

# Computer Programming AAS DEGREE

## Program Overview

The job of the applications programmer is to (1) review job specifications provided by the system analyst and end user and (2) plan, code, test, and document a programming solution which takes the available data input and produces the desired output in the form of a printed report or a screen display. The programming language(s) used depends on the nature of the problem and the languages available during installation.

Above average communications and math skills are required. Students should exhibit qualities of patience, perseverance and preciseness and should enjoy working in a team environment and also be able to work independently.

## Career Opportunities

Graduates find excellent opportunities as computer programmers in business, manufacturing, government and education. Jobs for computer programmers for all types of computer systems are found throughout the country with opportunities for good earning and rapid advancement. Jobs include: Programmer, Database Project Specialist, Applications Programmer, Technical Programmer, Systems Analyst, MIS Coordinator, Software Developer, Junior Programmer-Analyst, and Senior Programmer-Analyst.

## Program Outcomes

Graduates will be able to

1. Design and code computer programming in a variety in a variety computer-programming languages.
2. Professionally structure and document source codes.
3. Utilize sound program testing procedures to insure the accuracy of the programs they develop.
4. Use current program coding conventions to develop well documented code.
5. Apply technical communication skills.

Information is subject to change.  
This Program Requirements Guide is not a contract.

## Program Faculty

Warren Sheaffer  
warren.sheaffer@saintpaul.edu

## Program Requirements

Check off when completed

Course	Cr
<input type="checkbox"/> CSCI 1410 Computer Science & Information Systems . . . . .	4
<input type="checkbox"/> CSCI 1423 Computer Networking – Client . . . . .	4
<input type="checkbox"/> CSCI 1450 Web Fundamentals/HTML . . . . .	4
<input type="checkbox"/> CSCI 1523 Intro to Computing and Programming Concepts . . . . .	4
<input type="checkbox"/> CSCI 1524 Intro to Algorithms and Data Structures . . . . .	4
<input type="checkbox"/> CSCI 1541 Java Programming 1 . . . . .	4
<input type="checkbox"/> CSCI 2570 Machine Architecture and Organization . . . . .	4
<b>Subtotal . . . . .</b>	<b>28</b>

### Complete one of the Emphases listed below . . . . . 16

Java Program Emphasis	Cr
<input type="checkbox"/> CSCI 1542 Java Programming 2 . . . . .	4
<input type="checkbox"/> CSCI 1550 Database Management Fundamentals . . . . .	4
<input type="checkbox"/> CSCI 2440 Client Side Programming I . . . . .	4
<input type="checkbox"/> CSCI 2466 J2EE-JSP and Servlets . . . . .	4
<b>Total Emphasis Credits . . . . .</b>	<b>16</b>

### Web Development Emphasis

Web Development Emphasis	Cr
<input type="checkbox"/> CSCI 2440 Client Side Programming 1 . . . . .	4
<input type="checkbox"/> CSCI 2442 Server Side Programming . . . . .	4
<input type="checkbox"/> CSCI 2466 J2EE-JSP and Servlets . . . . .	4
<input type="checkbox"/> CSCI 2622 Client Side Programming 2 . . . . .	4
<b>Total Emphasis Credits . . . . .</b>	<b>16</b>

### Web Based 2D Game Development Emphasis

Web Based 2D Game Development Emphasis	Cr
<input type="checkbox"/> DGIM 2521 2D Web Animation . . . . .	2
<input type="checkbox"/> DGIM 2530 Web Based Game Design 1 . . . . .	4
<input type="checkbox"/> DGIM 2531 Web Based Game Design 2 . . . . .	4
<input type="checkbox"/> DGIM 2586 Digital Sound . . . . .	2
<input type="checkbox"/> DGIM Technical Electives . . . . .	4
<input type="checkbox"/> DGIM 1490 3D Animation Fundamentals . . . . .	4
<input type="checkbox"/> DGIM 2560 Illustrator . . . . .	4
<input type="checkbox"/> DGIM 1483 Photoshop 1 . . . . .	2
<input type="checkbox"/> DGIM 1484 Photoshop 2 . . . . .	2
<b>Total Emphasis Credits . . . . .</b>	<b>16</b>

### General Education Requirements

General Education Requirements	Cr
Refer to the Minnesota Transfer Curriculum Course List for each Goal Area	
<input type="checkbox"/> Goal 1: Communication . . . . .	7
ENGL 1711 Composition 1 – 4 cr	
COMM 17XX – 3 cr	
<input type="checkbox"/> Goal 3 or Goal 4 . . . . .	3
Goal 3: Natural Sciences	
OR Goal 4: Mathematical/Logical Reasoning	
(MATH 1730 or proficiency required)	

<input type="checkbox"/> Goal 5: History, Social Science and Behavioral Sciences . . . . .	3
<input type="checkbox"/> Goal 6: Humanities and Fine Arts . . . . .	3
<b>General Education Requirements . . . . .</b>	<b>16</b>

**Total Program Credits . . . . . 60**

## The following courses are not offered every semester.

### Fall Semester Only

- CSCI 1542 Java Programming 2
- CSCI 2442 Server Side Programming
- CSCI 2622 Client Side Programming 2
- DGIM 1490 3D Animation Fundamentals
- DGIM 2530 Web Based Game Design 1
- DGIM 2560 Illustrator
- DGIM 2586 Digital Sound

### Spring Semester Only

- CSCI 2440 Client Side Programming 1
  - CSCI 2466 J2EE-JSP and Servlets
  - DGIM 2521 2D Web Animation
  - DGIM 2531 Web Based Game Design 2
- All other courses are offered both fall and spring semester pending course enrollment.  
CSCI 1410, CSCI 1550, and General Education requirements are offered in the fall, spring, and summer.

*See back of this guide for Course Sequence, Transfer Opportunities & Course Chart*

### Minimum Program Entry Requirements

Students entering this program must meet the following minimum program entry requirements:

**Reading:** Score of 78+ or grade of "C" or better in READ 0722

**Writing:** Score of 78+ or grade of "C" or better in ENGL 0922

**College Level Mathematics:** Score of 50+ or grade of "C" or better in MATH 0920

**Assessment Results and Prerequisites:** Students admitted into Saint Paul College programs may need to complete additional courses based on assessment results and course prerequisite requirements. Certain MATH, READ, and ENGL courses have additional prerequisites.

009A (7011)

# Computer Programming AAS DEGREE *(continued)*

(44 credits + 16 GenEd credits)

### Program Start Dates

Fall, Spring, Summer

### Course Sequence

The following sequence is recommended for a full-time student; however, this sequence is not required. Not all courses are offered each semester.

#### First Semester

CSCI 1410 Computer Science & Information Systems . . . . . 4  
 CSCI 1423 Computer Networking – Client . . . . . 4  
 CSCI 1450 Web Fundamentals/HTML . . . . . 4  
 Goal 3: Natural Sciences OR  
 Goal 4: Mathematical/Logical Reasoning . . . . . 3  
 (MATH 1730 or proficiency required)  
**Total Semester Credits. . . . . 15**

#### Second Semester

CSCI 1523 Intro to Computing and Programming Concepts . . . . . 4  
 Goal 1: ENGL 1711 Composition 1 . . . . . 4  
 Emphasis Course . . . . . 4  
 CSCI 1541 Java Programming I . . . . . 4  
**Total Semester Credits. . . . . 16**

#### Third Semester

CSCI 1524 Intro to Algorithms and Data Structures . . . 4  
 Goal 1: COMM 17XX . . . . . 3  
 Emphasis Course(s) . . . . . 8  
**Total Semester Credits. . . . . 15**

#### Fourth Semester

CSCI 2570 Machine Architecture and Organization . . . 4  
 Goal 5: History, Social and Behavioral Sciences . . . . 3  
 Goal 6: Humanities and Fine Arts . . . . . 3  
 Emphasis Course(s) . . . . . 4  
**Total Semester Credits. . . . . 14**

**Total Program Credits . . . . . 60**

### Transfer Opportunities

Saint Paul College has a transfer articulation agreement between the following program and post-secondary institution for the baccalaureate degree program listed below.

For more information please go to [saintpaul.edu/Transfer](http://saintpaul.edu/Transfer).

#### Computer Programming AAS

- BA Individualized Studies  
Metropolitan State University
- BS Computer Information Systems  
College of St. Scholastica
- BS Information Technology  
Saint Mary's University,  
Twin Cities Campus
- BS Operations Management  
Minnesota State University, Moorhead

The below chart illustrates the courses required for completion of this degree.

### Introductory

