce/Electronic Commerce
- Management Information Systems, General

Labor Market Outlook

Aggregated data for all focus occupations:

	Region	State[s]	U.S.
2009 total jobs	11,824	32,757	388,291
2014 total jobs	11,956	33,900	393,170
2009-2014 growth	132	1,143	4,879
2009-2014 repl. jobs	1,116	3,088	36,601
Median hourly earnings	$36.41	$37.96	$32.97

Focus Program Completions

"Completions" represents the total number of students to attain an award or degree at each given level in all the above college programs.

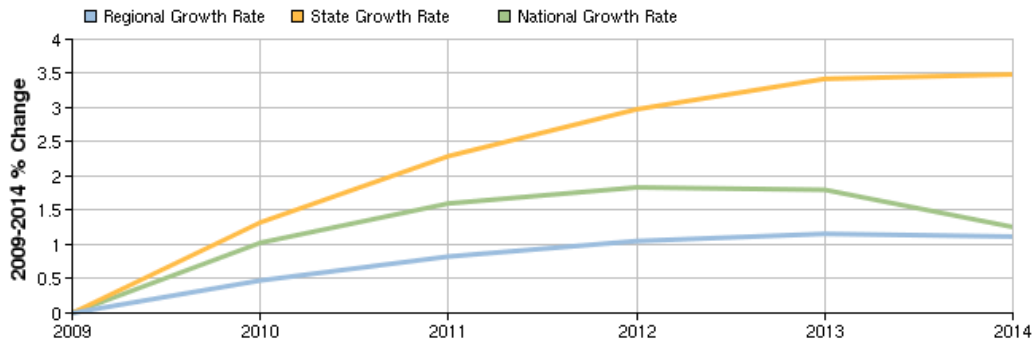| Award Level	2008 Completions (Santa Monica College)	2008 Completions (All Colleges in Region)
Award < 2 years	4	171
Associate's	14	154
Bachelor's	-	376
Postbaccalaureate Certificate	-	-
Master's	-	74
Doctor's	-	5
Professional	-	-
TOTAL	**18**	**780**

Source: U.S. Department of Education, National Center for Education

Statistics: Integrated Postsecondary Education Data System (IPEDS).

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1. Annual job openings: new plus replacement jobs divided by years in the timeframe. Note that openings may be filled from various sources besides new graduates, and that graduates may work in occupations unrelated to their degree.
2. Occupations are defined by the federal SOC system.
3. Programs are defined by the federal CIP system. The occupation-program crosswalk is based on the CIP-SOC crosswalk published by the U.S. Department of Education.

Job Outlook Summary

Percent Change in Employment, All Focus Occupations

This graph shows yearly percent growth compared to 2009.

The table summarizes the regional job outlook for the focus occupations using employment projections and current wage data, indicating the demand for these kinds of workers and their pay scale. Colleges which strive to be labor market responsive, maximize their economic impact, and generate a return on investment for public funds should generally focus program resources to support high-growth, high-wage occupations.

Detailed Information by Occupation

	2009-14 Avg. Annual Openings			Median Hourly Earnings		
Occupation Title	Region	State[s]	U.S.	Region	State[s]	U.S.
Computer programmers	248	840	8,234	$37.17	$38.57	$33.47
Numerical tool and process control programmers	15	29	312	$25.64	$25.14	$21.30
TOTAL	**264**	**869**	**8,545**	**$36.41**	**$37.96**	**$32.97**

Source: EMSI Complete Employment - 1st Quarter 2010.

Average annual openings: total new plus replacement jobs over the entire timeframe divided by number of years in the timeframe.

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1. Projected new and replacement jobs can indicate demand, but are not necessarily equivalent to demand. The number is based on past regional performance of the industries that employ workers in the given occupations, combined with official, biannual state and federal ten-year estimates. Projections may underestimate demand if employers need these kinds of workers but are unable to hire qualified individuals to meet their needs, or if unforeseen business recruitment and growth outpace past trends. Similarly, projections may overestimate demand if there are unforeseen contractions in key employers, entire industries, or the national economy as a whole.

Regional Job Outlook

The table summarizes the regional job outlook for the focus occupations using employment projections and current wage data, indicating the demand for these kinds of workers and their pay scale. Colleges which strive to be labor market responsive, maximize their economic impact, and generate a return on investment for public funds should generally focus program resources to support high-growth, high-wage occupations. Occupations are sorted by total 2009 jobs.

Occupation Title	2009 Jobs	2014 Jobs	Change	New & Rep. Jobs	Median Hourly Earnings
Computer programmers	11,047	11,250	203	1,242	$37.17
Numerical tool and process control programmers	777	706	-71	76	$25.64
	11,824	**11,956**	**132**	**1,319**	**$36.41**

Source: EMSI Covered Employment - 1st Quarter 2010.

State & National Job Outlook

These two tables summarize the state and national job outlook for the focus occupations using employment projections and current wage data, indicating the demand for these kinds of workers and their pay scale. Occupations are in the same order as they are in the regional job outlook table on the previous page.

State Job Outlook

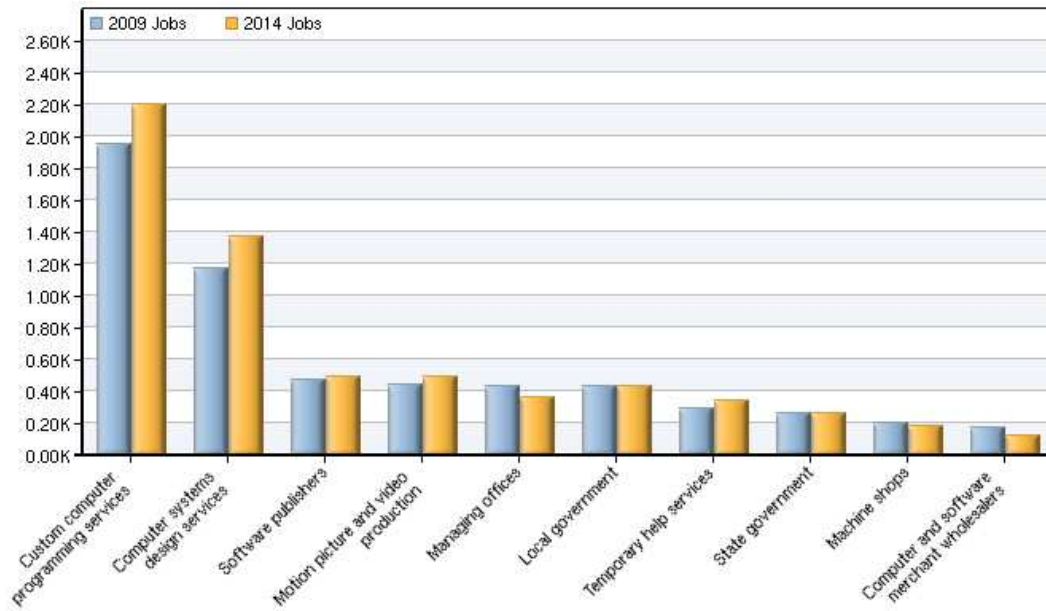| Occupation Title	2009 Jobs	2014 Jobs	Change	New & Rep. Jobs	Median Hourly Earnings
Computer programmers	31,272	32,529	1,257	4,200	$38.57
Numerical tool and process control programmers	1,485	1,371	-114	146	$25.14
	32,757	**33,900**	**1,143**	**4,345**	**$37.96**

Source: EMSI Covered Employment - 1st Quarter 2010.

National Job Outlook

Occupation Title	2009 Jobs	2014 Jobs	Change	New & Rep. Jobs	Median Hourly Earnings
Computer programmers	372,426	378,552	6,126	41,169	$33.47
Numerical tool and process control programmers	15,866	14,619	-1,247	1,558	$21.30
	388,291	**393,170**	**4,879**	**42,727**	**$32.97**

Source: EMSI Covered Employment - 1st Quarter 2010.

Inverse Staffing Patterns

Industrial Makeup

These are your region's top ten growing industries in the selected occupations.

NAICS Code	Description	2009 Jobs	2014 Jobs	Change	% Change
541511	Custom computer programming services	1,950	2,200	250	13%
541512	Computer systems design services	1,169	1,373	204	17%
511210	Software publishers	469	485	16	3%
512110	Motion picture and video production	438	495	57	13%
551114	Managing offices	433	364	-69	-16%
930000	Local government	426	429	3	1%
561320	Temporary help services	291	341	50	17%
920000	State government	264	264	0	0%
332710	Machine shops	197	184	-13	-6%
423430	Computer and software merchant wholesalers	169	120	-49	-29%

Source: EMSI Covered Employment - 1st Quarter 2010.

Regional Graduation Summary

Regional graduations ("completions" or number of awards/degrees granted) in the programs tied to the focus occupations are one indicator of workforce supply. (Other sources include in-migration of new workers to the region, promotion from within firms, and currently unemployed workers in the same or similar occupations.) The following table breaks down these graduations by program and award level at AnyRegion college and at all institutions in the region. A zero entry for completers indicates the program is offered but had no completions, while a "-" indicates the program is not offered.

CIP Code	Program Title	Award Level	2008 Completions, Your College	2008 Completions, Entire Region
11.0102	Artificial Intelligence and Robotics	Master's degree	-	16
11.0201	Computer Programming/Programmer, General	Award of less than 1 academic year	-	47
		Award of at least 1 but less than 2 academic years	4	12
		Associate's degree	14	38
		Award of at least 2 but less than 4 academic years	-	-
11.0202	Computer Programming, Specific Applications	Associate's degree	-	2
11.0203	Computer Programming, Vendor/Product Certification	[all]	-	-
11.0299	Computer Programming, Other	[all]	-	-
11.0301	Data Processing and Data Processing Technology/Technician	Master's degree	-	-
11.0801	Web Page, Digital/Multimedia and Information Resources Design	Award of less than 1 academic year	-	33
		Award of at least 1 but less than 2 academic years	-	2
		Associate's degree	-	74
		Award of at least 2 but less than 4 academic years	-	-
		Bachelor's degree	-	49
11.0803	Computer Graphics	Award of less than 1 academic year	-	13
		Award of at least 1 but less than 2 academic years	-	60
		Associate's degree	-	32
		Award of at least 2 but less than 4 academic years	-	-
		Bachelor's degree	-	161
		Master's degree	-	5
		Doctor's degree (old degree classification)	-	3
11.0899	Computer Software and Media Applications, Other	Award of less than 1 academic year	-	-
		Award of at least 1 but less than 2 academic years	-	-
		Associate's degree	-	7
		Bachelor's degree	-	24
		Master's degree	-	26

CIP Code	Program Title	Award Level	2008 Completions, Your College	2008 Completions, Entire Region
11.1004	Web/Multimedia Management and Webmaster	Award of less than 1 academic year	-	2
		Award of at least 1 but less than 2 academic years	-	-
		Associate's degree	-	-
		Award of at least 2 but less than 4 academic years	-	-
		Bachelor's degree	-	113
26.1103	Bioinformatics	Bachelor's degree	-	10
		Doctor's degree (old degree classification)	-	2
51.0709	Medical Office Computer Specialist/Assistant	[all]	-	-
51.2706	Medical Informatics	[all]	-	-
52.0208	E-Commerce/Electronic Commerce	Award of less than 1 academic year	-	2
		Associate's degree	-	1
		Award of at least 2 but less than 4 academic years	-	-
		Bachelor's degree	-	8
52.1201	Management Information Systems, General	Bachelor's degree	-	11
		Master's degree	-	27
	TOTAL		**18**	**780**

Source: U.S. Department of Education, National Center for Education Statistics: Integrated Postsecondary Education Data System (IPEDS).

Occupational Programs & Completers

The following section provides detailed information for each focus occupation, including the job outlook information provided above. Each occupation is also associated with one or more postsecondary programs (defined by standard CIP 2000 codes) using information published by the U.S. Department of Education with customizations by EMSI.

A zero entry for completers indicates the program is offered but had no completions, while a "-" indicates the program is not offered.

Summary Table

Occupation	2009-2014 Avg. Annual Openings	2008 Completions, All Related Programs (College)	2008 Completions, All Related Programs (Region)	Total Related Programs	Total Occs. Sharing Same Programs
Computer programmers	248	18	780	14	13
Numerical tool and process control programmers	1	18	97	2	5

Source: EMSI Complete Employment - 1st Quarter 2010; U.S. Department of Education, IPEDS & Occupational Code Crosswalk - CIP 2000.

An occupation may be related to multiple programs and vice versa. Completions may be double-counted if related to multiple occupations; **do not total***. See columns "Total Related Programs" and "Total Occs. Sharing Same Programs" to refine interpretation of openings versus completions.*

Detail Tables

The following tables provide detailed information for focus occupations and related programs, comparing estimated average annual openings in each occupation with recent completions (awards/degrees) in related programs at both AnyRegion College and at all institutions in the region. Many postsecondary programs are linked to multiple occupations; this is shown in the final column of each table and is one indication that fewer program completers will likely enter the given occupation than the overall total would suggest.

Sources for this section: EMSI Complete Employment - 1st Quarter 2010; U.S. Department of Education, IPEDS.

Computer programmers

2009-2014 Avg. Annual Openings: **248**

Median Hourly Earnings: **$37.17**

Related Programs	2008 Completions, College	2008 Completions, Entire Region	Other Occupations Linked to Program
TOTAL, ALL RELATED PROGRAMS	18	780	13
Artificial Intelligence and Robotics	-	16	4
Computer Programming/Programmer, General	18	97	1
Computer Programming, Specific Applications	-	2	-
Computer Programming, Vendor/Product Certification	-	-	-
Computer Programming, Other	-	-	-
Web Page, Digital/Multimedia and Information Resources Design	-	158	2
Computer Graphics	-	274	-
Computer Software and Media Applications, Other	-	57	-
Web/Multimedia Management and Webmaster	-	115	1
Bioinformatics	-	12	1
Medical Office Computer Specialist/Assistant	-	-	1
Medical Informatics	-	-	-
E-Commerce/Electronic Commerce	-	11	1
Management Information Systems, General	-	38	2

Numerical tool and process control programmers

2009-2014 Avg. Annual Openings: **1**

Median Hourly Earnings: **$25.64**

Related Programs	2008 Completions, College	2008 Completions, Entire Region	Other Occupations Linked to Program
TOTAL, ALL RELATED PROGRAMS	18	97	5
Computer Programming/Programmer, General	18	97	2
Data Processing and Data Processing Technology/Technician	-	-	3

About the Data

Introduction

EMSI data is a compilation and harmonization of more than 80 government and private-sector sources. Updated every six months and based on the most recent data available, the dataset covers the entire US population and economy, down to each individual ZIP code. It includes data for industries, occupations, demographics, postsecondary institutions, and selected economic indicators.

Occupation Data

Organizing regional employment information by occupation provides a workforce-oriented view of the regional economy. EMSI's occupation data are based on EMSI's industry data and regional "staffing patterns" (showing the average mix of job types in various industries) taken from the Occupational Employment Statistics program (U.S. Bureau of Labor Statistics). Wage information is augmented by data from the American Community Survey (U.S. Census). Replacement jobs and annual openings estimates are based on national survey data by occupation. As in the official government statistics, occupations are categorized by Standard Occupational Classification (SOC) codes and titles.

Completions Data

Completions are voluntarily reported by postsecondary institutions through the U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS). Completions are organized by program using the Classification of Instructional Programs (CIP) codes and titles.

Relating Occupations to Postsecondary Programs

The occupation-to-program (SOC-to-CIP) "crosswalk" is a large table that describes which occupations are generally trained for by each standard postsecondary program (based on Classification of Instructional Programs [CIP] codes and titles, last updated in 2000). EMSI starts with the official crosswalk published by the U.S. Department of Education and customizes it in various ways to make it more accurate and practical for comparing programs to regional labor markets.

About Economic Modeling Specialists

Products and Services

EMSI provides integrated regional economic and labor market data, web-based analysis tools, data-driven reports, and custom consulting services. EMSI specializes in detailed information about regional economies for assessment and planning purposes, bringing together industry, workforce, economic development, and education/training perspectives.

EMSI's expertise is centered on regional economics, data integration and analysis, programming, and design so that it can provide the best available products and services for regional decision makers. EMSI recently merged with its sister company CCbenefits Inc.-well known for conducting socioeconomic impact studies for over 800 community and technical colleges across the nation-to offer an integrated portfolio of solutions for college, workforce, and economic development professionals.

Clients

EMSI's client base includes hundreds of colleges, workforce boards, economic development organizations, governmental agencies, economists, consultants, academics, and private-sector analysts. With over four thousand current clients in the U.S., Canada, and the United Kingdom, EMSI's products and services are critical for informing regional policy.

Contact EMSI

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