



ADVISING WORKSHEET: COMPUTER SCIENCE

GENERAL NOTES

- A minimum of 123 credits are required for graduation.
 - Credits earned for COM 100 and MAT 100 do not count toward the 123 credits required for graduation; however, COM 100 students may petition for elective credit.
 - Where appropriate, courses required for the major can be used to satisfy General Education requirements. However, the number of credits earned for these courses are applied to either Gen Ed requirements or the major, not both.
 - Paths of Knowledge coursework may count towards major or minor requirements, but may not fulfill a second Mid-Level Liberal Arts Exploration requirement.
 - Students are expected to follow the catalog requirements for General Education, the major, and additional requirements.
 - A minor or second major within the areas listed under Paths of Knowledge automatically fulfills that area of the Gen Ed requirements.
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CAREER OPPORTUNITIES FOR MAJORS

Computer science majors acquire the skills and knowledge to pursue careers at fortune 500 companies, government agencies, banks or local, regional, and national firms working as:

- IT specialist
- Software developer
- Network and computer systems administrator
- Computer programmer
- Computer network architect
- Computer support specialist
- Database manager
- Information security analyst
- Web developer
- Cyber security analyst
- Digital forensics specialist
- Data analyst

The Washington Center Experience

Alvernia students have an opportunity to earn college credit by spending a semester or summer in Washington, D.C. where they serve as interns in a congressional office, government agency, major corporation, newspaper or news network, or agencies devoted to legal affairs, international relations, or business and economics. They also may intern with one of several non-profit groups dealing with the environment, women's issues, the arts, education, science, or labor relations among others. Participants are customarily juniors or seniors who have achieved grade point averages of 2.5 or better and who have the endorsement of the appropriate academic area. In addition to their internship, students select one seminar dealing with the arts and humanities, communication, public policy, the legal system, business, and government. Interested students should see their academic advisor.

General Education (54-56 credits)

First Year Curriculum: Enduring Questions	Credits Required	Course	Term	Grade	Credits Earned
SEARCH Seminar-Enduring Questions or Honor Search-Enduring Questions	3	SRH 101 / HNR 160			
COM 101: Composition & Research (Must earn a C or higher)	3	COM 101			
THE 105: Foundations of Theology	3	THE 105			
PHI 105: Introduction to Philosophy	3	PHI 105			

Mid-Level Liberal Arts Exploration	Credits Required	Course	Term	Grade	Credits Earned
EXPLORING THE NATURAL WORLD (6-8 credits)					
Lab Science (Biology, Chemistry, Physics)	3-4				
Math (NOT MAT 100, 209, 230, OR 250)	3-4				
INDIVIDUALS & COMMUNITIES (6 credits)					
History or Political Science	3				
PSY, HIS, POS, SOC, SSC, OR ECON	3				
CULTURE & LANGUAGE (9 credits)					
Communication (Not COM 100 or 101)	3				
World Language – 2 courses in sequence	3				
	3				
CREATIVE EXPRESSIONS (6 credits)					
Literature (ENG)	3				
Art, Music, or Theatre	3				

Ethical Leaders and Followers	Credits Required	Course	Term	Grade	Credits Earned
Theology or Philosophy (200-400 level)	3				
Theology or Philosophy (Ethics/Morality @ 200 level)	3				

Paths of Knowledge – Choose 1 Path		PoK may count towards minor or Related Requirements, but not Mid-Level Arts Exploration requirements.			
<p>_____PATH 1:</p> <p>Interdisciplinary Study (IS) Three courses, at least two from Liberal Arts disciplines, not the major, at the 200-400 level from the interdisciplinary minors of Women & Gender Studies, Digital Media, Community & Environmental Sustainability, Community Engagement, Cultural Studies, Leadership Studies or Pre-Law.</p>	<p>_____PATH 2:</p> <p>Multi-disciplinary Study (MS) Three courses, at least two from Liberal Arts disciplines, not the major, at the 200-400 level employing multiple disciplinary perspectives to explore the Enduring Questions in one of the following themes: Cultural & Global Studies, Imagination & Creativity, Peace & Conflict, Poverty & Wealth or Sustainability, Science & Technology.</p>	<p>_____PATH 3:</p> <p>In-depth Disciplinary Study (DS) Three courses at the 200-400 level in one Liberal Arts discipline other than one's major, guided by common ideas and methods of inquiry. Students choose from Art, Biology, Chemistry, Communication, Computer Science, Economics, English, History, Mathematics, Music, Philosophy, Political Science, Psychology, Sociology, Theology, Theatre or World Languages. This path may be used to give students a firm foundation in a discipline supporting their chosen major, or to pursue an interest in one of the Liberal Arts disciplines.</p>			
Course (See Catalog for lists of approved courses for each area.)		Area or Discipline	Term	Grade	Credits Earned
Met with MAT 209 (REL AREA)					
Met with MAT 230 (REL AREA)					
Met with MAT 250 (REL AREA)					

BS COMPUTER SCIENCE (51-54 credits)

REQUIRED MAJOR COURSES (51-54 CREDITS)					
Course	Pre-Requisites		Term	Grade	Credits
CS 110: Intro to Computer Science					3
CS 155: Intro to Object-Oriented Programming					3
CS 210: Computer Organization and Assembly Lang.	CS 110 and CS 155; or permission of the Chair				3
CS 220: Data Structures and Algorithms	CS 110 and CS 155; or permission of the Chair				3
CS 310: Operating Systems	CS 110 and CS 155; or permission of the Chair				3
CS 320: Algorithm Design and Analysis	CS 110 and CS 155; or permission of the Chair				3
CS 345: E-Commerce	CS 110 and CS 155; or permission of the Chair				3
CS 400: Database Systems	CS 220; or permission of the Chair				3
CS 425: Software Development	CS 220 and CS 320; or permission of the Chair				3
SCI 402: Senior Seminar					2
Select one 6-credit option =>	6 credits Research Sequence: SCI 406: Research I (3 credits) and SCI 407: Research II (3 credits)	OR SCI 480: 6 credits of Internship or taken 3/3 back to back semesters	Prereq for SCI 480; junior status and a 2.5 GPA.		6
Choose One Track (6 credits): CYBER SECURITY TRACK OR DATA SCIENCE TRACK					
Course	Pre-Requisite		Term	Grade	Credits
CYBER SECURITY:					
CS 325: Computer Networking and Cyber Security	CS 110 and CS 155; or permission of the Chair				3
CS 435: Computer Forensics	CS 325; or permission of the Chair				3
DATA SCIENCE TRACK:					
CS 300: Data Analytics	CS 110 and CS 155; or permission of the Chair (A background in statistics and calculus is desirable.)				3
CS 415: Data Mining/Machine Learn	CS 300; or permission of the Chair. (A background in statistics and calculus is desirable.)				3
MATH RELATED REQUIREMENTS (10 CREDITS)					
Course	Pre-Requisite		Term	Grade	Credits
MAT 209: Probability & Statistics	Satisfactory score on the math placement test.				3
MAT 230: Calculus I	Prerequisite: MAT 131 or satisfactory score on the math placement test.				4
MAT 250: Discrete Mathematics	Prerequisite: MAT 131 or satisfactory score on the math placement test.				3
Recommended (3 credits):					
Course	Pre-Requisite		Term	Grade	Credits
MAT 131: Pre-Calculus					3
ELECTIVES or MINOR as required for the minimum 123 credits required for graduation (not including COM 100 or MAT 100)					
Course	Pre-Requisite		Term	Grade	Credits

*** Please be advised to double check the 22-23 Course Catalog to ensure that you meet all prerequisite expectations for all required and related classes for this major.***

EIGHT SEMESTER PLAN

Semester 1	Credits	Semester 2	Credits
SRH 101: Search Sem-Enduring Questions or HNR 160: Honor Search-Enduring Questions	3	CS 155: Intro to Object-Oriented Programming	3
COM 101: Composition & Research	3	THE 105 or PHI 105	3
THE 105 or PHI 105	3	Gen Ed SEARCH	3
CS 110: Intro to Computer Science	3	Gen Ed SEARCH	3
MAT 131 Pre-calculus or Gen Ed SEARCH if MAT 131 is not needed.	3	MAT 230: Calculus I	4
TOTAL	15	TOTAL	16
Semester 3	Credits	Semester 4	Credits
CS 210: Computer Organization & Assembly Language	3	CS 220: Data Structures and Algorithms	3
MAT 250: Discrete Mathematics	3	MAT 209: Probability and Statistics	3
Gen Ed SEARCH	3	Gen Ed SEARCH	3
Gen Ed SEARCH	3	Gen Ed SEARCH	3
Gen Ed SEARCH (Foreign Language suggested)	3	Gen Ed SEARCH (Foreign Language suggested)	3
TOTAL	15	TOTAL	15
Semester 5	Credits	Semester 6	Credits
CS 300: Data Analytics (Data Science Track)	3	CS 325: Computer Networking and Cyber Security (Cyber Security Track)	3
CS 310: Operating Systems	3	CS 345: E-Commerce	3
CS 320: Algorithm Design and Analysis	3	Gen Ed SEARCH (Potentially Math if MAT 131 was not needed)	3
Gen Ed Search	3	Elective	3
Elective	3	Elective	3
TOTAL	15	TOTAL	15
Semester 7	Credits	Semester 8	Credits
CS 400: Database Systems	3	CS 425: Software Development	3
CS 415: Data Mining and Machine Learning (Data Science Track)	3	CS 435: Computer Forensics (Cyber Security Track)	3
SCI 406: Research I Or SCI 480: Internship	3	SCI 402: Senior Seminar	2
Elective	3	SCI 407: Research II Or SCI 480: Internship	3
Elective	3	Elective	3
TOTAL	15	TOTAL	17

ADDITIONAL GRADUATION REQUIREMENTS	RESIDENCY REQUIREMENTS	GRADUATION CREDITS EARNED	
___ SRH 101/HNR 160: SEARCH	___ Minimum of 123 non-remedial credits earned	Liberal Arts Core credits earned	
___ HUMAN DIVERSITY	___ 45 of last 60 credits	Major and Related Area credits earned	
___ COMMUNITY SERVICE HOURS	___ Minimum of 12 Alvernia credits in the major	Elective and/or Minor credits earned	
___ OVERALL GPA =2.0 or higher	___ Minimum of 9 Alvernia credits in the minor (if applicable)	SUBTOTAL	
___ GPA IN MAJOR = 2.0 or higher		SUBTRACT CREDITS EARNED FOR MAT 100, and if applicable COM 100	
___ SENIOR CAPSTONE		TOTAL GRADUATION CREDITS	
(Met with SCI 406/407 or 480)			
___ WRITING ENHANCED COURSE			

Academic Policy on Eligibility for Participation of May Commencement Ceremony

The academic policy, which the Registrar follows, is: A student who has 6 or less credits remaining to complete the degree may participate in the May Commencement Ceremony.

Application Deadlines: August Graduation - December 1; December Graduation - March 1; May Graduation - October 1.
Any questions, please call the Registrar's Office.