



Vision: A Platform for Linking Circuits, Behavior & Perception

June 16 - July 1, 2023 Applications Due: March 1, 2023

Instructors

Farran Briggs, University of Rochester Medical Center
Joseph Carroll, Medical College of Wisconsin Eye Institute
Kristina Nielsen, Johns Hopkins University

The purpose of this course is to bring together students and faculty for in-depth and high level discussions of modern approaches for probing how specific cell types and circuits give rise to defined categories of visual perception and behavior. It is also designed to address novel strategies aimed at overcoming diseases that compromise visual function.

The visual system is the most widely studied sensory modality. In recent years, emerging technological advances have encouraged exploration of visual function across a wider array of model systems using diverse experimental approaches. For example, the tractability of genetic manipulation and imaging in mice has led to an increase in the use of the mouse as a model system for exploring how specific cells and circuits underlie visual and multi-sensory processing and cognition. Additionally, advances in genetic and viral methods have enabled similar cell- and circuit-centric explorations of visual function in a variety of model systems including insectivores, carnivores, and primates. Finally, the field of visual neuroscience is at the forefront of technological and therapeutic advances in clinical/translational work to restore visual function in humans.

The time is ripe to build on the classic paradigms and discoveries of visual system structure, function and disease, in order to achieve a deep, mechanistic understanding of how neuronal populations encode sensory information, how different circuits can induce defined categories of percepts and behaviors, and how modulations of cells and circuits may restore visual function in the diseased brain."

Course Lecturers

David Brainard, University of Pennsylvania
Holly Bridge, University of Oxford, Great Britain
Edward Callaway, The Salk Institute for Biological Studies
Chinfei Chen, Boston Children's Hospital, Harvard Medical School
Emily Cooper, University of California, Berkeley
Deniz Dalkara, Institut de la Vision / INSERM
Felice Dunn, UCSF
Greg Field, UCLA
David Fitzpatrick, Max Planck Florida Institute for Neuroscience
Jonathan Horton, University of California, San Francisco
Sabine Kastner, Princeton
Richard Krauzlis, National Eye Institute; National Institutes of Health
David Leopold, National Institute of Mental Health
Carol Mason, Columbia University
Tirin Moore, Stanford University
J. Anthony Movshon, New York University
Jay Neitz, University of Washington Medical School
Anitha Pasupathy, University of Washington
Martina Poletti, University of Rochester Medical Center
Jenny Read, Newcastle University, United Kingdom
Anna Roe, Zhejiang University, China
Austin Roorda, University of California, Berkeley
Marc Sommer, Duke University
W. Marty Usrey, University of California, Davis
Melanie Wilke, Georg August University Göttingen, Germany