

Neuroscience Program

The Interdisciplinary Program in
Neuroscience for
Undergraduates at Vanderbilt

August 2019 Newsletter



Message from the Neuroscience Program Office:

Welcome back! As a way to keep students and faculty informed of significant events, new courses, and to highlight the accomplishments of our students, we provide a newsletter at the start of each semester. We hope you have a great semester!

–Sincerely, David Zald, Ph.D.



VU honors Class of 2019's Founder's Medalists

Vanderbilt recognized exceptional graduating students from each of its undergraduate and professional schools during this spring's Commencement ceremonies. Chancellor Nicholas S. Zeppos presented the scholars with [Founder's Medals](#) in honor of the university's founder Cornelius Vanderbilt, a

NEW AND NOTEWORTHY COURSES

THIS FALL Special Topics in Cellular and Molecular Neuroscience: Neurological Disease with Dr. Meredyth Wegener

An exploration of the biological basis of several neurological diseases and their treatments. covers underdevelopment disorders, traumatic brain injury, stroke, migraine, Alzheimer's, Huntington's, and Parkinson's Disease. Discussion of each disease will include an overview of the acceptable knowledge, current patient experiences, mechanisms of pharmacological treatments, and ongoing research. Specifically, we will examine the cellular and molecular basis of each disease and consider how this influences symptoms and treatments. We will evaluate the current research and interpret data from neuroscience primary literature.

Special Topics in Cellular and Molecular Neuroscience: GABA with Dr. Meredyth Wegener

A thorough investigation of the role GABA plays in neural function and dysfunction. discussions of GABA receptor structure and how it relates to disorders such as epilepsy, insomnia, and anxiety. Investigation of primary literature and how it informs our current understanding of inhibition in the nervous system.

COMING THIS SPRING: Special Topics in Cellular and Molecular Neuroscience: Neurophysiology with Dr. Meredyth Wegener

Examination of electrical mechanisms with the nervous system, specifically focused on the level of a single neuron or single synapse. Development and exploration of quantitative approaches which are fundamental to neurophysiology. Topics will include principles of electric current flow exploited by the nervous system; the basis of the resting potential of neurons; the structure and function of voltage-gated and neurotransmitter-

tradition dating back to 1877.

Ethan Chervonski - Class of 2019, Neuroscience and MHS Major - was this year's Founder's Medalist for the College of Arts and Science. Since his freshman year, Ethan has worked in the lab of Assistant Professor of Cell and Developmental Biology Rebecca Ihrie, researching how different populations of stem cells contribute to tumor development in the brain. He also worked with Professor of History Marshall Eakin, learning how health is impacted by politics, the criminal justice system, poverty and other issues in Brazil. Ethan plans to combine his research training in neuroscience with insights from the social sciences and humanities to develop patient-centered care as a physician. He will spend the next year doing post-baccalaureate research in the Ihrie Lab, after which he plans to apply to medical school.

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

Honors Program

Congratulations to the Honors class of 2019 for successfully defending their theses in the Spring!

Below are the Honors thesis titles submitted by the students:

- Inter-Item Distraction and Verbal Recall Dynamics of Categorized Lists, **Blake A. Andreou**
- Classification of Autism Spectrum Disorder from Structural and Functional Magnetic Resonance Imaging Using Machine Learning, **Andrew Bender**
- Maintenance of Cell Signaling Differences Between Neural Stem Cell Subpopulations in the V-SVZ Niche, **Madelyn K Bollig**
- Linking Activation of Innate Immune System and Drug-reward Learning, **Betty Chang**
- Investigating the Positional Patterning of the Ventricular-Subventricular Zone, **Ethan Chervonski**
- Visual Plasticity in Cochlear Implant Users, **Andrea DeFreese**
- Characterizing seizures, thermoregulation, and anxiety-like behaviors in Gabrg2+/Q390X, a mouse model for Dravet Syndrome, **Subhash Gutti**
- Behavioral Effects of Novel Partial and Full mGlu5 NAMs in Animal Models of Cocaine Use Disorder, **Nathan Iyer**
- Implicating the Hippocampal Declarative Memory System in Gesture Production During Oral Description of Remote and

gated ion channels; generation and propagation of action potentials; circuit model of a neuron.



Faculty Spotlight Welcome to Vanderbilt, Dr. Meredyth Wegener! *Senior Lecturer in Neuroscience*

Please be sure to give Dr. Wegener a warm welcome as she joins us this semester from the University of Pittsburgh. Her office is located in 324 Wilson Hall if you would like to stop by and introduce yourself.

Q: How did you get into Neuroscience?

A: All the questions I had about the world and other people came back to what was happening in the brain. Psychology classes brought up more fascinating questions but I wanted more details about biological mechanisms. I started doing research over the summer and applied to the Neuroscience Major at University of Virginia.

Q: What are you looking forward to the most about teaching at Vanderbilt?

A: I look forward to getting to know the students at Vanderbilt and designing challenging classes that reflect their interests.

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

A: The best thing you can do is get

Current Spatial Layouts and Navigation,
Meghan A. Kennedy

- Subclinical Cardiac Dysfunction, Brain Structure, and Cognitive Outcomes, **Hailey A. Kresge**
- Production frequency and cosine similarity effects in the feature verification paradigm, **Alice Li**
- The Effect of Striatal Receptor Density on Individual Differences in D2 Receptor BP, and Age-Related Correlations of Striatal-Cortical Binding Ratios, **Aniruddha Shekara**
- Consequences of Cell-type Specific Itg β 3 Deletion on Social Behavior, **Jacob C. Steins**
- Elucidating the Role of ASK1 Phosphorylation in Cell Survival Following Oxidative Stress, **Dominique Szymkiewicz**
- Universal scaling of degree of cerebellar folding with clade-specific spatial patterns, **Annaleigh York**

For more general information about the program's requirements, please visit the [Honors page](#) on our website.



The **NEUROMAJORS CLUB** hopes that you had a wonderful summer break! If you want to learn more about our organization and what we do to support neuroscience majors, please come check us out at the **Student Involvement Fair this Friday from 3-5pm!**

We have several exciting events coming up this semester, including an ice cream social where you can socialize with other neuroscience majors and professors, events where you can get the inside scoop on neuroscience classes at Vanderbilt, and many more! We are so excited for this upcoming year, and hope you are too! If you are not on the listserv and want to hear more about these events, add us on Anchorlink!

--- Francine Erfe
Neuromajors Club President

involved in neuroscience research. It will give you the most detailed understanding of what working in neuroscience entails. Also, if you try a lab and the community or techniques are not a good fit for you, try another. Being in science is all about persistence and one research experience may not be enough to know whether neuroscience is for you.



The Interdisciplinary Program in Neuroscience for Undergraduates at Vanderbilt University Receives *INSIGHT Into Diversity Magazine's* 2019 Inspiring Programs in STEM Award

Vanderbilt's Undergraduate Neuroscience Program received the 2019 Inspiring Programs in STEM Award from *INSIGHT Into Diversity* magazine, the largest and oldest diversity and inclusion publication in higher education. The Inspiring Programs in STEM Award honors colleges and universities that encourage and assist students from underrepresented groups to enter the fields of science, technology, engineering, and mathematics (STEM). Vanderbilt University will be featured, along with 49 other recipients, in the September 2019 issue of *INSIGHT Into Diversity* magazine.

Inspiring Programs in STEM Award winners were selected by *INSIGHT Into Diversity* based on efforts to inspire and encourage a new generation of young people to consider careers in STEM through mentoring, teaching, research, and successful programs and initiatives.

"We know that many STEM programs are not always recognized for their success, dedication, and mentorship for underrepresented students," says Lenore Pearlstein, owner and publisher of *INSIGHT Into Diversity*

#HumansofVanderbilt

Vanderbilt's #HumansofVanderbilt Facebook series featured one of our own – rising senior, Atlee Witt

Q: What brought you to Vanderbilt?

A: I honestly had not heard of Vanderbilt before coming here - I only applied because my counselor told me to check it out. When I visited I realized it was the only school I toured where all of the undergraduate students smiled at me as a prospective student.

Q: What would you say is the most impactful experience you've had at Vanderbilt?

A: Being a part of discussions with administration regarding tour guides and compensation - it's been a big opportunity for me to not only think about issues bigger than myself and bigger than myself as a student, but also to think towards the future and how things impact future generations at Vanderbilt.

Q: As you are looking forward, what do you think Vanderbilt has provided for you in terms of your personal development?

A: To question things. I came in and never really questioned how I'd been brought up or my values or beliefs, and at Vanderbilt you're surrounded by so many different people that you have to question what you believe. You have to question what you've always been told, and it lets you build on your beliefs and change your perspective. It's been really challenging, but a great growth opportunity, and I want to take that into my professional life when I'm an adult - to continuously question things. [READ MORE](#)

Atlee Witt

Class of 2020
Neuroscience and MHS Major

Article originally posted on Facebook by Social 'Dores Douglas Finnegan and Ally Bireley

Do you like Neuroanatomy?

Dr. David Zald is looking for one or two students to help verify that MRI images are labelled correctly. If interested, please [email](#) Dr. Zald for more details.

magazine. “We want to honor the schools and organizations that have created programs that inspire and encourage young people who may currently be in or are interested in a future career in STEM. We are proud to honor these programs as role models to other institutions of higher education and beyond.”

A call for nominations for this award was announced in April 2019. Kendall Burdick, BA'19, nominated Vanderbilt University for the STEM Award.

For more information about the 2019 Inspiring Programs in STEM Award and *INSIGHT Into Diversity* magazine, visit insightintodiversity.com.



Flying on to Medical School: Riley Ferguson, BA'19

[READ MORE](#)

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.

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