Student ID:_____
Student Name:_____
Adviser Name:_____

Catalog: Undergraduate Catalog 2024-2025
Program: Computer Science (B.S.)
Minimum Credits Required:_____

Computer Science (B.S.)

Student Learning Outcomes for Computer Science:

Students will be able to:

- Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
- Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
- Communicate effectively in a variety of professional contexts.
- Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
- Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
- Apply computer science theory and software development fundamentals to produce computing-based solutions. (CS specific)

The Computer Science major requirements are:

Course Name	Credits:	Term Taken	Grade	Gen Ed	Credit
CS 121 - Computer Science I	4.00 credits.				
CS 122 - Computer Science II **Prerequisite(s):* CS 121.	4.00 credits.				
CS 209 - Database Systems **Prerequisite(s):* CS 121.	4.00 credits.				
CS 221 - Data Structures **Prerequisite(s):* CS 122.	4.00 credits.				
CS 222 - Systems Programming **Prerequisite(s):* CS 122.	4.00 credits.				
CS 230 - Computer Architecture **Prerequisite(s):* CS 121.	4.00 credits.				
CS 250 - Foundations of AI & Data Science **Prerequisite(s):* CS 121 and any one from the following, MA 135, MA 121, MA 251.	4.00 credits.				
CS 296 - Professional Development Seminar (EGR 296)	1.00 credit.				
CS 322 - Algorithms **Prerequisite(s):* CS 221.	4.00 credits.				
CS 341 - Software Engineering **Prerequisite(s):* CS 122.	4.00 credits.				
CS 396 - Industry Speakers and Special Topics	1.00 credit.				
CS 401 - Capstone Project in Computing I **Prerequisite(s):* CS 341 and senior status.	2.00 credits.				
CS 402 - Capstone Project in Computing II **Prerequisite(s):* CS 401.	2.00 credits.				
CS 421 - Programming Language Design and Implementation **Prerequisite(s):* CS 221 or CS 222.	4.00 credits.				
CS 422 - Operating Systems **Prerequisite(s):* CS 222.	4.00 credits.				
MA 121 - MA Calculus I	4.00 credits.				
MA 135 - Applied Discrete Mathematics	4.00 credits.				
MA 250 - MA Sports Analytics or	4.00 credits.				
MA 251 - MA Probability and Statistics	4.00 credits.				
PH 263 - HUM Societal Impacts of Computing, A.I., and Robotics	4.00 credits.				

Computer Science majors must also:

- Complete ONE of the following four concentrations, or
- Earn the degree without a concentration by completing 12 credits at or above the 200-level of CS or specified EGR (EGR 330, EGR 430, EGR 434) courses.

AI & Data Science Concentration

Course Name	Credits:	Term Taken	Grade	Gen Ed	Credit

BA 260 - Introduction to Data Visualization	2.00 credits.				
CS 350 - From Data Mining to Deep Learning *Prerequisite(s):* CS 209 and CS 250.	4.00 credits.				
CS 354 - Big Data *Prerequisite(s):* CS 250 and CS 209.	4.00 credits.				
CS 358 - Machine Learning (DAT 358) *Prerequisite(s):* MA 252 and CS 121.	2.00 credits.				
MA 252 - Statistical Methods in Research *Prerequisite(s):* MA 251.	4.00 credits.				

Cybersecurity Concentration

Course Name	Credits:	Term Taken	Grade	Gen Ed	Credit
CS 261 - Ethical Hacking *Prerequisite(s):* CS 121.	2.00 credits.				
CS 262 - Digital Forensics *Prerequisite(s):* CS 121.	2.00 credits.				
CS 342 - Computer Networking *Prerequisite(s):* CS 122.	4.00 credits.				
CS 363 - Computer Security *Prerequisite(s):* CS 122.	4.00 credits.				
CS 364 - Network Security *Prerequisite(s):* CS 122.	4.00 credits.				

Hardware Concentration

Course Name	Credits:	Term Taken	Grade	Gen Ed	Credit
EGR 330 - Digital Design and Embedded Systems *Prerequisite(s):* CS 121 or permission of the instructor.	4.00 credits.				
EGR 430 - Parallel Processing *Prerequisite(s):* EGR 330.	4.00 credits.				
EGR 434 - Robotics and Machine Intelligence *Prerequisite(s):* CS 121 and MA 121.	4.00 credits.				

Web & Application Design Concentration

Course Name	Credits:	Term Taken	Grade	Gen Ed	Credit
ART 103 - Graphic Design I	4.00 credits.				
ART 325 - Designing for the Web and Social Media *Prerequisite(s):* ART 203 or permission of the instructor.	4.00 credits.				
CS 310 - Web Development *Prerequisite(s):* CS 122.	4.00 credits.				
CS 312 - Application Development *Prerequisite(s):* CS 122.	4.00 credits.				

First Year Suggested Courses:

Course Name	Credits:	Term Taken	Grade	Gen Ed	Credit
FYS 100 - First-Year Seminar	4.00 credits.				
EN 100 - PLE First Year Writing	4.00 credits.				
CS 121 - Computer Science I	4.00 credits.				
CS 122 - Computer Science II *Prerequisite(s):* CS 121.	4.00 credits.				
MA 120 - Foundations for Calculus	4.00 credits.				
MA 121 - MA Calculus I	4.00 credits.				
MA 251 - MA Probability and Statistics	4.00 credits.				

Notes:

1. CS 121 and CS 122 are prerequisites to upper-level courses in Computer Science and must be taken before upper-level course can be attempted. Placement above CS 121/CS 122 for incoming students is done either by AP exam credit or through discussion with the course instructor and the Dean.
2. MA121 and MA 251 are required of Computer Science majors, and should be taken in the first year, if possible. Students may start in MA 120 as determined by Math Placement. A student who achieved a score of 4 or better on the College Board Advanced Placement Calculus AB Examination will be given credit for MA 121.
3. A C- or better is required in ALL prerequisite courses to continue in the major.

Notes: