



Neuroscience Orientation

Fall 2022

USCDornsife

Dana and David Dornsife
College of Letters, Arts and Sciences

University of Southern California

Neuroscience Orientation 2022

- Welcome & Introduction
- Advising
- Research
- Awards and Fellowships
- Honors Program
- Student Organizations

Neuroscience Executive Committee

Program Directors

- Director – Prof. **David McKemy**
 - Professor of Biological Sciences, Neurobiology
 - mckemy@usc.edu
- Deputy Director – Prof. **John Monterosso**
 - Associate Professor of Psychology
 - johnrmon@usc.edu

Faculty Representatives

- Prof. Andrew Hires – Assistant Professor – Neurobiology
- Prof. Jonas Kaplan – Assistant Professor - Psychology

NEUR and CPNS Program

- The **Neuroscience and Computational Neuroscience Program** is not directly affiliated with a specific Department
 - There is no “Neuroscience Department”.
- Interdisciplinary program jointly administered through the **Neurobiology Section of BISC** and **Psychology**.
- Faculty located primarily in the **Hedco Neurosciences Building (HNB)** and **Seeley G. Mudd (SGM) Building**.
- Go to <https://dornsife.usc.edu/usc-neuroscience/>

Three ways to “do” Neuroscience at USC

Bachelor of Science in Neuroscience

- Broad background in life sciences.
- Very solid preparation for advanced training in medical/health careers and graduate school.

Bachelor of Arts in Neuroscience

- More flexibility.
- You can go deeper into a particular sub-discipline
- Sample a wider array of advanced courses.

Bachelor of Science in Computational Neuroscience

- Simulation modeling, artificial intelligence/robotics, neuroinformatics (lots of coding!)
- Solid preparation for advanced training/careers in engineering, “big data” fields

https://dornsife.usc.edu/usc-neuroscience/undergraduate_curriculum/

1st Year Advising

○ Courtney Bushman

- Assistant Director
- Dornsife First-Year Advising
- USC Dornsife College of Letters, Arts and Sciences
- courtnbb@usc.edu
- Phone: (213) 740-2534
- <https://dornsife-usc-insight.symplicity.com/students/index.php>
- Location: GFS 320

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Academic Advising

To make an advising appointment, visit:

Pablo Lopez: <http://bit.ly/uscpablol>
(CPNS Last Names: A-J) (NEUR Last Names: A-L)

Brandi Taylor: <https://bit.ly/uscbbrandita>
(CPNS Last Names: K-Z) (NEUR Last Names: M-Z)

Location: AHF 107



- 30 minute, 1-on-1 advising appointments
- Course recommendations
- Course Plans
- Lift Advising Holds
- Degree Audits
- Connect to Campus Resources
- “At Risk” Grade Outreach
- Academic Policy Navigation

Career Pathways

Programs



In fulfilling our mission to align students' academic interests with individual career and professional pathways, we work in collaboration with faculty, Alumni, and campus partners, to offer four key programs that serve the USC Dornsife student body:



[Gateway Internship Program](#)



[Major 2 Career](#)



[Work-It Series](#)



[Sophomore Seminars](#)

More info at:

<https://dornsife.usc.edu/careerpathways>

Research

Neuroscience is a huge, incredibly active, field of research.

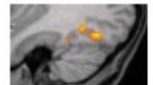
Over 100 labs on campus are doing neuroscience research of one kind or another.

<https://ngp.usc.edu/faculty-by-research-area/>

More than 100 USC Neuroscience faculty conduct basic, translational and clinical research in areas ranging from the molecules that determine neuronal function to the mechanisms that underlie human cognition and emotion. Our training faculty members are interdisciplinary by nature, and thus may be listed in several topic areas. Find out more about ongoing Neuroscience research at USC in each of the following major topic areas:

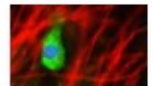
Systems, Cognitive and Behavioral

Research in Systems and Cognitive Neuroscience at USC has the overall goal of investigating the function and structural organization of neural circuits during development and in adults.



Cellular and Molecular Neurobiology

Training faculty investigate the mechanisms that shape neural signaling by studying how molecules work together in space and time to regulate the functional properties of neurons. They also utilize advanced cellular and molecular imaging and bioassay techniques to decipher the mechanisms through which neurons and glia mature and interact in building functional circuits.



Development, Plasticity and Repair

Research in developmental neurobiology, plasticity and nervous system repair examines the underlying molecular and cellular mechanism of typical development and environment-induced plasticity, as well as factors that result in atypical assembly of circuits and systems and problems with plasticity. Studies focus on understanding the decisions that stem cells make to generate neuronal and non-neuronal diversity, to the factors that control neuronal migration, synaptogenesis, dendritic growth and remodeling, and adaptive responses due to genetic and environmental challenges.



Computational Neuroscience and Neural Engineering

NGP Training faculty members are heavily engaged in research in Computational Neuroscience and Neural Engineering. There is a strong emphasis on computer-based and other advanced technologies to study information processing functions of the brain.



Neurobiology of Disease, Translational Research and Aging

Translational research in the Neuroscience Graduate Program at USC refers to a broad interdisciplinary approach in understanding fundamental mechanisms involved in the Neurobiology of Diseases. We have a large number of faculty that have at least part of their research program engaged in understanding how to translate basic discoveries to inform the clinical challenges of human nervous system disorders and diseases. Studies are done that impact the lives of children, adolescents and adults.



Why get involved in research as an undergraduate?

Be a part of something:

- Labs are small communities of students, technicians, and faculty members.

Learning experience:

- Develop “wet lab” and/or computational skills.
- Learn how to think like a scientist.
- Determine whether a career in research is for you.

Career development:

- Letters of recommendation.
- Honors.
- Publications.

How do I get involved in research as an undergraduate?

Find a lab that is doing work you're interested in:

- Talk to students who are already doing research.
- Visit faculty/lab research pages.
- Go to the **Neuroscience Graduate Program Symposium**
- BISC Student Research Exchange site which has listings of Faculty job posts.
 - https://uscdornsife.usc.edu/secure/bisc_research_ex/search.cfm
- **Synapse** introduction document.

Get involved:

- Email the PI (Principle Investigator) of the lab you're interested in.
- Try to provide a sense of why you're interested in their lab.
- Treat your meeting with the PI like a job interview!

Get support (\$\$\$):

- Ng Family, Neuroscience, Gateway/McNair, Provost's Fellowship, SURF/SOAR, WISE

How do I get involved in research as an undergraduate?

○ BRIDGE UNDERGRADUATE MENTORSHIP PROGRAM (BUMP)

- Designed connect undergraduate students with research interests in fields connected to human health with an experienced researcher (possibly a graduate student, postdoc, staff or faculty member) who is willing to serve as a professional mentor.
- <https://dornsife.usc.edu/bridge-institute/bump/>

○ BRIDGE UNDERGRADUATE SCIENCE PROGRAM (BUGS)

- Undergraduate students in the program pair with a USC faculty member and often collaborate with graduate student or postdoctoral mentors to perform hands-on research in USC research labs.
- <https://dornsife.usc.edu/bridge-institute/bugs/>

○ NEUR 490: Directed Research

- Juniors/Seniors standing interested in earning credit for research
 - GPA > 3.0.
- Students may choose to earn 2 or 4 units of credit, the units awarded being dependent on hours per week spent in the lab
 - 4 hours/week in the lab for each unit of credit.
- Directed Research can be in any USC Department if the project is Neuroscience-related.
 - May require approval.

<https://dornsife.usc.edu/usc-neuroscience/undergraduate-research/>

Neuroscience Honors Program

Offers students exceptional opportunities to participate in scientific research, culminating in the experience of writing an Honors thesis summarizing their completed research.

- Learn to prepare written and oral presentations.
- Exposure to a broad range of neuroscience research
 - designation on transcripts of *Bachelor of Arts/Science in Neuroscience with Honors*

Requirements:

- NEUR 490 Research (4 total units)
- NEUR 494 Honors Thesis
- NEUR 493 Honors Seminar (1 unit x 2 classes)
 - Students give short oral presentations based on research talks given by visiting neuroscientists from around the world.
 - Other students and faculty ask questions, and then give constructive feedback on the presentation.
 - Enhance your skills of critical analysis and communication.
- Submit thesis
- Graduate with GPA ≥ 3.5
- https://dornsife.usc.edu/usc-neuroscience/honors_program/

Neuroscience Awards and Scholarships

- ***Brian Phillip Rakusin Neuroscience Scholarship Award***
 - Established in memory of Brian Phillip Rakusin, USC's first Neuroscience Major. Recipients of this award must have sophomore or junior standing and remain on campus for a year following receipt of the award.
- ***Neuroscience Outstanding Student of the Year Award***
 - Candidates for this award will typically be graduating seniors (although students at all levels are eligible) and must demonstrate outstanding achievements and aspirations in the field of Neuroscience.

Dornsife Neuroscience Fellowships

- **Dornsife Neuroscience Experiential Learning Fellowship**
 - Each undergraduate student funded by the program will receive a stipend in the amount of \$1000 to support research specifically in the Dornsife College.
- **Ng Family Fellowships in Computational Neurosciences**
 - Each undergraduate student funded by the program will receive a stipend in the amount of \$2000 to support research, specifically in the Dornsife College.

<https://dornsife.usc.edu/usc-neuroscience/events-and-awards/>

Undergraduate Student Organizations

Synapse

InterAxon

Nu Rho Psi

NeuroGenesis

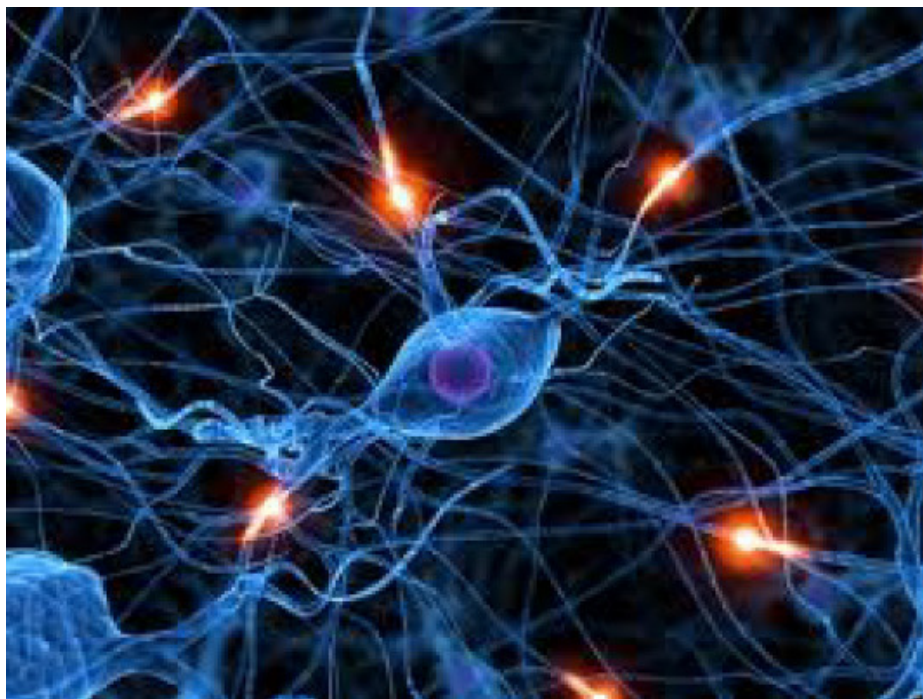


For more info you can contact us at nurhopsi@usc.edu

NeuroGenesis

Neuroscience Book Club and Speaker Series

Questions?





Welcome to USC Neuroscience!

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