Neuroscience (NEUROSC)

Courses

Expand all course descriptions [+]Collapse all course descriptions [-]
NEUROSC C217D Biological and Public Health Aspects of Alzheimer's Disease 3 Units
Terms offered: Spring 2017, Spring 2015, Spring 2014, Spring 2013
This course will survey the field of Alzheimer's disease (AD) from a biological and public health perspective by reading original research papers in the fields of medicine, neuroscience, and epidemiology. The course will begin with a historical survey of the concept of AD, followed by a description of clinical and neuropathological features. Subsequent classes will cover the genetics and molecular biology of the disease, as well as biomarkers, epidemiology, risk factors, treatment, development of new diagnostic approaches, and ethical issues. The course will also serve as a model for the analysis of complex diseases with multiple genetic and environmental causes, and late onset neurodegenerative diseases. The course will also serve as a model for the analysis of complex diseases with multiple genetic and environmental causes and late-onset neurodegenerative disease.
Biological and Public Health Aspects of Alzheimer's Disease: Read More [+] Rules & Requirements
Prerequisites: Graduate standing or consent of instructor
Hours & Format
Fall and/or spring: 15 weeks - 2 hours of seminar per week
Additional Details
Subject/Course Level: Neuroscience/Graduate
Grading: Letter grade.
Instructor: Jagust
Also listed as: PB HLTH C217D
Biological and Public Health Aspects of Alzheimer's Disease: Read Less [-]

NEUROSC C261 Cellular and Developmental Neurobiology 3 Units
Terms offered: Fall 2023, Fall 2022, Fall 2021
This course covers the molecular/cellular basis of neuron excitability (membrane potentials, action potential generation and propagation, ion channels), synaptic transmission and plasticity, sensory receptor function, and developmental neurobiology.
Cellular and Developmental Neurobiology: Read More [+] Hours & Format
Fall and/or spring: 15 weeks - 3 hours of lecture per week
Additional Details
Subject/Course Level: Neuroscience/Graduate
Grading: Letter grade.
Also listed as: MCELLBI C261
Cellular and Developmental Neurobiology: Read Less [-]

NEUROSC C262 Circuit and Systems Neurobiology 3 Units
Terms offered: Spring 2023, Spring 2022, Spring 2021
Advanced coverage of current research problems in systems-level neuroscience, and experimental and computational techniques used for these studies.
Circuit and Systems Neurobiology: Read More [+] Rules & Requirements
Repeat rules: Course may be repeated for credit without restriction.
Hours & Format
Fall and/or spring: 15 weeks - 3 hours of lecture per week
Additional Details
Subject/Course Level: Neuroscience/Graduate
Grading: Letter grade.
Instructor: Jagust
Also listed as: MCELLBI C262
Circuit and Systems Neurobiology: Read Less [-]
NEUROSC C265 Neural Computation 3 Units
Terms offered: Prior to 2007
This course provides an introduction to the theory of neural computation. The goal is to familiarize students with the major theoretical frameworks and models used in neuroscience and psychology, and to provide hands-on experience in using these models. Topics include neural network models, supervised and unsupervised learning rules, associative memory models, probabilistic/graphical models, and models of neural coding in the brain.

Prerequisites: Calculus, differential equations, basic probability and statistics, linear algebra, and familiarity with high level programming languages such as Matlab

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

Additional Details

Subject/Course Level: Neuroscience/Graduate
Grading: Letter grade.
Instructor: Olshausen

Also listed as: VIS SCI C265

NEUROSC 290 Neuroscience First Year Research 2 Units
Terms offered: Spring 2017, Spring 2016, Spring 2015
Seminar on the presentation and evaluation of research results for first-year neuroscience graduate students. During the first weeks, faculty present their research (FERPS); later, students present individual research results and evaluate their own and each other’s work. Course enrollment limited to 15.

Prerequisites: Graduate standing in Neuroscience Graduate Group; concurrent enrollment in 291A-291B

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

Additional Details

Subject/Course Level: Neuroscience/Graduate
Grading: Letter grade.
Instructor: Ngai

NEUROSC 290A Neuroscience Research Design and Analysis 1 Unit
Terms offered: Fall 2023, Fall 2022, Fall 2021
Professional core competency training for graduate students involved in neuroscience research at Berkeley. Includes survey of modern research methods, and professional skills including principles of experimental design and data reproducibility.

Prerequisites: Restricted to 1st year PhD students in Neuroscience-related PhD Programs (Neuroscience PhD Program, MCB PhD Program, Psychology PhD Program, Biophysics PhD Program), or permission of instructor

Hours & Format
Fall and/or spring: 8 weeks - 1.5 hours of lecture per week

Additional Details

Subject/Course Level: Neuroscience/Graduate
Grading: Offered for satisfactory/unsatisfactory grade only.
Instructors: Feldman, Neuroscience Graduate Advisors, Guest faculty speakers

NEUROSC 290B Neuroscience Career Skills 1 Unit
Terms offered: Spring 2023, Spring 2022, Spring 2021
Professional core competency training for graduate students involved in neuroscience research at Berkeley. Includes training in giving scientific presentations, scientific writing, and project management.

Prerequisites: Restricted to 1st year PhD students in Neuroscience-related PhD Programs (Neuroscience PhD Program, MCB PhD Program, Psychology PhD Program, Biophysics PhD Program), or permission of instructor

Hours & Format
Fall and/or spring: 15 weeks - 1.5 hours of seminar per week

Additional Details

Subject/Course Level: Neuroscience/Graduate
Grading: Offered for satisfactory/unsatisfactory grade only.
Instructors: Feldman, Neuroscience Graduate Advisors, Guest faculty speakers

NEUROSC 290C Neuroscience Communication 1 Unit
Terms offered: Spring 2019, Spring 2018, Spring 2017
Professional core competency training for graduate students involved in neuroscience research at Berkeley. Includes survey of modern research methods, and professional skills including principles of experimental design and data reproducibility.

Prerequisites: Restricted to 1st year PhD students in Neuroscience-related PhD Programs (Neuroscience PhD Program, MCB PhD Program, Psychology PhD Program, Biophysics PhD Program), or permission of instructor

Hours & Format
Fall and/or spring: 8 weeks - 1.5 hours of lecture per week

Additional Details

Subject/Course Level: Neuroscience/Graduate
Grading: Offered for satisfactory/unsatisfactory grade only.
Instructors: Feldman, Neuroscience Graduate Advisors, Guest faculty speakers

NEUROSC 291A Neuroscience Advanced Research 1 Unit
Terms offered: Spring 2017, Spring 2016, Spring 2015
Seminar on the presentation and evaluation of research results for first-year neuroscience graduate students. During the first weeks, faculty present their research (FERPS); later, students present individual research results and evaluate their own and each other’s work. Course enrollment limited to 15.

Prerequisites: Graduate standing in Neuroscience Graduate Group; concurrent enrollment in 291A-291B

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

Additional Details

Subject/Course Level: Neuroscience/Graduate
Grading: Letter grade.
Instructor: Ngai

Also listed as: VIS SCI C265

NEUROSC 291B Neuroscience Advanced Research 1 Unit
Terms offered: Spring 2017, Spring 2016, Spring 2015
Seminar on the presentation and evaluation of research results for first-year neuroscience graduate students. During the first weeks, faculty present their research (FERPS); later, students present individual research results and evaluate their own and each other’s work. Course enrollment limited to 15.

Prerequisites: Graduate standing in Neuroscience Graduate Group; concurrent enrollment in 291A-291B

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

Additional Details

Subject/Course Level: Neuroscience/Graduate
Grading: Letter grade.
Instructor: Ngai

Also listed as: VIS SCI C265

NEUROSC 291C Neuroscience Advanced Research 1 Unit
Terms offered: Spring 2017, Spring 2016, Spring 2015
Seminar on the presentation and evaluation of research results for first-year neuroscience graduate students. During the first weeks, faculty present their research (FERPS); later, students present individual research results and evaluate their own and each other’s work. Course enrollment limited to 15.

Prerequisites: Graduate standing in Neuroscience Graduate Group; concurrent enrollment in 291A-291B

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

Additional Details

Subject/Course Level: Neuroscience/Graduate
Grading: Letter grade.
Instructor: Ngai

Also listed as: VIS SCI C265

NEUROSC 291D Neuroscience Advanced Research 1 Unit
Terms offered: Spring 2017, Spring 2016, Spring 2015
Seminar on the presentation and evaluation of research results for first-year neuroscience graduate students. During the first weeks, faculty present their research (FERPS); later, students present individual research results and evaluate their own and each other’s work. Course enrollment limited to 15.

Prerequisites: Graduate standing in Neuroscience Graduate Group; concurrent enrollment in 291A-291B

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

Additional Details

Subject/Course Level: Neuroscience/Graduate
Grading: Letter grade.
Instructor: Ngai

Also listed as: VIS SCI C265

NEUROSC 291E Neuroscience Advanced Research 1 Unit
Terms offered: Spring 2017, Spring 2016, Spring 2015
Seminar on the presentation and evaluation of research results for first-year neuroscience graduate students. During the first weeks, faculty present their research (FERPS); later, students present individual research results and evaluate their own and each other’s work. Course enrollment limited to 15.

Prerequisites: Graduate standing in Neuroscience Graduate Group; concurrent enrollment in 291A-291B

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

Additional Details

Subject/Course Level: Neuroscience/Graduate
Grading: Letter grade.
Instructor: Ngai

Also listed as: VIS SCI C265
NEUROSC 291A Neuroscience Introduction to Research 4 - 12 Units
Terms offered: Fall 2023, Fall 2022, Fall 2021
Closely supervised, intensive laboratory experimental research under the
direction of an individual faculty member. For first-year neuroscience
graduate students, this course will provide an introduction to experimental
methods and research approaches in the different areas of neuroscience.
Grade awarded on completion of sequence, which includes 3 ten-week
laboratory rotations spread out over the fall and spring semesters.
Neuroscience Introduction to Research: Read More [+]

Rules & Requirements
Prerequisites: Graduate standing in Neuroscience Graduate Group;
consent of instructor

Hours & Format
Fall and/or spring: 15 weeks - 20-40 hours of laboratory per week

Additional Details
Subject/Course Level: Neuroscience/Graduate

Grading: Letter grade. This is part one of a year long series course. A
provisional grade of IP (in progress) will be applied and later replaced
with the final grade after completing part two of the series.

Instructor: Ngai

Neuroscience Introduction to Research: Read Less [-]

NEUROSC 291B Neuroscience Introduction to Research 4 - 12 Units
Terms offered: Spring 2023, Spring 2022, Spring 2021
Closely supervised, intensive laboratory experimental research under
the direction of an individual faculty member. For first-year neuroscience
gradient students, this course will provide an introduction to experimental
methods and research approaches in the different areas of neuroscience.
Grade awarded on completion of sequence, which includes 3 ten-week
laboratory rotations spread out over the fall and spring semesters.
Neuroscience Introduction to Research: Read More [+]

Rules & Requirements
Prerequisites: Graduate standing in Neuroscience Graduate Group;
consent of instructor

Hours & Format
Fall and/or spring: 15 weeks - 20-40 hours of laboratory per week

Additional Details
Subject/Course Level: Neuroscience/Graduate

Grading: Letter grade. This is part two of a year long series course. Upon
completion, the final grade will be applied to both parts of the series.

Instructor: Ngai

Neuroscience Introduction to Research: Read Less [-]

NEUROSC 292 Neuroscience Graduate Research 3 - 12 Units
Terms offered: Fall 2023, Summer 2023 10 Week Session, Spring 2023
For graduate students in neuroscience in their second or later years.
During the summer, the course will count for 3-6 units. Individual research
under faculty supervision. In this course each graduate student conducts
basic thesis and dissertation research after successful completion of
the first-year laboratory rotation, Neuroscience 291A-291B. Laboratory
work provides the basis for students' thesis research, preparation for the
preliminary examination, and continued progress toward completion of
Ph.D. dissertation.

Neuroscience Graduate Research: Read More [+]

Rules & Requirements
Prerequisites: Graduate standing in the Neuroscience Graduate Group;
advanced approval from instructor

Repeat rules: Course may be repeated for credit without restriction.

Hours & Format
Fall and/or spring: 15 weeks - 10-40 hours of laboratory per week
Summer: 10 weeks - 15-60 hours of laboratory per week

Additional Details
Subject/Course Level: Neuroscience/Graduate

Grading: Letter grade.

Neuroscience Graduate Research: Read Less [-]
NEUROSC 293 Neuroscience Research Review 2 Units
Terms offered: Spring 2009, Fall 2008, Spring 2008
For graduate students in neuroscience in their second or later years. Two hours of seminar per week which complements the individual laboratory work under faculty supervision. Seminar will review current scientific literature and discuss original research performed by faculty, postdoctoral fellows, scientists, and graduate students in individual faculty laboratories.

Prerequisites: Concurrent enrollment in 292; graduate standing in the neuroscience program; consent of instructor

Repeat rules: Course may be repeated for credit without restriction.

NEUROSC 294 Neuroscience Graduate Student Presentation Seminar 1 Unit
Terms offered: Fall 2023, Spring 2023, Fall 2022
This course will encompass three important facets of graduate education in the neurosciences: 1) Development of research presentation skills: fourth and fifth year graduate students will present seminars based on their ongoing dissertation research. Preparation and critiques of presentations will focus on organization of conceptual issues, data presentation, and summarization. 2) Exposure to current topics in neuroscience: faculty speakers will present on current issues and topics relevant to scientific development in the neurosciences, such as technical methods, application of analytical and statistical techniques, and organization and preparation of competitive fellowship and other grant applications. 3) Seminar preparation: a crucial aspect of graduate education is the interaction of students with invited seminar speakers - who are often leaders in their fields. A selected number of class meetings will be devoted to the review of scientific articles published by upcoming seminar speakers and/or other related articles in the field.

Grading: Letter grade.

NEUROSC 299 Seminars 1 - 3 Units
Terms offered: Summer 2022 3 Week Session, Spring 2022, Fall 2021
Course that focuses on topical subjects in specific fields of neuroscience.

Repeat rules: Course may be repeated for credit without restriction.

Grading: Letter grade.