2024 - 2025 Certificate Map
Computational Life Sciences

School/College: The College of Liberal Arts and Sciences
Location: Tempe

Program Requirements

The certificate in computational life sciences requires a minimum of 15 credit hours, of which at least 12 credit hours must be upper division. The core consists of one computing course and one ethics course. A minimum of nine credit hours in elective courses complete the certificate. The computing course not used toward the core requirements may be used toward the elective credit hours. A grade of "C" (2.00 on a 4.00 scale) or higher is required for all courses used toward the certificate.

Required Courses -- 6 credit hours

BIO 312 / PHI 320: Bioethics (HUAD OR HU) or BIO 316 / HPS 330: History of Biology: Conflicts and Controversies (HUAD OR H) or BIO 317 / HPS 323: History of Science II (HUAD OR HU & H) or BIO 318 / HPS 331: History of Medicine (HUAD OR HU & H) or BIO 416 / HPS 410: Biomedical Research Ethics (L) (3)
BIO 439: Computing for Research or BIO 440 / MBB 440: Functional Genomics (3)

Electives -- 9 credit hours

BIO 355 / MAT 355 / MBB 355: Introduction to Computational Molecular Biology (CS) (3)
BIO 411: Quantitative Methods in Conservation and Ecology (4)
BIO 415: Statistical Models for Biology (QTRS OR CS) (4)
BIO 439: Computing for Research (3)
BIO 440 / MBB 440: Functional Genomics (3)
BIO 479: Data Analysis and Visualization in R (3)
BIO 494: Computational Genomic Analysis (3)
BIO 494: Data Analysis in Neuroscience (3)
BIO 498: Programming for biologists (3)
BME 494: Systems Biology of Disease (3)
BMI 311: Modeling Biomedical Knowledge (3)
BMI 312: Modeling Biomedical Data (3)
BMI 330: Topics in Translational Bioinformatics (3)
DAT 301: Exploring Data in R and Python (4)
GIS 469 / SOC 469: Multivariate Statistics for Social Sciences (3)
GIS 471: Spatial Statistics for Geography and Planning (3)

MAT 353: Mathematics and Cancer (3)
MAT 451: Mathematical Modeling (CS) (3)

If not used as the required computing course, students may include BIO 439 or BIO 440 as a certificate elective.

Prerequisite courses may be needed in order to complete the requirements of this certificate.