

Computer Programmers

Occupational Profile

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OVERVIEW

Create, modify, and test the code, forms, and script that allow computer applications to run. Work from specifications drawn up by software developers or other individuals. May assist software developers by analyzing user needs and designing software solutions. May develop and write computer programs to store, locate, and retrieve specific documents, data, and information. Belongs to the Information Technology cluster and Programming and Software Development pathway.

DOES THIS DESCRIBE YOU?

Work Interests involve descriptive categories (compatible with Holland's Model) attributed to success in this career:

- **Conventional** – Enjoy following set procedures and routines developed through higher authority; includes working with data and details more than with ideas.
- **Investigative** – Involves working with ideas requiring an extensive amount of research, fact finding, problem solving, and thought analysis.

Work Styles depict worker characteristics conducive for this career:

- **Analytical Thinking**
- **Attention to Detail**
- **Initiative**
- **Achievement/Effort**
- **Cooperation**

Work Values are associated with aspects of work that provide satisfaction in this career:

- **Achievement**—Sense of accomplishment; results oriented.
- **Working Conditions**—Job security; good working conditions.
- **Independence**—Autonomy; working on your own.

Aptitudes reflect an ability to acquire skills and knowledge for success in this career:

- **Written Comprehension**
- **Information ordering**
- **Near Vision**
- **Oral Comprehension**
- **Deductive Reasoning**

SKILLS & KNOWLEDGE NEEDED

Basic Skills:

- Programming
- Reading Comprehension
- Complex Problem Solving
- Critical Thinking
- Active Listening

Technology Skills:

- Compiler and Decompiler Software
- Data Base Management System Software
- Development Environment Software
- Object or Component Oriented Development Software
- Web Platform Development Software

Knowledge:

- Computers and Electronics
- English Language
- Mathematics
- Customer and Personal Service
- Administration and Management

ESTIMATED & PROJECTED EMPLOYMENT

Occupational Title	2014 Estimated Employment	2024 Projected Employment	2014-24 Employment Change	Annual Growth Rate (%)	Total Annual Openings
Total, All Occupations	1,795,100	1,949,240	154,140	0.9	58,145
Computer & Mathematical Occupations	33,550	39,630	6,080	1.8	1,140
Computer Programmers	3,795	3,555	-240	-0.6	95

Source: <https://www.iowaworkforcedevelopment.gov/occupational-projections>

2017 WAGE & SALARY (\$)

Occupational Title	Mean Wage	Mean Salary	Entry Wage	Entry Salary	Exp Wage	Exp Salary
Total All Occupations	20.93	43,539	10.09	20,991	26.35	54,813
Computer & Mathematical Occupations	35.88	74,629	21.29	44,287	43.17	89,800
Computer Programmers	33.50	69,675	22.87	47,580	38.81	80,722

Source: <https://www.iowaworkforcedevelopment.gov/occupational-employment-and-wages>

EDUCATION & TRAINING

Education	Work Experience	Job Training
Bachelor's Degree	None	None

Many employers desire applicants possessing a bachelor's degree in a related field, such as computer science or information systems. A background in business, engineering, or the sciences may also be necessary and/or an advanced degree. Relevant experience may substitute for education.

Sources: <https://www.iowaworkforcedevelopment.gov/occupational-projections> and https://www.bls.gov/emp/ep_education_training_system.htm

NATIONAL CAREER READINESS CERTIFICATE (NCRC)

Skill	Median Skill Level	Minimum Skill Level	Maximum Skill Level
Applied Mathematics	5	4	6
Locating Information	5	4	5
Reading for Information	5	4	6
Applied Technology	n.a.	n.a.	n.a.
Business Writing	4	4	4
Workplace Observation	4	4	4
Listening for Understanding	3	2	3

An ACT assessment-based credential issued in determining essential work skills needed for employment success across industries and occupations. The greater the score, the greater the skill level (Bronze = 3, Silver = 4, Gold = 5, Platinum = 6 & higher). Source: <http://www.act.org/content/act/en/products-and-services/workkeys-for-employers/assessments.html>

PRIMARY INDUSTRY SECTORS

(Where are Computer Programmers Employed?)

Professional, Scientific, & Technical
 Insurance Carriers
 Administrative and Support Services
 Agriculture
 Publishing
 Data Processing
 Self Employed
 Computer and Electronic Product Mfg
 Management of Companies

Source: <https://www.iowaworkforcedevelopment.gov/occupational-projections>

ADDITIONAL SOURCES:

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