BIOINFORMATICS MINOR

Bioinformatics is a new field of science that results from the application of information sciences to biology. Its goals are to facilitate data storage and retrieval, and the extraction of useful information from biological data.

Requirements

Students wishing a minor in Bioinformatics must take at least 15 credits of the following courses, including at least one course from each of the following four groups. A single course cannot fulfill more than one group requirement. Courses used to satisfy requirements for the student's major may be used to satisfy group requirements.

- For a major requiring credits in a concentration (in addition to core courses) or requiring 12 related credits, only related or concentration credits can be counted towards the 15 credits required in the bioinformatics minor.
- For a major that only stipulates an overall credit requirement, up to 12 credits could be used for the minor.

Group A: Bio-Computing/Computer Science

Course	Title	Credits
MCB 3421	Introduction to Molecular Evolution and Bioinformatics	3
MCB 3602W		1
MCB 3637	Practical Methods in Microbial Genomics	3
MCB 5429		2
MCB 5430	Analysis of Eukaryotic Functional Genomic Data	3
MCB 5472		3
EEB 4100	Big Data Science for Biologists	4
EEB 4230W	Methods of Ecology	4
EEB 5348	Population Genetics	4
EEB 5350	Molecular Systematics	2
CSE 2102	Introduction to Software Engineering	3
CSE 3500	Algorithms and Complexity	3
CSE 3502	Theory of Computation	3
CSE 3800/BME 4800	Bioinformatics	3
CSE/BME 3810	Computational Genomics	3
CSE 4102	Programming Languages	3
CSE 4701	Principles of Databases	3

Group B: Data Banks/Statistics

Course	Title	Credits
STAT 2215Q	Introduction to Statistics II	3
STAT 3025Q	Statistical Methods	3
STAT 3375Q & STAT 3445	Introduction to Mathematical Statistics I and Introduction to Mathematical Statistics II (both courses must be taken to satisfy this group requirement)	6
CSE 4701	Principles of Databases	3

Group C: Protein Structure/Biochemistry

Course	Title	Credits
MCB 2000	Introduction to Biochemistry	4
MCB 3010	Biochemistry	5
MCB 3421	Introduction to Molecular Evolution and Bioinformatics	3
MCB 4009	Structure and Function of Biological Macromolecules	3
PNB 6420		3

Group D: Genetics

Course	Title	Credits
MCB 2400 or MCB 2410	Human Genetics Genetics	3
MCB 3201	Gene Expression	3
MCB 3412	Genetic Engineering and Functional Genomics	3
MCB 3413	Concepts of Genetic Analysis	4
MCB 3602W		1
MCB 3617	Molecular Biology and Genetics of Prokaryotes	4
MCB 3637	Practical Methods in Microbial Genomics	3
MCB 5429		2
EEB 5300	Practical Genomics in Ecology and Evolution	3
EEB 5348	Population Genetics	4

The following courses can be counted towards the 15-credit requirement, if approved by a member of the bioinformatics oversight committee:

Course	Title	Credits
MCB 3895	Special Topics	1-6
MCB 3899	Independent Study	1-6
MCB 4896	Undergraduate Research	1-6
MCB 4996	Honors Undergraduate Research	1-6
EEB 3899	Independent Study	1-6
EEB 5895	Investigation of Special Topics	1-6
PNB 3299	Independent Study	1-6
CSE 4095	Special Topics in Computer Science and Engineering	1-6
CSE 4099	Independent Study in Computer Science and Engineering	1-4

The minor is offered jointly by the College of Engineering and the College of Liberal Arts and Sciences. For the Bioinformatics minor, contact Dr. Ion Mandoiu at ion@engr.uconn.edu or Dr. J. Peter Gogarten at gogarten@uconn.edu.