**Program Requirements Guide 2020 - 2021**

**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 mathematic 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 will be able to develop complex algorithms which underlie common programming tasks.
2. Graduates will be able to construct and analyze the performance of complex data structures and use them to develop efficient computer programs.
3. Graduates will have a sound understanding of the mathematics that underlies Computer Science and be able to develop and deploy computer programs which utilize it.
4. Graduates of the program will have mastered the general education requirements for work and life roles.

**Program Faculty**
Warren Sheaffer  
warren.sheaffer@saintpaul.edu

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

**Program Requirements**
- Check off when completed

<table>
<thead>
<tr>
<th>Course</th>
<th>Cr</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 1410 Computer Science &amp; Info Systems</td>
<td>4</td>
</tr>
<tr>
<td>CSCI 1523 Intro to Computing and Programming Concepts</td>
<td>4</td>
</tr>
<tr>
<td>CSCI 1524 Intro to Algorithms &amp; Data Structures</td>
<td>4</td>
</tr>
<tr>
<td>CSCI 1533 ANSI C Language Programming</td>
<td>2</td>
</tr>
<tr>
<td>CSCI 1541 Java Programming</td>
<td>4</td>
</tr>
<tr>
<td>CSCI 2460 Discrete Structures of Computer Science</td>
<td>4</td>
</tr>
<tr>
<td>CSCI 2469 Advanced Programming Principles</td>
<td>4</td>
</tr>
<tr>
<td>CSCI 2570 Machine Architecture &amp; Organization</td>
<td>4</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>

**General Education/MnTC Requirements**

- ENGL 1711 Composition 1 .......................... 4
- ENGL 1712 Composition 2 .......................... 2
- COMM 17XX .......................... 3
- PHYS 2700 General Physics 1 .......................... 5
- MATH 2749 Calculus 1 .......................... 4
- MATH 2750 Calculus 2 OR MATH 1740 Intro to Statistics .......................... 4
- CSCI 2469 Advanced Programming Principles .......................... 4
- CSCI 2570 Machine Architecture & Organization .......................... 4
- **Subtotal** .......................... **30**

**Minimum Program Entry Requirements**
- 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

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

**Fall, Spring, Summer**

<table>
<thead>
<tr>
<th>Course</th>
<th>Cost</th>
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<tr>
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<td>4</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

**Total Program Credits**
- **60**

* Please refer to specific articulation agreements to determine the best mathematics option.

**See back of this guide for Transfer Opportunities**

**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
- Goals 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
- **Total Semester Credits** .......................... **16**

**Third Semester**
- CSCI 1524 Intro to Algorithms and Data Structures .......................... 4
- CSCI 1541 Java Programming .......................... 4
- CSCI 2570 Machine Architecture & Organization .......................... 4
- Goal 1: ENGL 1712 Composition 2 .......................... 2
- **Total Semester Credits** .......................... **16**

**Fourth Semester**
- CSCI 2460 Discrete Structures of Comp Science .......................... 4
- CSCI 2469 Advanced Programming Principles .......................... 4
- Goal 1: COMM 17XX .......................... 3
- Goal 6: Humanities and Fine Arts .......................... 3
- **Total Semester Credits** .......................... **14**

**Total Program Credits**
- **60**

**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.

**Information is subject to change. This Program Requirements Guide is not a contract.**
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>Information Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS  Computer Science</td>
<td>Bemidji State University</td>
<td></td>
</tr>
<tr>
<td>BS  Computer Science</td>
<td>Minnesota State University, Moorhead</td>
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</tr>
<tr>
<td>BS  Computer Science</td>
<td>Metropolitan State University</td>
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</tr>
<tr>
<td>BA  Individualized Studies</td>
<td>St. Cloud State University</td>
<td></td>
</tr>
</tbody>
</table>

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