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 verity 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.

Program Requirements
☐ Check off when completed
Course                                                                 Cr
☐ CSCI 1410 Computer Science & Information Systems  ............................................. 4
☐ CSCI 1423 Computer Networking – Client ............................................................ 4
☐ CSCI 1450 Web Fundamentals/HTML ................................................................. 4
☐ CSCI 1523 Intro to Computing and Programming Concepts  ........................... 4
☐ CSCI 1524 Intro to Algorithms and Data Structures ......................................... 4
☐ CSCI 1541 Java Programming 1 ............................................................................ 4
☐ CSCI 2570 Machine Architecture and Organization ......................................... 4
Subtotal .................................................................................................................. 28

Complete one of the Emphases listed below ..................................................... 16
Java Program Emphasis Cr
☐ CSCI 1542 Java Programming 2 ................................................................. 4
☐ CSCI 1550 Database Management Fundamentals ......................................... 4
☐ CSCI 2440 Client Side Programming ........................................................... 4
☐ CSCI 2466 J2EE-JSP and Servlets ................................................................. 4
Total Emphasis Credits ..................................................................................... 16

Web Development Emphasis Cr
☐ CSCI 2440 Client Side Programming 1 ........................................................... 4
☐ CSCI 2442 Server Side Programming ............................................................ 4
☐ CSCI 2466 J2EE-JSP and Servlets ................................................................. 4
☐ CSCI 2622 Client Side Programming ........................................................... 4
Total Emphasis Credits ..................................................................................... 16

Web Based 2D Game Development Emphasis Cr
☐ DGIM 2521 2D Web Animation .................................................................. 2
☐ DGIM 2530 Web Based Game Design 1 ......................................................... 4
☐ DGIM 2531 Web Based Game Design 2 ......................................................... 4
☐ DGIM 2586 Digital Sound ................................................................................ 2
☐ DGIM Technical Electives ................................................................................ 4
☐ DGIM 1490 3D Animation Fundamentals ................................................... 4
☐ DGIM 2560 Illustrator ..................................................................................... 4
☐ DGIM 1483 Photoshop 1 .................................................................................. 2
☐ DGIM 1484 Photoshop 2 .................................................................................. 2
Total Emphasis Credits ..................................................................................... 16

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

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 250+ or grade of “C” or better in READ 0722
Writing: Score of 250+ on Reading Comprehension or grade of “C” or better in ENGL 0922
Adv. Algebra & Functions: Score of 250+ 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

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 .......................................................... 4
Emphasis Course(s) ............................................................................. 8
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) ............................................................................. 4
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.

Computer Programming AAS
BA  Individualized Studies
   Metropolitan State University

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.