

APPROVED SPONSORS LIST FOR BIOL W3500 – Independent Study 2021

Columbia University - Morningside Heights Biological Sciences

[Dr. Peter Andolfatto:](#)

Evolutionary processes shaping genome evolution and adaptations

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Cell biology of the neuron

[Dr. Chloe Bulinski:](#)

Function of the cytoskeleton during the cell cycle and differentiation

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Developmental genetics of identified nerve cells in *C. elegans*

[Dr. Larry Chasin:](#)

Pre-mRNA splicing; molecular and computational approaches

[Dr. Lars Dietrich:](#)

Bacterial models for biological shape and pattern formation

[Dr. Laura Duvall:](#) -

Regulation of innate behavior in blood-feeding arthropods

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Cellular mechanisms and signal transduction of olfaction

[Dr. Jellert Gaublomme:](#)

Create and apply multi-omic technologies to study biomolecular and cellular interactions

[Dr. Iva Greenwald:](#) -

Vulva development in *C. elegans*

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Epigenetic regulation of gene expression in *Drosophila*

[Dr. Oliver Hobert:](#)

Genetic programs that control neural development in *C. elegans*

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Structural biology of transmembrane transport

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Epigenetic regulation of the genome

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Regulation of Protein Production Dynamics: RNA Binding Proteins and the Ribosome Code

[Dr. Daniel Kalderon:](#)

Hedgehog signaling in *Drosophila* development

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Neurobiology of vocal communication and sexual differentiation

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mRNA transcription, splicing, and processing

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Growth factor regulation of gene expression

[Dr. Ozgur Sahin:](#)

Molecular Biophysical analysis of single molecule interactions

[Dr. Brent Stockwell:](#)

Diagramming disease networks with chemical and biological tools

[Dr. Simon Tavare:](#)

Statistics: stochastic computation, approximate Bayesian computation, data science, computational biology, statistical bioinformatics

[Dr. Saeed Tavazoie:](#)

Principles of cellular adaptation

[Dr. Raju Tomer:](#)

Molecular, optical and data analytic methods for multi-scale understanding of complex biological systems

[Dr. Liang Tong:](#)

Protein structure of enzymes involved in fatty acid metabolism

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Evolution of cell types and circuits in the vertebrate brain

[Dr. Jian Yang:](#)

Structure, function and regulation of ion channels

[Dr. Rafael Yuste:](#)

Function of the cortical microcircuit

Chemistry

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Ribosome biochemistry

[Dr. Ruben Gonzalez:](#)

Ribosomal protein synthesis

[Dr. Laura Kaufman:](#)

Cancer cell invasion in novel biopolymer gels

[Dr. Ann McDermott:](#)

NMR studies of enzyme mechanism and membrane protein structure

[Dr. Wei Min:](#)

Imaging of lipid storage and metabolism in *C. elegans*

Computer Science

[Dr. Itsik Pe'er:](#)

Computational methods in human genetics

Psychology

[Dr. Don Hood:](#)

Physiological bases of visual processes

[Dr. Rae Silver:](#)

Neurobiological basis of circadian rhythms

[Dr. Sarah Woolley:](#)

Neural basis and behavior of social communication

Barnard College - Morningside Campus

Biological Sciences

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Genetic programs of axial tissue development

[Dr. Jonathan Snow:](#)

How honey bees fight off microbes?

Columbia University – Health Sciences Campus

Biochemistry and Molecular Biophysics

[Dr. Joachim Frank:](#)

Cryo-electron microscopy and 3D reconstruction of protein biosynthesis

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Retrovirus replication; tyrosine kinases & signal transduction

[Dr. Maxwell Gottesman:](#)

Transcription termination in *E. coli* and bacteriophage

[Dr. Eric Greene:](#)

DNA recombination and repair

[Dr. Laura Landweber:](#)

RNA-mediated epigenetics and genome reorganization during development

[Dr. Richard Mann:](#)

Homeotic gene function and their downstream targets in *Drosophila*

Genetics & Development

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The effect of "DNA methylation in sex cells"

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Genetics of mouse kidney development

[Dr. Laura Johnston:](#)

Cell cycle control and growth during development

[Dr. Rodney Rothstein:](#)

Yeast genetics and cellular responses to DNA damage in cancer

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The circadian clock's regulation of immune function in *Drosophila*

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Drosophila developmental genetics

Medicine

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Pathogenesis of vasodilatory shock

Microbiology and Immunology

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Plasmodium falciparum malaria parasite biology

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Inflammation and immune response

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Cytokine signal transduction and its role in the immune response

Neuroscience

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Olfaction

[Dr. Randy Bruno:](#)

Neuronal networks in the rodent whisker-barrel system

[Dr. Christine Denny:](#)

Molecular mechanisms underlying learning and memory

[Dr. James Goldman:](#)

Neuron and glial cell fate determination

[Dr. Kenneth Miller:](#)

Modeling of brain circuitry, and development

[Dr. Serge Przedborski:](#)

Mechanisms in neurodegeneration

[Dr. David Sulzer:](#)

Calcium signal in response to NMDA receptor activation in a dopamine neuron axonal growth cone.

Otolaryngology

[Dr. Gloria Su:](#)

Head & neck carcinoma and pancreatic ductal adenocarcinoma

Pathology & Cell Biology

[Dr. Asa Abeliovich:](#)

Neurodegeneration and the life cycle of dopamine neurons

[Dr. Julie Canman:](#)

Molecular regulation and mechanics of cell division

[Dr. Peter Canoll:](#)

Glioma cell migration and proliferation

[Dr. Tae-Wan Kim:](#)

Molecular mechanisms in Alzheimer's disease

[Dr. Yinghui Mao:](#)

Cell cycle, division and chromosome movement

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Axon guidance and synaptogenesis

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Molecular control of the development of the urogenital system

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Preclinical therapeutics in genetically engineered mouse models of pancreatic cancer

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Role of the actin cytoskeleton

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Biomarker discovery and gene expression profiling

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Role of cytoskeleton, cell cycle machinery, and proteases in neuronal degeneration

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Glycoproteins and glycolipids

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Molecular mechanisms of neuronal death

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Retinal degeneration

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Human Nervous system development

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Mechanism of cell signaling during eye development

[Dr. Shan Zha:](#)

DNA break repair

Pharmacology

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Bacterial induction of cytokine signaling in epithelial cells

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Cardiac ion channel function and autonomic signaling cascades

[Dr. Steven Siegelbaum:](#)

Ion channel structure and function

Physiology and Cell Biophysics

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Mechanisms of dendritic morphogenesis and patterning

[Dr. Ning Qian:](#)

Computational modeling of neural systems and visual psychophysics

Psychiatry

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Neurobiology of learning and memory

[Dr. Vincent Ferrera:](#)

Neural basis of selective attention and visually guided behavior

[Dr. Matthias Quick:](#)

Molecular events underlying Na⁺-coupled transport

[Dr. Christophe Anacker:](#)

Neurobiological mechanisms underlying individual differences in vulnerability to stress-related psychiatric disorders and their treatment

New York State Psychiatric Institute

[Dr. Alex Dranovsky:](#)

Neuro-circuitry of psychiatric disease

[Dr. Jay Gingrich:](#)

Genetic dissection of complex signaling pathways in schizophrenia