



# Mathematics/Computer Science

AS # 4030 (62 credits)

Effective Fall 2020

*This is an overview of the program. Any suggested course sequencing is meant to serve as a guideline for your semester planning. Students are expected to see their assigned advisor to develop and review their individual educational plans. Program specific questions can be directed to the faculty contacts. The scheduling of courses, program sequencing and curriculum are subject to change.*

Developmental Courses (as determined through College Placement Testing)* and Prerequisites:							
* Zero level courses must be completed with a C grade or higher.							
<input type="checkbox"/>	ESL classes	<input type="checkbox"/>	ENGL 050	<input type="checkbox"/>	MATH 006	<input type="checkbox"/>	MATH 090 – Fundamentals of Algebra I
<input type="checkbox"/>	ENGL 002	<input type="checkbox"/>	ENGL 051	<input type="checkbox"/>	MATH 070 – Fundamentals of Quantitative Lit	<input type="checkbox"/>	MATH 091 – Fundamentals of Algebra II
<input type="checkbox"/>	ENGL 003	<input type="checkbox"/>	ENGL 057	<input type="checkbox"/>	MATH 080 – Fundamentals of Statistics		

General Education Courses		
<b>ENGL 101</b>	<b>3</b>	Pre: ENGL 003 and 051 or 057 with a grade of C or higher; Co-req: ENGL 003
<b>ENGL 106</b>	<b>3</b>	Pre: ENGL 101 and ENGL 003 or 057 with grade of C or higher
<b>Comm 101 or Comm 203</b>	<b>3</b>	Pre: Eligibility for ENGL 101 and completion of any reading Pre: ENGL 101
<b>Core A: Arts and Humanities Elective</b>	<b>3</b>	Choose ONE from the list: ART 181 or 182; ENGL 206; HUM 101, 115 or 201; MUS 104; PHIL 200; THTR 101; or a foreign language course.
<b>Core B: Social &amp; Behavioral Sciences</b>	<b>3</b>	
<b>PE/Wellness</b>	<b>1</b>	
<b>FYS Seminar**</b>		One credit hour in FYS coursework unless exempted by examination. See HACC catalog for a list of approved courses.

Required Program Courses			
CIS 110 or CNT 120	3	Intro to Computer Systems or Network Communications Technology I	Pre or Coreq: CIS 105 with a grade of C or higher. Prerequisite: Eligibility for enrollment into ENGL 101 and MATH 070 or permission of the Instructor.
CPS 121	3	Computer Science I – Introduction to Computer Programming JAVA	Prerequisite: Completion of Math 103 with a C or higher
CPS 161	3	Computer Science II – Algorithmic Design JAVA and C++	Prerequisite: Completion of CPS 121 with a C or higher
CPS 162	3	Computer Science III – Data Structures	Prerequisite: Completion of CPS 161 with a C or higher.
CPS 230	3	Object Oriented Programming JAVA	Prerequisite: Completion of CPS 121 with a C or higher or permission of the Instructor.
MATH 121	4	Calculus I	Prerequisite: Completion of MATH 119 or equivalent with a C or higher.
MATH 122	4	Calculus II	Prerequisite: Completion of Math 121 with a C or higher
MATH 125	3	Discrete Mathematics	Prerequisite: Completion of Math 119 with a C or higher

MATH 202	4	Introduction to Statistics	Prerequisite: Completion of Math 070 with a C or higher (or MATH 033); ENGL 003 & 051 or ENGL 057 with a C or higher
MATH 220	4	Linear Algebra	Prerequisite: Completion of Math 122 with a C or higher
BIOL 101  OR  PHYS 201 OR PHYS 211 OR CHEM 101	4	General Biology (Core C Lab)  OR  General Physics I OR Physics for Engineers & Scientists I OR General Inorganic Chemistry	Prereq: H.S. Biol and Chem; Pre or Coreq: ENGL 101 and reading ability at the ENGL 003 level or higher; or CHEM 100 & BIOL 108 or 111 or 115 with grades of C or higher Prereq; Completion of MATH 104 or the equivalent with a C or higher. Prereq: Completion of MATH 121 or equivalent with a grade of C or higher. Prereq: Completion of MATH 103, ENGL 057 (or a combination of ENGL 003, or 007 and 051 with C's or higher; and successful completion of (1) High school academic chemistry or (2) CHEM 100 with grades of C or, 3) Toledo Chemistry Placement Exam (minimum score of 26).
BIOL 102 OR PHYS 202 OR PHYS 212 OR CHEM 102	4	General Biology II OR General Physics II OR Physics for Engineers & Scientists II OR General Inorganic Chem & Qualitative Analysis	Prereq: Completion of BIOL 101 or the equivalent with a grade of C or higher. Prereq: Completion of PHYS 201 with a C or higher Prereq: Completion of MATH 122 and PHYS 211 or the equivalent with a C or higher. Prereq: Completion of CHEM 101 with a C or higher

### RECOMMENDED SEQUENCE FOR FULL-TIME STUDENTS

Part-time students can complete this program by taking one or more courses each semester.

Fall Semester I		Spring Semester I		Fall Semester II		Spring Semester II	
CIS 110 or CNT 120	3	COMM 101	3	CPS 162	3	CPS 230	3
CPS 121	3	CPS 161	3	MATH 202	4	Humanities and Arts Elective	3
ENGL 101	3	ENGL 102 or 104	3	MATH 220	4	Social/Behavior Science	3
FYS Elective	1	MATH 122 (Core C)	4	PE/Wellness	1		
MATH 121 (Core C)	4	MATH 125	3	BIO: 101 pr PHYS 201 or 211 or CHEM 101	4	Transfer Elective	3
						BIOL 102 or PHYS 202 or PHYS 212 or CHEM 102	4

**Counselor/Advisor Contact Information by Campus:** Virtual: 800-ABC-HACC, option 7; virtual@hacc.edu

<u>Gettysburg</u>	<u>Harrisburg</u>	<u>Lancaster</u>	<u>Lebanon</u>	<u>York</u>
Student Services	Advising and Transfer Center	Counseling and Advising	Receptionist Desk	Welcome Center
Lobby	Cooper 219	221 Main	Lobby	Leader 102
717-337-3855	717-780-2498	717-358-2988	717-270-4222	717-801-3213, ext. 3513