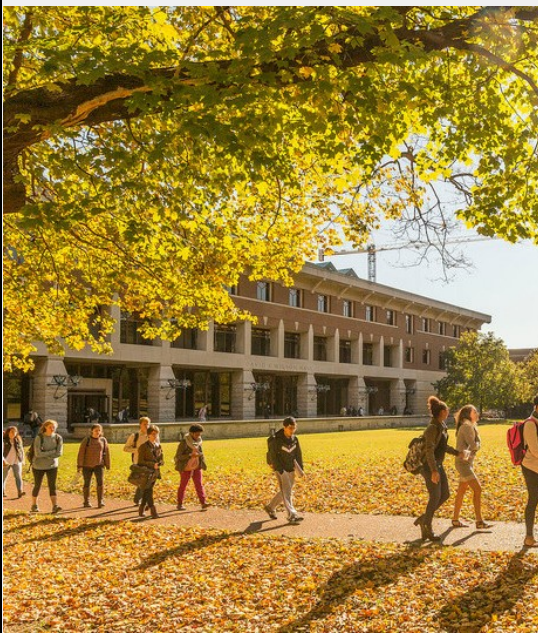


Neuroscience Program

The Interdisciplinary Program in Neuroscience for Undergraduates at Vanderbilt

August 2018 Newsletter

Welcome back! As a way to keep students and faculty informed of significant events and happenings, we provide a newsletter at the start of each semester. Enjoy!



Lisa Monteggia to lead Vanderbilt Brain Institute

Leading neuroscientist Lisa Monteggia has been named the Barlow Family Director of the [Vanderbilt Brain Institute](#).

“Lisa Monteggia is a path-breaking neuroscientist, a dedicated educator and mentor, and a highly collaborative colleague. She has a proven ability to reach across discipline lines to advance research on some of the most challenging questions and issues in neuroscience today,” Provost Susan Wente said. “Her innovative research and leadership are a tremendous match for the strength and excellence that the Vanderbilt Brain Institute has long exemplified. I look forward to working with her as a leader and as a colleague to continue to advance Vanderbilt’s

Neuromajors Club

Greetings Neuromajors, The Neuromajors Club is excited to work with all of you guys next semester. This club focuses on improving the lives of neuroscience majors at Vanderbilt, whether it be through hosting events to help with class scheduling or having distress sessions during finals. Our first event is an ice cream social on September 13th, where you can meet fellow Neuromajors! We have plenty of amazing events coming up next semester including an event that looks at all the career paths a person with a neuroscience degree can go towards as well as a fun brunch at Dr. Smith's house. Also, keep a lookout for a new Neuromajors shirt to improve your wardrobe with! If you are not on the list serve and want to hear more about these fun events, add us on Anchorlink!

--- Andrea Zhang & Francine Erfe,
Neuromajors Club Presidents



Ice Cream Social Event

Hosted by the NeuroMajors Club

**SAVE THE DATE: Thursday,
September 13 from 6:00-8:00pm**
at **Wilson Hall Lawn**, weather
permitting

New & Upcoming Courses

PSY-PC 3190: Language and the Brain

Instructor: Dr. James Booth
Tue/Thu 11:00am-12:15pm
Payne Building 108

**Can count towards the Systems Integrative
Neuroscience requirement*

outstanding research, teaching and training in neuroscience discovery.”

Monteggia studies the neural mechanisms underlying antidepressant efficacy. Her work to identify the proteins in the brain targeted by the drug ketamine has opened the door to new possibilities for the development of drugs that mimic ketamine's antidepressant benefits without its dangerous side effects ([Nature, July 2017](#)). She also studies the role of Methyl-CpG-binding protein 2 (MeCP2), the gene linked to autism spectrum disorder Rett syndrome, on synaptic plasticity and behavior. Her research encompasses molecular, cellular, behavioral and electrophysiological approaches using mouse models.

To read the full article, click [HERE](#).



Lisa Monteggia

Milaana

Seeking recipients, donors, or representatives

Milaana is a new non-profit organization started by a Vanderbilt graduate who was a Neuroscience major. The inspiration for this non-profit came from the large number of Vanderbilt students who are recipients of financial aid, but who are still struggling to afford the basic tools necessary for a successful education. Through the organization's website, parents and outside donors will be connected directly to such students, providing funds for items like laptops, textbooks, and even additional funding for gaps in tuition. Milaana's goal is to take finances out of the equation for all

Course Description: Learn brain anatomy underlying language. Understand neuroscientific methods used to study language such as neuroimaging and lesion approaches. Explore brain basis of the lexical processing of nouns, verbs and morphology, and of the comprehension of sentences. Investigate the neural substrate and behavioral manifestation of language disorders such as aphasia. Examine the cortical machinery of reading and writing, and their disorders such as dyslexia and dysgraphia. Develop the ability to critically evaluate the literature.

Course Objectives:

- Understand basic neuroanatomy of the brain
- Understand current methods of cognitive neuroscience
- Understand the neurocognitive basis of disorders of language, reading and spelling
- Understand how words are represented in the brain, including nouns, verbs and their morphology
- Understand how sentences are comprehended by the brain
- Be able to evaluate and critique empirical literature

Coming Spring 2019 – PSY 3892: Special Topics in Neuroscience - The Changing Brain

Instructor: Dr. Kari Hoffman
Tue/Thu 9:35-10:50am
Location TBA

How are neural circuits in the brain modified in response to experience – *how do we learn* – and how are those modifications ingrained in the brain for future use – *how do we remember what we've learned*? This course focuses on what is known about the molecular and genetic pathways, synaptic machinery, neural ensemble changes and circuit/network dynamics that play roles in neural plasticity. We will consider some of the neural machinery that can lead to adaptation or habituation, long-term plasticity, knowledge representation with learning and expertise, memory consolidation and reformatting during sleep and with practice, use-dependent reorganization and recovery of function following damage. We will emphasize the methods available to measure plasticity and its relation to memory, as well as the limitations inherent in each approach. Beyond introducing some of the major findings in the field, we will discuss why these findings are of immense practical importance.

NEW NSC 3861 PRE-

students and make everyone's education seamless and efficient.

This organization can make a significant difference in a large number of lives and can strengthen the Vanderbilt community as a whole. Since we are a newer non-profit that is in the development phase, we need help getting this organization off the ground. In order to launch this at Vanderbilt and make it successful we need you and your families! We are seeking people who can be one or more of the following:

- A recipient
- A donor (you or your family)
- A member of our board and campus representative

Please [email](#) Kavita Prasad if you believe you are any of the above options. Also, feel free to reach out for any additional questions or just want to learn more!

Help us bridge the gap and make our Vanderbilt community even stronger!

--- Kavita Prasad, Founder

REQUISITE: Introduction to Research Seminar

Fall 2018: 5:00-6:00pm,
1220MRBIII

This short seminar will be offered once per semester; attendance is a requirement before you can register for the first required research course (NSC 3861). So, if you're starting research next semester or in a year, come now and get it out of the way!

The purpose of this seminar is to go over the requirements of the two required Neuroscience research courses NSC 3861 and 3862, learn how to register, discuss strategies for finding and approaching labs, and to answer any questions you may have about the process, including doing research and completing the requirements of the course.

Pizza and a sign-in sheet will be available so we can keep record of those who have completed this requirement.



Faculty Spotlight Dr. David Zald

Cornelius Vanderbilt Professor of Psychology
Professor of Psychiatry,
Director of the Interdisciplinary Program in Neuroscience for Undergraduates,
Director of the Affective Neuroscience Laboratory

Q: How did you get into Neuroscience?

A: It took quite a while for my interest to develop. When I was in college, I was more interested in music, film video and near eastern studies than science. Only around the time that I was getting ready to graduate did my interest in psychology start to develop. I took the equivalent of a psychology major during the spring and fall after completing my bachelor's degree, and that included a physiological psychology class that I really liked. Around that time, I read a paper which was showing hypermetabolism of the orbitofrontal cortex in patients with obsessive-

Honors Program

The 2017-2018 Neuroscience Honors class was the largest in the college!

Below are some of the Honors thesis titles submitted by the graduated cohort:

- *Efficacy of M1 PAM VU0453595 in Reducing Negative Symptoms and Cognitive Deficits in a Mouse Model of Schizophrenia* | **Ryan Hanson**
- *A Detailed Analysis of the Distribution of Neurons and Other Cells Across the Cortical Surface of Both Hemispheres of a Squirrel Monkey* | **Andrew Hey**
- *Anatomical Correlates of Function in Primate Visual Cortex* | **Anna Huang**
- *Electroencephalographic examination of sleep/wake architecture, arousal and seizure activity in Grm7-/- mice* | **Annalise McDonald**
- *JNK Signaling as a Contributor to L-DOPA Induced Dyskinesia* | **Sanders Pair**
- *The Role of the p75 Neurotrophin Receptor in Response to Selinexor* | **Kavita Prasad**
- *In Vivo Efficacy of mGlu5 Negative Allosteric Modulators in the CKp25 Mouse Model of Alzheimer's Disease* | **Deepa Rajan**
- *Segmental Demyelination in Charcot-Marie-Tooth Disease Type 4J* | **Vignesh Ravi**
- *Links Between Eye Gaze Patterns and Vocal Development in Infants at High and Low Risk for Autism Spectrum Disorder* | **Pooja Santapuram**
- *Investigating the effect of chronic*

compulsive disorder. I stated looking into what was known about the orbitofrontal cortex, and realized there were huge gaps in what was known. At that point I was hooked. I knew that I wanted to study how different brain areas functioned and how dysfunction of neural circuits might contribute to the expression of psychopathology. Almost 3 decades later, these questions still fascinate me.

Q: What do you like most about teaching at Vanderbilt?

A: Being a professor at Vanderbilt is really meaningful for me because I was born here. My father was a professor here when I was little, so my roots on this campus run deep. I think the environment allows students to really interact with their professors both in and out of the class room. That is not only good for students, but is also good for professors, because the questions that students ask often force you to think about ideas in new and different ways.

Q: Do you have any advice for students wanting to continue in this field?

A: Learning outside of the classroom is as important as learning in the classroom. That is one of the reasons we emphasize having students join research labs. But in the end, you are the person responsible for determining what you need to learn. This is different than a Medical School model in which the curriculum is largely dictated to you. In science, we all end up developing our own unique path to learn the specific combination of topics and methods necessary to solve the problems we are attempting to answer. That is part of what makes the field of neuroscience so fun.

manganese on behavioral phenotypes in the YAC128 prodromal mouse model of Huntington's Disease | Preethi Umashanker

If you're interested in the Honors program, be on the lookout for meeting announcements to come later in the semester. For more general information about the program's requirements, please visit the [Honors page](#) on our website.

Are you interested in having your research mentor be your Neuroscience advisor?

We are encouraging students who are working in labs with A&S faculty to recruit their PI to becoming their major advisor. Not only will this create a better distribution among the current Neuroscience advisors, but will also allow for a more personal student-advisor relationship.

If you or your mentor have any questions or concerns, feel free to reach out to our [Program Office](#) for more information.

Noteworthy Events

Wednesday, September 5, 2018

Seminars in Neuroscience: Brain, Mind, and Society, "The Evolution of Rhythm Between Biology and Culture" Andrea Ravnani, Ph.D., 4:10pm, 1220MRBIII

Thursday, September 13, 2018

Neuromajors Club Ice Cream Social, 6:00-8:00pm, Wilson Hall Lawn (weather permitting)

Wednesday, September 19, 2018

Introduction to Neuroscience Research Seminar

5:00-6:00pm, 1220MRBIII

Attending this seminar is a pre-requisite for NSC 3861

Details about these and future events will be announced on the neuromajors listserv or are

listed on the right banners of our [website](#).

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