

# C++ Programming

College of Lake County Grayslake · Vernon Hills · Waukegan · Online

## Program Overview

Business Division  
Room T102, (847) 543-2041  
[www.clcillinois.edu/programs/cit](http://www.clcillinois.edu/programs/cit)

C++ PROGRAMMER  
(Associate in Applied Science) Plan 22CR

### Required General Education Coursework . . . . 15

- AOS 122 Business Mathematics **or**
- MTH 122 College Algebra **or**
- MTH Elective (higher than MTH 122) . . . . . 3-4
- CMM 111 Communication Skills **or**
- CMM 121 Fundamentals of Speech **or**
- CMM 128 Interviewing Practices . . . . . 3
- ENG 121 English Composition I . . . . . 3
- PSY 121 Introduction to Psychology or
- PSY 122 Psychology in Business  
and Industry . . . . . 3
- Humanities or Fine Arts Elective\*# . . . . . 3

### Required Business Coursework . . . . . 9-11

- ACC 112 Accounting Procedures I **or**
- ACC 121 Financial Accounting . . . . . 3-4
- ACC 113 Accounting Procedures II **or**
- ACC 122 Managerial Accounting **or**
- BUS 111 Fundamentals of Finance . . . . . 3-4
- BUS 121 Introduction to Business . . . . . 3

### Required CIT Coursework . . . . . 36

- CIT 112 Comprehensive Database . . . . . 3
- CIT 113 Introduction to SQL . . . . . 3
- CIT 120 Introduction to Computers . . . . . 3
- CIT 134 Programming Concepts  
using Visual Basic **or**
- CIT 136 Programming Concepts  
Using Java . . . . . 3
- CIT 141 Programming in C++ . . . . . 4
- CIT 150 Introduction to Local  
Area Networking . . . . . 3
- CIT 170 Creating Web Pages . . . . . 3
- CIT 233 Programming in Visual C++ . . . . . 3
- CIT 239 Systems Analysis . . . . . 3
- CIT 241 Advanced C++ . . . . . 3
- CIT Programming Electives **or**
- Non-programming Electives (see right) . . . . 6

Total Hours for A.A.S. Degree . . . . 60-62

\*To complete an A.A.S., students must meet General Requirements in the current CLC catalog. Visit [www.clcillinois.edu/catalog/](http://www.clcillinois.edu/catalog/) (Career Programs).

# HUM 127, PHI 122 or PHI 125 recommended

## Electives

### Programming

- CIT 135 Introduction to Visual Basic  
Programming . . . . . 3
- CIT 137 Object Oriented Programming  
Using Java . . . . . 3
- CIT 141 Programming in C++ . . . . . 4
- CIT 171 Scripting Languages . . . . . 3
- CIT 173 PHP Programming . . . . . 3
- CIT 210 Programming for Office  
Applications . . . . . 3
- CIT 233 Programming in Visual C++ . . . . . 3
- CIT 234 Objects and Components  
using Visual Basic . . . . . 3
- CIT 235 Enterprise Database Access  
Using Visual Basic . . . . . 3
- CIT 236 Programming Using JavaBeans . . . . 3
- CIT 237 Enterprise Java Development . . . . 3
- CIT 238 C# Programming . . . . . 3
- CIT 241 Advanced C++ . . . . . 3
- CIT 270 Server Side Programming . . . . . 3
- CIT 271 Markup Language Programming . . . . 3
- CIT 299 Selected Topics in CIT  
(with department approval) . . . . 1-3

### Non-programming

- CIT 111 Comprehensive Spreadsheets . . . . 3
- CIT 130 Operating Systems for  
A+ Certification . . . . . 3
- CIT 131 Windows Operating System . . . . . 3
- CIT 132 Linux Operating System . . . . . 3
- CIT 151 LAN Administration . . . . . 3
- CIT 152 Network Security Fundamentals . . . . . 3
- CIT 156 Digital Evidence Recovery . . . . . 3
- CIT 172 E-Commerce Implementation  
and Impact . . . . . 3
- CIT 211 Project Management Software . . . . . 3
- CIT 212 Oracle Database Administrator I . . . . 3
- CIT 213 Oracle Database Administrator II . . . . 3
- CIT 230 Linux System Administration . . . . 3
- CIT 250 Advanced LAN Administration . . . . 3
- CIT 251 Implementing and Administering  
Security in Windows . . . . . 3
- CIT 252 Hardening the Infrastructure . . . . . 3
- CIT 253 Network Defense and  
Countermeasures . . . . . 3
- CIT 256 Advanced Digital Evidence  
Recovery . . . . . 3
- CIT 257 Analysis of Digital Media . . . . . 3
- CIT 299 Selected Topics in CIT  
(with department approval) . . . . 1-3
- EWE 220 Cooperative Work Experience I . . . 1-3

## Typical Jobs \*

- Programmer Analyst
- Programmer
- Computer Programmer
- Software Developer
- Internet Programmer
- Web Programmer
- Software Engineer

## Nature of Work \*

Computer programmers write, test, debug and maintain the detailed instructions, called computer programs, that computers must follow to perform their functions. Programmers also conceive, design and test logical structures for solving problems by computer.

## Salary Range \*

\$38,100 - \$111,700

## Job Outlook \*

Prospects likely will be best for college graduates with knowledge of a variety of programming languages and tools; those with less formal education or its equivalent in work experience are apt to face strong competition for programming jobs.

\* Career information is based on data from the Bureau of Labor Statistics for the Chicagoland area.

# C++ Programming

## C++ PROGRAMMING (Certificate) Plan 22CO

The C++ Programming certificate is centered in object oriented technologies. The certificate is intended to enhance programming skills by providing knowledge and experience in the C++ language in a minimal amount of time. It includes interaction with databases and the utilization of a systems approach to problem solving.

CIT 113	Introduction to SQL . . . . .	3
CIT 141	Programming in C++ . . . . .	4
CIT 233	Programming in Visual C++ . . . . .	3
CIT 239	Systems Analysis . . . . .	3
CIT 241	Advanced C++ . . . . .	3

Total Hours for Certificate . . . . . 16

## How to Register

Visit [www.clcillinois.edu/credit/register/](http://www.clcillinois.edu/credit/register/) for steps on how to register.

## Advising Notes

Courses may be taken in any order.  
All prerequisites must be met.

The CIT A.A.S. degrees are not transferable degrees. However, students who want to transfer someday should take CMM 121, ENG 121, BUS 121, BUS 221, ACC 121, ACC 122, PSY 121, CIT 120 and either MTH 222, MTH 127 or MTH 224. These courses are most likely to transfer even though the degree will not.

## Additional Graduation Requirements

- Constitution requirement (proficiency exam, PSC 121, HST 221, or Illinois high school transcript dated 1953 or later.)
- Cumulative CLC GPA of 2.00 or higher.
- Minimum of 15 of last 30 hours at CLC (for A.A.S. and certificate of 30 hours or more, or half the hours required by the certificate while in attendance at CLC).
- Petition to graduate.

## Related Programs

WEB PROGRAMMER  
(Associate in Applied Science) Plan 22CJ

WEB PROGRAMMING  
(Certificate) Plan 22CN

VISUAL BASIC PROGRAMMER  
(Associate in Applied Science) Plan 22CL

VISUAL BASIC PROGRAMMING  
(Certificate) Plan 22CQ

JAVA PROGRAMMER  
(Associate in Applied Science) Plan 22CM

JAVA PROGRAMMING  
(Certificate) Plan 22CP

GAME DEVELOPMENT PROGRAMMER  
(Associate in Applied Science) Plan 22CW

GAME DEVELOPMENT PROGRAMMER  
(Certificate) Plan 22CX

## Contact Info

19351 W. Washington Street  
Grayslake, IL 60030

Business Division  
Room: T102  
Phone: (847) 543-2041

Department Chair  
Ellen Dykeman  
T219, (847) 543-2521  
edykeman@clcillinois.edu

Instructors  
Changyi Chen  
T212, (847) 543-2518  
cchen@clcillinois.edu

Dan Dainton  
T219, (847) 543-2538  
ddainton@clcillinois.edu

Sanjay Kumar  
T210, (847) 543-2818  
skumar@clcillinois.edu

John North  
T210, (847) 543-2507  
jnorth@clcillinois.edu

Robert Scherbaum  
T206, (847) 543-2820  
rscherbaum@clcillinois.edu