Effective Fall 2020

Computational Science Track

Computer & Information Science Department, University of Oregon - http://www.cs.uoregon.edu

Notes:

Lower-Division Core

Courses taken g*raded*:

- ❑ CIS 210, 211 and 212 -- Computer Science I, II and III.
- ❑ MATH 231, 232 -- Discrete Math I and II)

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.

Upper-Division Core

Courses taken g*raded*:

- ❑ CIS 313 -- Intermediate Data Structures
- ❑ CIS 314 -- Computer Organization
- ❑ CIS 315 -- Introduction to Algorithms
- ❑ CIS 330 – C/C++ & Unix
- ❑ CIS 415 -- Operating Systems.
- ❑ CIS 422 -- Software Methodology I
- ❑ CIS 425 -- Principles of Programming Languages

Calculus and Additional Math

Complete 8 graded credits from among these three sequences – courses taken g*raded*:

- ❑ 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 g*raded*:

- ❑ 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
- ❑ **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
- ❑ **Geological Sciences:** GEOL 201 - Earth's Interior Heat & Dynamics, GEOL 202 - Earth Surface & Environmental Geology, GEOL 203 - Evolution of the Earth

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

Additional track requirements continued on back

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.

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.