BIOINFORMATICS AND COMPUTATIONAL BIOLOGY (BCB)

Courses primarily for undergraduates:

BCB 444: Bioinformatic Analysis
(Cross-listed with BCBIO, BIOL, COM S, CPR E, GEN). (4-0) Cr. 4. F.
Prereq: MATH 165 or STAT 401 or equivalent.
Broad overview of bioinformatics with a significant problem-solving component, including hands-on practice using computational tools to solve a variety of biological problems. Topics include: bioinformatic data processing, Perl programming, genome assembly, database search, sequence alignment, gene prediction, next-generation sequencing, comparative and functional genomics, and systems biology.

BCB 490: Independent Study
Cr. 1-5. Repeatable, maximum of 9 credits. F.S.SS.
Prereq: Permission of instructor

Courses primarily for graduate students, open to qualified undergraduates:

BCB 544: Fundamentals of Bioinformatics
(Cross-listed with COM S, CPR E, GDCB). (4-0) Cr. 4. F.
Prereq: MATH 165 or STAT 401 or equivalent
A practical, hands-on overview of how to apply bioinformatics to biological research. Recommended for biologists desiring to gain computational molecular biology skills. Topics include: sequence analysis, genomics, proteomics, phylogenetic analyses, ontology enrichment, systems biology, data visualization and emergent technologies.

BCB 567: Bioinformatics I (Bioinformatics Algorithms)
(Cross-listed with COM S, CPR E). (3-0) Cr. 3. F.
Prereq: COM S 228; COM S 330; credit or enrollment in BIOL 315, STAT 430
Biology as an information science. A review of the algorithmic principles that are driving the advances in bioinformatics and computational biology.

BCB 569: Bioinformatics III (Structural Bioinformatics)
(Cross-listed with BBMB, COM S, CPR E, GDCB). (3-0) Cr. 3. F.
Prereq: BCB 567, BBMB 316, GEN 409, STAT 430

BCB 570: Bioinformatics IV (Systems Biology)
(Cross-listed with COM S, CPR E, GDCB, STAT). (3-0) Cr. 3. S.
Prereq: BCB 567 or COM S 311, COM S 228, GEN 409, STAT 430

BCB 590: Special Topics
Cr. arr. Repeatable.
Prereq: Permission of instructor

BCB 593: Workshop in Bioinformatics and Computational Biology
(1-0) Cr. 1. Repeatable. F.S.
Current topics in bioinformatics and computational biology research. Lectures by off-campus experts. Students read background literature, attend preparatory seminars, attend all lectures, meet with lecturers.

BCB 598: Cooperative Education
Cr. R. Repeatable. F.S.SS.
Prereq: Permission of the program chair
Off-campus work periods for graduate students in the field of bioinformatics and computational biology.

BCB 599: Creative Component
Cr. arr.

Courses for graduate students:

BCB 660: Selected Topics in Bioinformatics and Computational Biology
(3-0) Cr. 1-4. Repeatable, maximum of 4 times. F.S.SS.
Prereq: Permission of Instructor
Topics of interest in the major research areas of computational molecular biology, including genomics, structural genomics, functional genomics, and computational systems biology.
BCB 690: Student Seminar in Bioinformatics and Computational Biology
Cr. 1. Repeatable. S.
Student research presentations.

BCB 691: Faculty Seminar in Bioinformatics and Computational Biology
(1-0) Cr. 1. Repeatable.
Faculty research series.

BCB 697: Graduate Research Rotation
Cr. arr. Repeatable. F.S.S.
Graduate research projects performed under the supervision of selected faculty members in the Bioinformatics and Computational Biology major.

BCB 699: Research
Cr. arr. Repeatable.