Computational Biology (CMPBIO)

Courses

CMPBIO 98BC Berkeley Connect in Computational Biology 1 Unit

Terms offered: Fall 2017, Fall 2016, Spring 2016
Berkeley Connect is a mentoring program, offered through various academic departments, that helps students build intellectual community. Over the course of a semester, enrolled students participate in regular small-group discussions facilitated by a graduate student mentor (following a faculty-directed curriculum), meet with their graduate student mentor for one-on-one academic advising, attend lectures and panel discussions featuring department faculty and alumni, and go on field trips to campus resources. Students are not required to be declared majors in order to participate. Course may be repeated.
Berkeley Connect in Computational Biology: Read More [+]
Rules & Requirements

Repeat rules: Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 1 hour of discussion per week

Additional Details

Subject/Course Level: Computational Biology/Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

Instructor: Nielsen

Berkeley Connect in Computational Biology: Read Less [-]

CMPBIO 175 Introduction to Computational Biology and Precision Medicine 3 Units

Terms offered: Not yet offered
Computational biology is an interdisciplinary field that develops and/or applies computational methods including bioinformatics to analyze large collections of biological data such as genomic data with a goal of making new predictions or discoveries. Precision medicine is an emerging approach for human disease treatment and prevention that takes into account individual variability in genes, environment, and lifestyle for each person. Computational biology and bioinformatics tools are critical for advancing precision medicine. This survey course introduces computational tools for the analysis of genomic data and approaches to understanding and advancing precision medicine.
Introduction to Computational Biology and Precision Medicine: Read More [+]
Hours & Format

Summer: 6 weeks - 12 hours of lecture per week

Additional Details

Subject/Course Level: Computational Biology/Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Introduction to Computational Biology and Precision Medicine: Read Less [-]

CMPBIO 198BC Berkeley Connect in Computational Biology 1 Unit

Terms offered: Fall 2017, Fall 2016, Spring 2016
Berkeley Connect is a mentoring program, offered through various academic departments, that helps students build intellectual community. Over the course of a semester, enrolled students participate in regular small-group discussions facilitated by a graduate student mentor (following a faculty-directed curriculum), meet with their graduate student mentor for one-on-one academic advising, attend lectures and panel discussions featuring department faculty and alumni, and go on field trips to campus resources. Students are not required to be declared majors in order to participate. Course may be repeated.
Berkeley Connect in Computational Biology: Read More [+]
Rules & Requirements

Repeat rules: Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 1 hour of discussion per week

Additional Details

Subject/Course Level: Computational Biology/Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

Instructor: Nielsen

Berkeley Connect in Computational Biology: Read Less [-]

CMPBIO 201 Classics in Computational Biology 3 Units

Terms offered: Fall 2015, Fall 2014, Fall 2013
Research project and approaches in computational biology. An introducton to the diverse ways biological problems are investigated computationally through critical evaluation of the classics and recent peer-reviewed literature. This is the core course required of all Computational Biology graduate students.
Classics in Computational Biology: Read More [+]

Rules & Requirements

Prerequisites: Acceptance in the Computational Biology Phd program; consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 1 hour of lecture and 2 hours of discussion per week

Additional Details

Subject/Course Level: Computational Biology/Graduate

Grading: Letter grade.

Classics in Computational Biology: Read Less [-]

CMPBIO C256A Human Genome, Environment and Human Health 3 Units

Terms offered: Not yet offered
This introductory course will cover basic principles of human/population genetics and molecular biology
relevant to understanding how data from the human genome are being used to study disease and other
health outcomes. The latest designs and methods for genome-wide association studies and other
approaches to identify genetic variants, environmental risk factors and the combined effects of gene and
environment important to disease and health will be presented. The application of biomarkers to define
exposures and outcomes will be explored. The course will cover recent developments in genomics,
epigenomics and other 'omics', including applications of the latest sequencing technology and
characterization of the human microbiome.
Human Genome, Environment and Human Health: Read More [+]

Rules & Requirements

Prerequisites: Introductory level biology course. Completion of introductory biostatistics and
epidemiology courses strongly recommended and may be taken concurrently

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Computational Biology/Graduate

Grading: Letter grade.

Instructors: Barcellos, Holland

Also listed as: PB HLTH C256A

Human Genome, Environment and Human Health: Read Less [-]

CMPBIO C256B Genetic Analysis Method 3 Units

Terms offered: Not yet offered
This introductory course will provide hands-on experience with modern wet laboratory techniques and computer analysis tools for studies in molecular and genetic epidemiology and other areas of genomics in human health. Students will also participate in critical review of journal articles. Students are expected to understand basic principles of human/population genetics and molecular biology, latest designs and methods for genome-wide association studies and other approaches to identify genetic variants, environmental risk factors and the combined effects of gene and environment important to human health. Students will learn how to perform DNA extraction, polymerase chain reaction and methods for genotyping, sequencing, and cytogenetics.
Genetic Analysis Method: Read More [+]
Rules & Requirements

Prerequisites: Introductory level biology course. Completion of introductory biostatistics and epidemiology courses strongly recommended and may be taken concurrently with permission. PH256A is a requirement for PH256B; they can be taken concurrently

Hours & Format

Fall and/or spring: 15 weeks - 2-2 hours of lecture and 1-3 hours of laboratory per week

Additional Details

Subject/Course Level: Computational Biology/Graduate

Grading: Letter grade.

Instructors: Barcellos, Holland

Also listed as: PB HLTH C256B

Genetic Analysis Method: Read Less [-]

CMPBIO 290 Special Topics - Computational Biology 1 - 4 Units

Terms offered: Spring 2018, Spring 2016, Spring 2015
A graduate seminar class in which students closely examine recent computational methods in molecular and systems biology, for example for modeling mechanisms related to the regulation of gene expression and/or high-throughput sequencing data. The course will focus on computational methodology but will also cover relevant and interesting biological applications.
Special Topics - Computational Biology: Read More [+]
Rules & Requirements

Prerequisites: Graduate standing in EECS, MCB, Computational Biology or related fields; or consent of the instructor

Repeat rules: Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 1-3 hours of lecture per week

Additional Details

Subject/Course Level: Computational Biology/Graduate

Grading: Letter grade.

Instructor: Yosef

Special Topics - Computational Biology: Read Less [-]

CMPBIO 293 Doctoral Seminar in Computational Biology 2 Units

Terms offered: Spring 2018, Fall 2017, Spring 2017
This one-year interactive seminar builds skills, knowledge and community in computational biology for first year PhD and second year Designated Emphasis students. Topics covered include concepts in human genetics/genomics, laboratory methodologies and data sources for computational biology, workshops/instruction on use of various bioinformatics tools, critical review of current research studies and computational methods, preparation for success in the PhD program and career development. Faculty members of the graduate program in computational biology and scientists from other institutions will participate. Topics will vary each semester.
Doctoral Seminar in Computational Biology: Read More [+]
Hours & Format

Fall and/or spring: 15 weeks - 2 hours of seminar per week

Additional Details

Subject/Course Level: Computational Biology/Graduate

Grading: Letter grade.

Doctoral Seminar in Computational Biology: Read Less [-]

CMPBIO 294A Introduction to Research in Computational Biology 2 - 12 Units

Terms offered: Fall 2017, Fall 2016, Fall 2015
Closely supervised experimental or computational work under the direction of an individual faculty member; an introduction to methods and research approaches in particular areas of computational biology.
Introduction to Research in Computational Biology: Read More [+]

Rules & Requirements

Prerequisites: Standing as a Computational Biology graduate student

Repeat rules: Course may be repeated for credit.

Hours & Format

Fall and/or spring: 15 weeks - 2-20 hours of laboratory per week

Additional Details

Subject/Course Level: Computational Biology/Graduate

Grading: Letter grade.

Introduction to Research in Computational Biology: Read Less [-]

CMPBIO 294B Introduction to Research in Computational Biology 2 - 12 Units

Terms offered: Spring 2018, Spring 2017, Spring 2016
Closely supervised experimental or computational work under the direction of an individual faculty member; an introduction to methods and research approaches in particular areas of computational biology.
Introduction to Research in Computational Biology: Read More [+]

Rules & Requirements

Prerequisites: Standing as a Computational Biology graduate student

Repeat rules: Course may be repeated for credit.

Hours & Format

Fall and/or spring: 15 weeks - 2-20 hours of laboratory per week

Additional Details

Subject/Course Level: Computational Biology/Graduate

Grading: Letter grade.

Introduction to Research in Computational Biology: Read Less [-]

CMPBIO 295 Individual Research for Doctoral Students 1 - 12 Units

Terms offered: Spring 2018, Summer 2017 10 Week Session, Spring 2017
Laboratory research, conferences. Individual research under the supervision of a faculty member.
Individual Research for Doctoral Students: Read More [+]

Rules & Requirements

Prerequisites: Acceptance in the Computational Biology PhD program; consent of instructor

Repeat rules: Course may be repeated for credit.

Hours & Format

Fall and/or spring: 15 weeks - 1-20 hours of laboratory per week

Summer: 10 weeks - 1.5-30 hours of laboratory per week

Additional Details

Subject/Course Level: Computational Biology/Graduate

Grading: Letter grade.

Individual Research for Doctoral Students: Read Less [-]

CMPBIO 477 Introduction to Programming for Bioinformatics Bootcamp 1.5 Unit

Terms offered: Prior to 2007
The goals of this course are to introduce students to Python, a simple and powerful programming language that is used for many applications, and to expose them to the practical bioinformatic utility of Python and programming in general. The course will allow students to apply programming to the problems that they face in the lab and to leave this course with a sufficiently generalized knowledge of programming (and the confidence to read the manuals) that they will be able to apply their skills to whatever projects they happen to be working on.
Introduction to Programming for Bioinformatics Bootcamp: Read More [+]

Rules & Requirements

Prerequisites: This is a graduate course and upper level undergraduate students can only enroll with the consent of the instructor

Hours & Format

Summer: 3 weeks - 40-40 hours of workshop per week

Additional Details

Subject/Course Level: Computational Biology/Other professional

Grading: Offered for satisfactory/unsatisfactory grade only.

Introduction to Programming for Bioinformatics Bootcamp: Read Less [-]