Program Requirements Guide 2021-2022

Computer Science Transfer Pathway AS DEGREE

Program Overview
The Computer Science Transfer Pathway AS Degree is designed to provide students with opportunities for immediate employment or for transfer to four-year institutions. The College has developed articulation agreements with four-year institutions to assist students with their transfer goals. See a Pathway Advisor for further information. Students planning a career in this area should have above average mathematical reasoning and communication skills. Students should exhibit qualities of patience, and preciseness and enjoy working in a team environment.

Career Opportunities
Graduates of this program may choose to continue their education at a four-year institution in a Computer Science or related field. Others may elect to enter the workforce following graduation. Graduates will find opportunities in the computer science field in the areas of programming or database management in business, manufacturing, government and education. With additional education and experience, students may advance to positions such as Database Analyst, Systems Analyst, Software Developer or Programmer-Analyst.

Program Outcomes
1. Graduates develop and implement complex algorithms in computer-programming languages.
2. Graduates implement complex data structures to insure efficient program execution.
3. Graduates utilize sound mathematical principles to solve complex programming problems.
4. Graduates implement algorithms in programming languages utilizing proper coding conventions and appropriate documentation standards.
5. Graduates apply effective technical communication skills.

Program Faculty
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Part-time/Full-time Options
Some day and evening class availability. Students may attend full-time or part-time.

Program Start Dates
Fall, Spring, Summer

Course Sequence
The following sequence is recommended for a full-time student. Not all courses are offered each semester.

First Semester
- CSCI 1410 Computer Science & Info Systems .......... 4
- Goal 1: ENGL 1711 Composition 1 .................... 4
- Goal 4: MATH 2749 Calculus 1 .......................... 4
- Goal 1-10 of the Minnesota Transfer Curriculum ....... 2
Total Semester Credits ........................................ 14

Second Semester
- CSCI 1523 Intro to Computing and Programming Concepts ........................................... 4
- Goal 3: PHYS 2700 General Physics 1 .............. 5
- Goal 4: MATH 2750 Calculus 2 ......................... 4
- OR MATH 1740 Intro to Statistics .................... 4
- Goal 5: History, Social Sciences, Behavioral ....... 3
Total Semester Credits ........................................ 16

Third Semester
- CSCI 1524 Intro to Algorithms and Data Structures ... 4
- CSCI 1533 ANSI C Language Programming .......... 2
- CSCI 1541 Java Programming 1 .......................... 4
- CSCI 2460 Discrete Structures of Computer Science .......... 4
- CSCI 2469 Advanced Programming Principles ...... 4
- CSCI 2570 Machine Architecture & Organization .. 4
Subtotal ......................................................... 30

Fourth Semester
- General Education/MnTC Requirements Cr
- Refer to the Minnesota Transfer Curriculum Course List for each Goal Area
  - Goal 1: Communication ................................. 9
  - ENGL 1711 Composition 1 – 4 cr
  - ENGL 1712 Composition 2 – 2 cr
  - COMM 17XX – 3 cr
  - Goal 3: Natural Sciences ............................... 5
  - PHYS 2700 General Physics 1 – 5 cr
  - Goal 4: Mathematical/Logical Reasoning .......... 8
  - MATH 2749 Calculus 1 – 4 cr
  - MATH 2750 Calculus 2 OR
  - MATH 1740 Introduction to Statistics - 4 cr
  - Goal 5: History, Social Science and Behavioral Sciences ................................. 3
  - Goal 6: Humanities and Fine Arts .................... 3
  - Goals 1-10 of the Minnesota Transfer Curriculum .. 2
  - Select a minimum of 2 additional credits.
  - Students must select courses from at least six (6)
  - Goal Areas of the Minnesota Transfer Curriculum.
- General Education Requirements ................................ 30
- Total Program Credits ...................................... 60

See back of this guide for Transfer Opportunities

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 or READ 0724 or EAPP 0900
- Writing: Score of 250+ on Reading Comprehension or grade of “C” or better in ENGL 0922 or EAPP 0900
- 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.

TPCS
Computer Science Transfer Pathway  AS DEGREE (continued)
(30 credits + 30 GenEd credits)

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.

<table>
<thead>
<tr>
<th>Computer Science Transfer Pathway AS</th>
<th>BS</th>
<th>Computer Science</th>
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</thead>
<tbody>
<tr>
<td>BS</td>
<td>Bemidji State University</td>
<td></td>
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<tr>
<td>BS</td>
<td>Computer Science</td>
<td>Minnesota State University, Moorhead</td>
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<tr>
<td>BS</td>
<td>Computer Science</td>
<td>Metropolitan State University</td>
</tr>
<tr>
<td>BA</td>
<td>Individualized Studies</td>
<td>St. Cloud State University</td>
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</tbody>
</table>

Transfer Opportunities (continued)

Computer Science Transfer Pathway BS
BS Computer Science
BS Bemidji State University
BS Computer Science
BS Minnesota State University, Moorhead
BS Computer Science
BA Individualized Studies
BA Metropolitan State University

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

Introductory

| CSCI 1410 | Computer Science & Information Systems |

Intermediate

| CSCI 1523 | Intro to Computing and Programming Concepts |
| CSCI 1541 | Java Programming 1 |

Advanced

| CSCI 1533 | ANSI C Language Programming |
| CSCI 1524 | Intro to Algorithms and Data Structures |
| CSCI 2570 | Machine Architecture & Organization |
| CSCI 2469 | Advanced Programming Principles |
| CSCI 2460 | Discrete Structures of Comp Science |