

# COMPUTER SCIENCE A.S. (TRANSFER)

Program website ([https://www.frederick.edu/programs/information-technology/computer-science-\(1\).aspx](https://www.frederick.edu/programs/information-technology/computer-science-(1).aspx))

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## Program Description

Provides a core of courses which enables the student to transfer to a four-year college and major in computer science. The program is designed to give broad coverage of both mathematics and computer science which is comparable to that offered in the first two years of a four-year college's computer science major with an emphasis on object-oriented design and programming.

## Program Learning Outcomes

- Create an object-oriented program that implements data structures.
- Identify problem requirements that demonstrate understanding of user needs.
- Explain solutions that satisfy problem requirements.
- Analyze complexity of problem solutions.
- Design problem solutions that demonstrate efficiency.
- Construct software applications that implement a Graphical User Interface (i.e., GUI) Front-End.
- Produce documentation that describes implementation.

## Program Requirements

- Students must complete their credit **English and Mathematics** within the first 24 credits.
- One course must meet the cultural competence graduation requirement (<https://frederick-public.courseleaf.com/general-education-core/#cultural>).
- **CORE: The General Education CORE** is that foundation of the higher education curriculum providing a coherent intellectual experience for all students. Students should check with an advisor or the transfer institution (ARTSYS) before selecting General Education CORE requirements. <http://artsys.usmd.edu/>
- In some General Education categories (Mathematics, Biological & Physical Sciences), a 4-credit course selected from the GenEd course list will satisfy the requirement in place of a 3-credit course. Students should check with an advisor before selecting these courses.
- For the Physical Education, Health, or Nutrition requirement, a 3-credit PHED, HLTH, or NUTR course may satisfy the requirement in place of a 1-credit course. Students should check with an advisor before selecting this course.
- Students must earn a grade of "C" or better in ENGL 101 English Composition.

Code	Title	Credits
<b>English</b>		
ENGL 101	English Composition	3
<b>Mathematics</b>		
MATH 185	Calculus I	4

<b>Social &amp; Behavioral Sciences</b>		
Social & Behavioral Sciences Elective (Gen Ed course list) ( <a href="https://frederick-public.courseleaf.com/general-education-core/#social-behavioral">https://frederick-public.courseleaf.com/general-education-core/#social-behavioral</a> ) <sup>1</sup>		6
<b>Arts &amp; Humanities</b>		
Arts Elective (Gen Ed course list) ( <a href="https://frederick-public.courseleaf.com/general-education-core/#arts">https://frederick-public.courseleaf.com/general-education-core/#arts</a> )		3
Humanities Elective (Gen Ed course list) ( <a href="https://frederick-public.courseleaf.com/general-education-core/#humanities">https://frederick-public.courseleaf.com/general-education-core/#humanities</a> )		3
Communication Elective (Gen Ed course list) ( <a href="https://frederick-public.courseleaf.com/general-education-core/#communication">https://frederick-public.courseleaf.com/general-education-core/#communication</a> )		3
<b>Biological &amp; Physical Sciences</b>		
Biological & Physical Sciences Elective (Gen Ed course list) ( <a href="https://frederick-public.courseleaf.com/general-education-core/#biological-physical">https://frederick-public.courseleaf.com/general-education-core/#biological-physical</a> ) (Lab course)		4
Biological & Physical Sciences Elective (Gen Ed course list) ( <a href="https://frederick-public.courseleaf.com/general-education-core/#biological-physical">https://frederick-public.courseleaf.com/general-education-core/#biological-physical</a> )		3
<b>Interdisciplinary &amp; Emerging Issues</b>		
CMIS 106	Object Design and Programming	3
<b>Physical Education, Health, or Nutrition Requirement</b>		
Select one PHED, HLTH, or NUTR course		1
<b>Departmental Requirements</b>		
CMIS 201	Computer Science I	4
CMIS 202	Computer Science II	4
CMIS 222	Computer Organization	4
<b>Electives</b>		
Any CMIS courses		9
Any MATH courses		6
Total Credits		60

1

Electives must be from two disciplines.

## Transfer Note

For more information on careers and transfer, contact the Career and Academic Planning Services office at 301.846.2471 or visit Transfer Services (<https://www.frederick.edu/student-resources/counseling-advising/transfer-services.aspx>).

## Guided Pathway to Success (GPS)

Suggested schedules map your path to degree completion.

Students should meet with an advisor each semester to carefully select and sequence courses based on their specific academic goals and interests. Visit Jefferson Hall or call 301.846.2471 for advising.

Recommended First Semester		Credits
ENGL 101	English Composition <sup>1</sup>	3
Any MATH Course (Milestone) <sup>1</sup>		3
MATH 165	Precalculus (recommended)	
CMIS 106	Object Design and Programming (Milestone)	3
Arts Elective (Gen Ed course list) ( <a href="https://frederick-public.courseleaf.com/general-education-core/#arts">https://frederick-public.courseleaf.com/general-education-core/#arts</a> )		3
Social & Behavioral Sciences Elective (Gen Ed course list) ( <a href="https://frederick-public.courseleaf.com/general-education-core/#social-behavioral">https://frederick-public.courseleaf.com/general-education-core/#social-behavioral</a> )		3
Credits		15
Recommended Second Semester		
CMIS 201	Computer Science I (Milestone)	4
CMIS 222	Computer Organization	4
MATH 185	Calculus I <sup>2</sup>	4
Biological & Physical Sciences Elective (Gen Ed course list) ( <a href="https://frederick-public.courseleaf.com/general-education-core/#biological-physical">https://frederick-public.courseleaf.com/general-education-core/#biological-physical</a> ) w/lab		4
Credits		16
Recommended Third Semester		
CMIS 202	Computer Science II (Milestone)	4

## 2 Computer Science A.S. (Transfer)

Any MATH course	3
Any CMIS course	3
Humanities Elective (Gen Ed course list) ( <a href="https://frederick-public.courseleaf.com/general-education-core/#humanities">https://frederick-public.courseleaf.com/general-education-core/#humanities</a> )	3
Physical Education, Health, or Nutrition Requirement	1,3
Credits	14-16
<b>Recommended Fourth Semester</b>	
Any CMIS course	3
Any CMIS course	3
Biological & Physical Sciences Elective (Gen Ed course list) ( <a href="https://frederick-public.courseleaf.com/general-education-core/#biological-physical">https://frederick-public.courseleaf.com/general-education-core/#biological-physical</a> )	3-4
Social & Behavioral Sciences Elective (Gen Ed course list) ( <a href="https://frederick-public.courseleaf.com/general-education-core/#social-behavioral">https://frederick-public.courseleaf.com/general-education-core/#social-behavioral</a> ) (in a different discipline from first)	3
Communication Elective (Gen Ed course list) ( <a href="https://frederick-public.courseleaf.com/general-education-core/#communication">https://frederick-public.courseleaf.com/general-education-core/#communication</a> )	3
Credits	15-16
Total Credits	60-63

1

Take this course within the first 24 credits.

2

Prerequisite: MATH 165 Precalculus (formerly MA 111)

### Part-time Students

Part-time students should complete courses in the order listed on the pathway. Please contact program manager for questions about part-time status.

Students who take fewer than 15 credits each semester or who require developmental English or Math coursework will need additional semesters to complete their degrees. Summer term and January session classes may help students to make faster progress.

### Pathway Legend

Milestone - courses with the Milestone notation should be taken within the recommend credit range to stay on track for program completion.

Fall, Spring, Summer - courses with a Fall, Spring, or Summer notation indicate the course is offered in the specified semester only.