# Department of Electrical Engineering and Computer Science
## Computer Science Catalog 2023

| Term / Hours | | | | | | |
|---|---|---|---|---|---|---|
| **Fall**<br>14 hours | **COSC 101* (3) FA, SP** | **Math 132 or 141 or 147 (3-4) (QR) FA,SP,SU**<br>Math 132 Prereq- Math 131<br>Math 141 Prereq- ACT Math 28 or SAT Math 660 | **EF 142 or 151 or 157 (4) (EI) FA, SP**<br>EF 142 Prereq- EF 141 with C- or better and Math 131<br>EF 142 Coreq- Math 132<br>EF 151 Coreq- 141/147 or higher and EF 105 or COSC 101 or CS 102 | **English 101 or 131 (3) FA, SP, SU**<br>101 Standard;<br>131 English as Second Language | | |
| **Spring**<br>15 hours | **COSC 102 (4) FA, SP, SU**<br>Prereq- COSC 101 with C or better<br>Coreq- Math 132 or 141 or 147 with C or better | **Math 142 or 148 (4) (QR) FA, SP, SU**<br>Prereq- Math 132 or 141 or 147 with C or better | **EF 152 or 158 (4) (EI and NS) FA, SP, SU**<br>Prereq-EF 142/151/157 with C or higher<br>Coreq- Math 142 or 148 | **English 102 or 112 or 298 or 132 (3) FA, SP, SU**<br>102 Prereq 101;  112 Prereq is AP 101 and Test Scores;<br>298 Prereq University Honors only;  132 Prereq 131 ESL | | |
| **Fall**<br>16-17 hours | **COSC 202 (4) FA, SP**<br>Prereq- COSC 102 with grade of C or better | **COSC 230 (3) FA, SP**<br>Prereq- COSC 102 with grade of C or better | **Math 251 or 257 (3) FA, SP, SU**<br>Prereq- Math 142 or 148 with grade of C or better | **Biology 101 or 150/158 (3-4) (NS)FA,SP**<br>**Chem.102&103 or 122&123 or 128 (4)(NS) FA, SP**<br>**or Physics 231 (3) (NS)FA, SP, SU** | **Vol Core (3) FA, SP, SU**<br>Global Citizenship United States (GCUS) | |
| **Spring**<br>16 hours | **COSC 302 or 307 (4) FA, SP**<br>Prereq- COSC 202 with grade of C or better | **COSC 311 or 317 (3) FA, SP**<br>Prereq- COSC 202 and Math 142 or 148 C or better | **ECE 313 or 317 (3)  FA, SP**<br>Prereq - Math 142 or 148 with grade of C or better | **Vol Core (3) FA, SP, SU**<br>Arts and Humanities (AH) | **Vol Core (3) FA, SP, SU**<br>Social Science (SS) | |
| **Fall**<br>16 hours | **COSC 360 or 367 (4) FA, SP**<br>Prereq- COSC 302 or 307 with C or better and<br>COSC 230 or ECE 256 with grade of C or better | **COSC 312 (3) FA, SP**<br>Prereq- COSC 311 or 317 with grade of C or better | **COSC 340 (3) FA, SP**<br>Prereq- COSC 302 or 307 with grade of C or better | **COSC 366  (3) FA, SP**<br>Prereq- COSC 302 or 307 with grade of C or better<br>and either ECE 256 or COSC 230 with grade of C or better | **Vol Core (3) (EI)*** FA, SP, SU**<br>Engaged Inquiry or if already satisfied an<br>unrestricted elective. | |
| **Spring**<br>16 hours | **COSC 361 (3) FA, SP**<br>Prereq- COSC 360 or 367 with C or better | COSC Upper Division Elective** (3) FA,SP,SU | COSC Upper Division Elective** (3) FA,SP,SU | COSC Upper Division Elective** (3) FA,SP,SU | **COSC 395 (1) (WC) FA, SP**<br>Prereq- COSC 302 or 307 with grade of C or better<br>and English 102, 112, 132, or 298 | **Vol Core (3) FA, SP, SU**<br>Global Citizenship International (GCI) |
| **Fall**<br>14 hours | **COSC 401 (2) (OC) FA**<br>Prereq- COSC 360 or 367 with grade of C or better | COSC Upper Division Elective **(3) FA, SP, SU | COSC Upper Division Elective **(3) FA, SP, SU | **English 355 or 360 (WC) (3) FA, SP, SU**<br>Prereq- ENGL 102 or 112 or 132 or 298<br>For ENGL 360- Minimum student<br>level junior | **Vol Core (3) FA, SP, SU**<br>Expanded Perspectives- choose from<br>AH, AAH, GCUS, GCI, or SS | |
| **Spring**<br>15 hours | **COSC 402 (3)  (AOC) SP**<br>Prereq- COSC 401; English 102, 112, 132, or 298<br>with grades of C or better | COSC Upper Division Elective **(3) FA, SP, SU | COSC Upper Division Elective **(3) FA, SP, SU | **Vol Core (3) FA, SP, SU**<br>Expanded Perspectives- choose from<br>AH, AAH, GCUS, GCI, or SS | **Vol Core (3) (EI)*** FA, SP, SU**<br>Engaged Inquiry or if already satisfied an<br>unrestricted elective. | |

*Beginning students who have had high school computer science and/or who have had significant programming experience (e.g. summer institute study, special research projects, home laboratory) are invited to apply during the summer to the head of the EECS department for permission to take a proficiency exam for COSC 101.  The EECS department also gives credit in COSC 101 to students who receive a score of  3 or better on the Computer Science A AP Exam.

**The following list shows an acceptable set of electives that may be taken to satisfy the upper division electives for the CS major.  The electives have been grouped into 7 suggested tracks.  The tracks group related electives that a student may wish to take in order to achieve a level of expertise in the indicated area.  However, it is not mandatory to take any track and students are free to mix and match courses from different tracks to fit their specific interests:
**Theory**: CS 440, 482; **Systems:** CS 452, 462, ECE 453, 462, 463; **Software:** CS 365, 453/557, 461, 465 ECE 472/478; **Hardware:** ECE 255, 256, 356/358, 455; **Scientific Computing:** CS 370/ 377, 471, 472, Math 231/237 or 241/247;
**Artificial Intelligence and Machine Learning:** CS 420/427/527, 421, 423/523, 424, 425/522, 426/526, 429, ECE 414; **Cybersecurity:**  CS 425/522, 434/534, 445/545, 522, 466/566, 469/569, 483/583, ECE 459/559, 462, 469/569,
Computer Science 493 and 494 may be taken to satisfy the upper division electives.  Up to two (2) Computer Science 5xx or Electrical Computer Engineering 5xx courses may count as upper division electives. COSC 422 does not count as an acceptable elective.

***Students should try to select courses that satisfy approved Vol Core areas AND Engaged Inquiry category. Students must have a minimum of 9 credit hours in at least two subject areas for Engaged Inquiry.

**Progression**
**The department requires at least a C in every computer engineering, computer science, electrical engineering, and mathematics course used for the undergraduate degrees.**

Progression of departmental undergraduate students to the upper-division programs of the department is competitive and is based on the space available in the department. Factors considered in the decision include overall grade point average, grades earned in courses required in the lower division curricula of the department and College of Engineering, and seriousness of purpose and interest in departmental programs as exemplified by regular and orderly progress through the prescribed curriculum without abuse of withdrawal and course repeat privileges.

Students also have opportunities for an Honors Concentration and/or a five year BS/MS program.  See the Undergraduate Catalog for details and requirements.

Volunteer Core courses highlighted in light orange.