

Occupational Profile

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Computer Programmers



IS THIS FOR YOU?

Basic Skills:

- Reading Comprehension
- Active Listening
- Writing
- Speaking
- Mathematics
- Critical Thinking
- Active Learning
- Monitoring

Transferable Skills (applicable in other careers):

High level

- Analyzing mathematics data
- Designing systems
- Giving advice on computer programs and data
- Processing data on computers
- Working as a member of a data processing team

Workplace Skills:

High level

- Programming

Medium level

- Complex Problem Solving
- Judgment and Decision Making
- Operations Analysis
- Quality Control Analysis
- Systems Analysis
- Systems Evaluation
- Time Management

Additional skills for this occupation may be found at <http://www.iowaworkforcedevelopment.gov/career-exploration-resources>

Source: <https://secure.ihaveaplaniowa.gov/>

WHAT THEY DO

Converts project specifications and statements of problems and procedures to detailed logical flow charts for coding into computer language. Develops and writes computer programs to store, locate and retrieve specific documents, data and information. May program websites. Belongs to the Information Technology cluster and Programming and Software Development pathway.

SKILLS YOU NEED

Work Interests are described in the following categories (compatible with Holland's Model) by people who tend to succeed in this career:

- **Conventional** – You are an "organizer". Keeping things neat and organized is important to you. You like working with charts and reports, and work well with power and authority.
- **Investigative** – You are a "thinker". When you have a problem, you like to analyze it and look at different ways to solve it. You like to work by yourself, and you don't like explaining your ideas to other people.

Work Values are aspects of work that are satisfying to you. The following work values are generally associated with this career.

- **Achievement** – It's very important to you that your work allows you to use your best abilities. You want to see the results of your work and get a feeling of accomplishment.
- **Recognition**—It's very important to you that your work satisfies your need for prestige and leadership opportunities, as well as opportunities for advancement.
- **Support**—It's very important to you to know the company stands behind its workers and has competent, considerate and fair management.
- **Working Conditions**—It's very important to you that your work satisfies your needs in areas like salary, job security and your working style preferences, such as working alone, staying busy all the time or having variety in your work tasks.
- **Independence** – It's very important to you that your work allows you to make decisions on your own. You want to try out your own ideas and work with little supervision.

Aptitudes reflect a person's ability to acquire skills and knowledge. The following aptitudes are important for success in the career:

- **General Learning Ability**
- **Verbal Aptitude**
- **Numerical Aptitude**
- **Clerical Perception**

ESTIMATED & PROJECTED EMPLOYMENT

Occupational Title	2012 Estimated Employment	2022 Projected Employment	2012-22 Employment Change	Annual Growth Rate (%)	Total Annual Openings
Total, All Occupations	1,758,205	1,955,480	197,275	1.1	61,665
Computer & Mathematical Occupations	33,470	40,560	7,085	2.1	1,275
Computer Programmers	3,910	4,465	555	1.4	160

Source: <http://www.iowaworkforcedevelopment.gov/occupational-projections-0>

2015 WAGE & SALARY (\$)

Occupational Title	Average Wage	Average Salary	Entry Wage	Entry Salary	Experienced Wage	Experienced Salary
Total, All Occupations	19.77	41,122	9.55	19,858	24.88	51,755
Computer & Mathematical Occupations	34.36	71,470	21.43	44,571	40.83	84,919
Computer Programmers	32.67	67,963	22.12	46,002	37.95	78,944

Source: <http://www.iowaworkforcedevelopment.gov/occupational-projections-0>

EDUCATION & TRAINING

Education	Work Experience	Job Training
Bachelor's Degree	None	None

Most programmers have a bachelor's degree, but a two-year degree or certificate may be adequate for some jobs. Some computer programmers hold a college degree in computer science, mathematics, or information systems, whereas others have taken special courses in computer programming to supplement their degree in a field such as accounting, finance, or another area of business. Employers who use computers for scientific or engineering applications usually prefer college graduates who have a degree in computer or information science, mathematics, engineering, or the physical sciences. Employers who use computers for business applications prefer to hire people who have had college courses in management information systems and business, and who possess strong programming skills. A graduate degree in a related field is required for some jobs. In addition to educational attainment, employers highly value relevant programming skills and experience. Students seeking programming jobs can enhance their employment opportunities by participating in internships. Some employers, such as large computer and consulting firms, train new employees in intensive, company-based programs. Source: <http://www.iowaworkforcedevelopment.gov/occupational-projections-0> and <https://secure.ihaveaplaniowa.gov/>

NATIONAL CAREER READINESS CERTIFICATE (NCRC)

Skill	Median Skill Level
Applied Mathematics	n.a.
Locating Information	n.a.
Reading for Information	n.a.

This ACT-developed credential demonstrates achievement and a certain level of workplace employability skills. The greater the score, the greater the skill level (Bronze = 3, Silver = 4, Gold = 5, Platinum = 6).

Source: <http://www.act.org/workkeys/analysis/occup.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



ADDITIONAL SOURCES:

Source: <http://www.iowaworkforcedevelopment.gov/occupational-projections-0>

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