Effective Fall 2020

Computational Science Track

Notes:

Lower-Division Core

Courses taken graded:
- CIS 210, 211 and 212 -- Computer Science I, II and III.
- MATH 231, 232 -- Discrete Math I and II

Upper-Division Core

Courses taken graded:
- CIS 313 -- Intermediate Data Structures
- CIS 314 -- Computer Organization
- CIS 315 -- Introduction to Algorithms

Calculus and Additional Math

Complete 8 graded credits from among these three sequences -- courses taken graded:
- MATH 251, 252 -- Calculus I, II OR
- MATH 261, 262 -- Calculus with Theory I, II OR
- MATH 246, 247 -- Calculus for the Biological Sciences

Choose 8 credits from the following -- courses taken graded:
- MATH 233 -- Elements of Discrete Mathematics III
- MATH 253 -- Calculus III OR MATH 263 -- Calculus with Theory III
- MATH 341 -- Elementary Linear Algebra
- MATH 425 -- Statistical Methods I OR MATH 343 -- Statistical Models/Methods

Science

Take 12 credits from one of the following options; these classes may be taken Pass/No Pass or graded:
- Physics: PH 201, 202, 203 - General Physics OR PH 251, 252, 253 - Foundations of Physics
- Chemistry: CH 221, 222, 223 - General Chemistry OR CH 224H, 225H, 226H - Honors General Chemistry
- Biology: CH 111 - Introduction to Chemical Principles OR CH 113 - The Chemistry of Sustainability OR CH 221 - General Chemistry OR CH 224 - Honors General Chemistry, BI 211 - General Biology, and BI 212 - General Biology OR BI 213 - General Biology

Choose one from the following:
- Psychology: PSY 201 Mind and Brain and choose two from [301 Scientific Thinking, 304 Biopsychology, 305 Cognition, 348 Music and the Brain]
- Geography: GEOG 141 - The Natural Environment, and two from GEOG 321 - Climatology, GEOG 322 - Geomorphology, or GEOG 323 - Biogeography

Recommended lab science: Biology

Note: Students are encouraged to complete the accompanying lab courses.

Writing

In addition to the university’s writing requirement, take one from the following (may be taken Pass/No Pass or graded):
- WR 320 Technical Writing
- WR 321 Business Communications

Students must earn no grade below B- for automatic advancement to the upper-division courses. Students with at most one C in the lower-division core courses may submit a prerequisite override request form to continue in the major.

Additional track requirements continued on back
Major Requirements – Major Progress Review Form

Each major must meet with his/her advisor and file the Major Progress Review form after completing Intermediate Data Structures (CIS 313) and Computer Organization (CIS 314).

Any student who receives two grades below C- in upper-division core courses, or three grades below C- in any upper-division courses, may be removed from the major.

Computational Science Track Requirements (24 credits)

Complete one course selected from the following. This course must be taken graded:

- CIS 454 – Bioinformatics
- CIS 455 – Computational Science

Complete two courses selected from the following. These courses must be taken graded:

- CIS 413 – Advanced Data Structures
- CIS 443 – User Interfaces
- CIS 445 – Modeling and Simulation
- CIS 451 – Database Processing
- CIS 452 – Database Issues
- CIS 453 – Data Mining
- CIS 454 – Bioinformatics
- CIS 455 – Computational Science
- CIS 471 – Introduction to Artificial Intelligence

Complete 8 additional upper-division CIS elective credits.

Choose electives from CIS upper-division courses, including Individualized Study Courses. CIS 399 and 410 must have regular class meetings, homework assignments and a prerequisite of 313 or higher.

A maximum of 8 credits may be taken from courses numbered 399-409, and a maximum of 4 credits in any one course numbered 400-409.

Complete 4 upper-division math elective credits.

Choose any math course with a prerequisite of MATH 252 or higher, or CIS 413, 420, 427, 410 Cryptography, 410 Probabilistic Methods. CIS courses used to complete mathematics elective cannot be used toward upper-division CIS elective credits.