

CLOUD COMPUTING, ASSOCIATE IN APPLIED SCIENCE



College(s): TR, WR

Program Code: 0051

The Associate Applied Science degree in Cloud Computing is a comprehensive program designed to equip students with the skills and knowledge necessary to thrive in the dynamic field of cloud computing. Students will gain hands-on experience with the latest technologies and best practices in the industry, preparing them for a variety of roles in the rapidly evolving cloud computing landscape. This degree offers a combination of theoretical understanding and practical experience, covering key areas such as cloud administration, development, security, architecture, and data management. This program also serves as a foundation to further other academic pursuits or for career advancement in the field.

Program Requirements

| Code | Title | Hours |
|-------------------------------------|---|-------|
| General Education Coursework | | |
| ENGLISH 101 | Composition | 3 |
| | Fine Arts & Humanities Course | 3 |
| | Social and Behavioral Sciences Course | 3 |
| | Physical Sciences / Life Sciences Course | 3 |
| | Mathematics General Education Course (MATH 125 recommended) | 3 |
| Required Program Core | | |
| CIS 101 | Computer Science 101 | 3 |
| CIS 111 | Computer Operations | 3 |
| CIS 116 | Operating System I | 3 |
| CIS 124 | Introduction to Cloud Computing | 3 |
| CIS 146 | Python Programming I | 3 |
| CIS 224 | Cloud Architecture | 3 |

| | | |
|--|--|-----------|
| CIS 255 | Operating Systems II | 3 |
| COMPSFI 102 | Information Security Essentials | 3 |
| NET TEC 101 | Client-Server Database I | 3 |
| NET TEC 121 | Internetworking I | 3 |
| | or COMPSFI 10 Networking Essentials | |
| NET TEC 240 | Operating Systems/Server I | 3 |
| Required Work-Based Learning | | |
| CIS 260 | Computer Information Systems Field Project | 3 |
| | or CIS 265 Computer Information Systems Internship | |
| Program Electives | | |
| Select a minimum of 9 hours of program electives | | 9 |
| BUSINES 111 | Introduction To Business | |
| CIS 142 | C++ Object Oriented Programming I | |
| CIS 144 | Java Object Oriented Programming I | |
| CIS 181 | Web Development I/Basic Web Technologies | |
| CIS 182 | Web Development II/Client Side Scripting | |
| CIS 242 | C++ Object Oriented Programming II | |
| CIS 244 | Java Object Oriented Programming II | |
| CIS 246 | | |
| CIS 281 | Web Development III/Server Side Programming | |
| COMPSFI 101 | Networking Essentials | |
| COMPSFI 205 | Cyber Forensics | |
| COMPSFI 215 | Information Security Domain | |
| COMPSFI 216 | Info Security Program Management | |
| COMPSFI 231 | Internetworking Security | |
| NET TEC 121 | Internetworking I | |
| NET TEC 122 | Internetworking II | |
| Total Hours | | 60 |

One course must satisfy the Human Diversity (HD) (<https://catalog.ccc.edu/hd/>) requirement.

Pathway

This is an example course sequence for students interested in pursuing Cloud Computing. It does not represent a contract, nor does it guarantee course availability. If this pathway is followed as outlined, you will earn an Advanced Certificate (AC), and an Associate in Applied Science (AAS) in Cloud Computing.

Semester-by-Semester Program Plan for Full-Time Students

All plans can be modified to fit the needs of part-time students by adding more semesters.

| Semester 1 | | Hours |
|--|--|--------------|
| CIS 101 | Computer Science 101 | 3 |
| CIS 111 | Computer Operations | 3 |
| ENGLISH 101 | Composition ¹ | 3 |
| NET TEC 121 or COMPSFI 101 | Internetworking I or Networking Essentials | 3 |
| Mathematics General Education Course (MATH 125 recommended) ¹ | | 3-4 |
| Hours | | 15-16 |
| Semester 2 | | Hours |
| CIS 116 | Operating System I | 3 |
| CIS 124 | Introduction to Cloud Computing | 3 |
| CIS 146 | Python Programming I | 3 |
| COMPSFI 102 | Information Security Essentials | 3 |
| Fine Arts & Humanities course (HD) ¹ | | 3 |
| Hours | | 15 |
| Semester 3 | | Hours |
| CIS 224 | Cloud Architecture | 3 |
| CIS 255 | Operating Systems II | 3 |
| NET TEC 240 | Operating Systems/Server I | 3 |
| Social and Behavioral Sciences Course ¹ | | 3 |
| Program Elective (p. 2) | | 3 |
| Hours | | 15 |
| Semester 4 | | Hours |
| CIS 260 or CIS 265 | Computer Information Systems Field Project or Computer Information Systems Internship | 3 |
| NET TEC 101 | Client-Server Database I | 3 |
| Physical Sciences/Life Sciences Course ¹ | | 3 |
| Program Elective (p. 2) | | 3 |
| Program Elective (p. 2) | | 3 |
| Hours | | 15 |
| Total Hours | | 60-61 |

¹ General Education course

Program Electives

| Code | Title | Hours |
|-------------|--|-------|
| BUSINES 111 | Introduction To Business | 3 |
| CIS 142 | C++ Object Oriented Programming I | 3 |
| CIS 144 | Java Object Oriented Programming I | 3 |
| CIS 181 | Web Development I/Basic Web Technologies | 3 |
| CIS 182 | Web Development II/Client Side Scripting | 3 |
| CIS 242 | C++ Object Oriented Programming II | 3 |
| CIS 244 | Java Object Oriented Programming II | 3 |

| | | |
|-------------|---|---|
| CIS 246 | | 3 |
| CIS 281 | Web Development III/Server Side Programming | 3 |
| COMPSFI 101 | Networking Essentials | 3 |
| COMPSFI 205 | Cyber Forensics | 3 |
| COMPSFI 215 | Information Security Domain | 3 |
| COMPSFI 216 | Info Security Program Management | 3 |
| COMPSFI 231 | Internetworking Security | 3 |
| NET TEC 121 | Internetworking I | 3 |
| NET TEC 122 | Internetworking II | 3 |

Choose your courses with your College Advisor.

Careers

This program can prepare students for the jobs listed below. Click on each one to learn more, including average earnings, annual job openings, and how much education people in that field have. For additional guidance and resources on career options, current City Colleges students and alumni can contact the Career Services Office (<https://www.ccc.edu/departments/Pages/Career-Services.aspx>).

Computer Network Support Specialists Job Description

Analyze, test, troubleshoot, and evaluate existing network systems, such as local area networks (LAN), wide area networks (WAN), cloud networks, servers, and other data communications networks. Perform network maintenance to ensure networks operate correctly with minimal interruption.

Salary Based on Experience Level

Take a look at the average hourly/annual earnings for this career in Cook County

Lightcast earnings figures are based on OES data from the BLS and include base rate, cost of living allowances, guaranteed pay, hazardous-duty pay, incentive pay (including commissions and bonuses), on-call pay, and tips.

Annual Wages

| | |
|--|-----------|
| Entry-Level 10 th Percentile | \$49,545 |
| Median 50 th Percentile | \$71,392 |
| Senior-Level 90 th Percentile | \$119,949 |

Hourly Wages

| | |
|--|------|
| Entry-Level 10 th Percentile | \$24 |
| Median 50 th Percentile | \$34 |
| Senior-Level 90 th Percentile | \$58 |

Annual Job Openings

206 annual openings in Cook County

National Education Attainment

Here, you can see the level of education that people in this career complete.

| Degree Program | % of Jobs |
|-----------------------------------|-----------|
| A high school diploma or less | 4.23% |
| A certificate | 10.16% |
| Some college | 13.63% |
| An Associate degree | 21.68% |
| A Bachelor's degree | 48.77% |
| A Master's or Professional degree | 1.53% |
| A Doctoral degree or more | 0.00% |

50.30% continue their education beyond an associate degree

Computer Systems Analysts

Job Description

Analyze science, engineering, business, and other data processing problems to develop and implement solutions to complex applications problems, system administration issues, or network concerns. Perform systems management and integration functions, improve existing computer systems, and review computer system capabilities, workflow, and schedule limitations. May analyze or recommend commercially available software.

Salary Based on Experience Level

Take a look at the average hourly/annual earnings for this career in Cook County

Lightcast earnings figures are based on OES data from the BLS and include base rate, cost of living allowances, guaranteed pay, hazardous-duty pay, incentive pay (including commissions and bonuses), on-call pay, and tips.

Annual Wages

| | |
|--|-----------|
| Entry-Level 10 th Percentile | \$56,610 |
| Median 50 th Percentile | \$101,844 |
| Senior-Level 90 th Percentile | \$149,098 |

Hourly Wages

| | |
|--|------|
| Entry-Level 10 th Percentile | \$27 |
| Median 50 th Percentile | \$49 |
| Senior-Level 90 th Percentile | \$72 |

Annual Job Openings

565 annual openings in Cook County

National Education Attainment

Here, you can see the level of education that people in this career complete.

| Degree Program | % of Jobs |
|-------------------------------|-----------|
| A high school diploma or less | 0.77% |
| A certificate | 0.54% |
| Some college | 4.62% |
| An Associate degree | 50.71% |
| A Bachelor's degree | 41.93% |

| | |
|-----------------------------------|-------|
| A Master's or Professional degree | 1.42% |
| A Doctoral degree or more | 0.00% |

43.35% continue their education beyond an associate degree

Information Security Analysts

Job Description

Plan, implement, upgrade, or monitor security measures for the protection of computer networks and information. Assess system vulnerabilities for security risks and propose and implement risk mitigation strategies. May ensure appropriate security controls are in place that will safeguard digital files and vital electronic infrastructure. May respond to computer security breaches and viruses.

Salary Based on Experience Level

Take a look at the average hourly/annual earnings for this career in Cook County

Lightcast earnings figures are based on OES data from the BLS and include base rate, cost of living allowances, guaranteed pay, hazardous-duty pay, incentive pay (including commissions and bonuses), on-call pay, and tips.

Annual Wages

| | |
|--|-----------|
| Entry-Level 10 th Percentile | \$75,387 |
| Median 50 th Percentile | \$121,468 |
| Senior-Level 90 th Percentile | \$180,257 |

Hourly Wages

| | |
|--|------|
| Entry-Level 10 th Percentile | \$36 |
| Median 50 th Percentile | \$58 |
| Senior-Level 90 th Percentile | \$87 |

Annual Job Openings

184 annual openings in Cook County

National Education Attainment

Here, you can see the level of education that people in this career complete.

| Degree Program | % of Jobs |
|-----------------------------------|-----------|
| A high school diploma or less | 0.00% |
| A certificate | 7.16% |
| Some college | 2.01% |
| An Associate degree | 12.87% |
| A Bachelor's degree | 75.16% |
| A Master's or Professional degree | 2.80% |
| A Doctoral degree or more | 0.00% |

77.96% continue their education beyond an associate degree

Computer Network Architects

Job Description

Design and implement computer and information networks, such as local area networks (LAN), wide area networks (WAN), intranets,

extranets, and other data communications networks. Perform network modeling, analysis, and planning, including analysis of capacity needs for network infrastructures. May also design network and computer security measures. May research and recommend network and data communications hardware and software.

Salary Based on Experience Level

Take a look at the average hourly/annual earnings for this career in Cook County

Lightcast earnings figures are based on OES data from the BLS and include base rate, cost of living allowances, guaranteed pay, hazardous-duty pay, incentive pay (including commissions and bonuses), on-call pay, and tips.

Annual Wages

| | |
|--|-----------|
| Entry-Level 10 th Percentile | \$99,535 |
| Median 50 th Percentile | \$147,098 |
| Senior-Level 90 th Percentile | \$202,030 |

Hourly Wages

| | |
|--|------|
| Entry-Level 10 th Percentile | \$48 |
| Median 50 th Percentile | \$71 |
| Senior-Level 90 th Percentile | \$97 |

Annual Job Openings

160 annual openings in Cook County

National Education Attainment

Here, you can see the level of education that people in this career complete.

| Degree Program | % of Jobs |
|-----------------------------------|-----------|
| A high school diploma or less | 5.00% |
| A certificate | 15.00% |
| Some college | 0.00% |
| An Associate degree | 15.00% |
| A Bachelor's degree | 60.00% |
| A Master's or Professional degree | 5.00% |
| A Doctoral degree or more | 0.00% |

65.00% continue their education beyond an associate degree

Database Administrators

Job Description

Administer, test, and implement computer databases, applying knowledge of database management systems. Coordinate changes to computer databases. Identify, investigate, and resolve database performance issues, database capacity, and database scalability. May plan, coordinate, and implement security measures to safeguard computer databases.

Salary Based on Experience Level

Take a look at the average hourly/annual earnings for this career in Cook County

Lightcast earnings figures are based on OES data from the BLS and include base rate, cost of living allowances, guaranteed pay, hazardous-duty pay, incentive pay (including commissions and bonuses), on-call pay, and tips.

Annual Wages

| | |
|--|-----------|
| Entry-Level 10 th Percentile | \$58,015 |
| Median 50 th Percentile | \$107,547 |
| Senior-Level 90 th Percentile | \$176,195 |

Hourly Wages

| | |
|--|------|
| Entry-Level 10 th Percentile | \$28 |
| Median 50 th Percentile | \$52 |
| Senior-Level 90 th Percentile | \$85 |

Annual Job Openings

68 annual openings in Cook County

National Education Attainment

Here, you can see the level of education that people in this career complete.

| Degree Program | % of Jobs |
|-----------------------------------|-----------|
| A high school diploma or less | 0.00% |
| A certificate | 0.15% |
| Some college | 2.21% |
| An Associate degree | 3.46% |
| A Bachelor's degree | 92.89% |
| A Master's or Professional degree | 1.29% |
| A Doctoral degree or more | 0.00% |

94.18% continue their education beyond an associate degree

Database Architects

Job Description

Design strategies for enterprise databases, data warehouse systems, and multidimensional networks. Set standards for database operations, programming, query processes, and security. Model, design, and construct large relational databases or data warehouses. Create and optimize data models for warehouse infrastructure and workflow. Integrate new systems with existing warehouse structure and refine system performance and functionality.

Salary Based on Experience Level

Take a look at the average hourly/annual earnings for this career in Cook County

Lightcast earnings figures are based on OES data from the BLS and include base rate, cost of living allowances, guaranteed pay, hazardous-duty pay, incentive pay (including commissions and bonuses), on-call pay, and tips.

Annual Wages

| | |
|--|-----------|
| Entry-Level 10 th Percentile | \$84,446 |
| Median 50 th Percentile | \$140,522 |
| Senior-Level 90 th Percentile | \$203,746 |

Hourly Wages

| | |
|--|------|
| Entry-Level 10 th Percentile | \$41 |
| Median 50 th Percentile | \$68 |
| Senior-Level 90 th Percentile | \$98 |

Annual Job Openings

48 annual openings in Cook County

National Education Attainment

Here, you can see the level of education that people in this career complete.

| Degree Program | % of Jobs |
|-----------------------------------|-----------|
| A high school diploma or less | 0.00% |
| A certificate | 4.76% |
| Some college | 0.00% |
| An Associate degree | 0.00% |
| A Bachelor's degree | 80.95% |
| A Master's or Professional degree | 14.29% |
| A Doctoral degree or more | 0.00% |

95.24% continue their education beyond an associate degree