

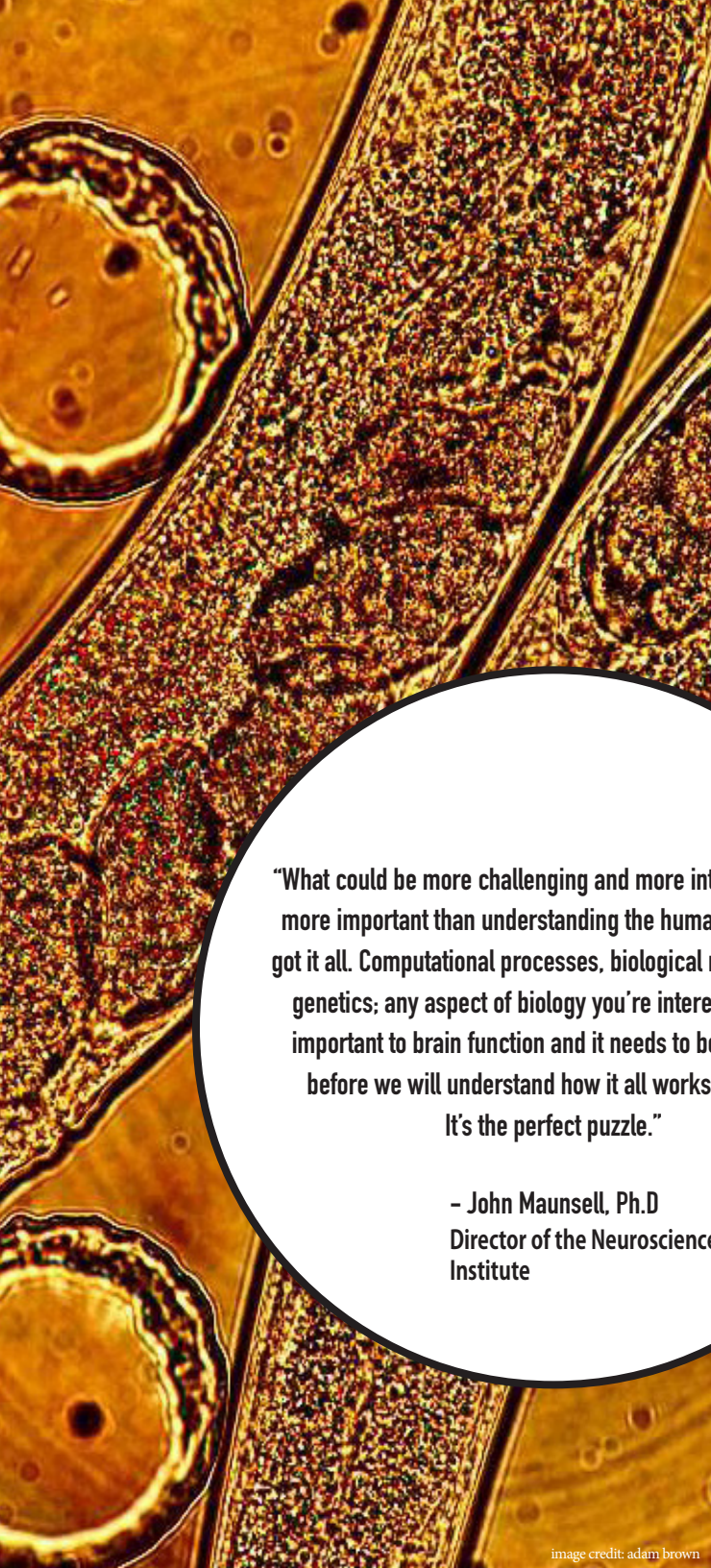


image credit: margoliash lab

UNDERGRADUATE MAJOR
IN NEUROSCIENCE



The University of Chicago
**NEUROSCIENCE
INSTITUTE**

A detailed microscopic image of brain tissue, showing various cellular structures and neural pathways in shades of brown and orange.

Neuroscience is the multidisciplinary study of nervous systems and their relationship

“What could be more challenging and more interesting and more important than understanding the human brain? It’s got it all. Computational processes, biological mechanisms, genetics; any aspect of biology you’re interested in, it’s important to brain function and it needs to be mastered before we will understand how it all works together. It’s the perfect puzzle.”

– John Maunsell, Ph.D
Director of the Neuroscience
Institute

The sheer scope of neuroscience necessitates numerous scientific approaches to achieve an understanding of sensation, perception, cognition, and behavior. Consequently, students in the major are provided with access to a wealth of scientific variety, including biology, psychology, physics, chemistry, computer science, engineering, mathematics, statistics, and medicine.

Neuroscience faculty at the University of Chicago have expertise in all of these areas and are distributed across the Biological Sciences, Social Sciences, and Physical Sciences Divisions.

The course of study in the undergraduate major in neuroscience provides students with the background and skills appropriate to pursue a diverse set of careers. These include established neuroscience career paths in academia, medicine, and the pharmaceutical industry, as well as new emerging careers in machine learning and analytics to name but a few.

Part of the general requirements of the Neuroscience major include a fundamental sequence of four courses. The Neuroscience Fundamental sequence, NSCI 20100-20140 provides students with a broad knowledge of neuroscience.

NSCI 20101 - Foundations of Neuroscience

NSCI 20111 - Cellular Neurophysiology

NSCI 20130 - Systems Neuroscience

NSCI 20140 - Sensation and Perception

To better understand neural responses, the fundamental sequence introduces vertebrate and invertebrate neural anatomy, physiology, as well as the development of sensory and motor control systems.

Collectively, the fundamental sequence prepares students to take full advantage of the breadth of neuroscience electives and other related opportunities associated with the major.

Minor in Neuroscience

The minor in Neuroscience is intended to provide neuroscientific literacy for students whose primary interest lies in other fields.

Minor in Computational Neuroscience

This minor is intended to provide literacy in computational neuroscience and is for students who are interested in the application of mathematical approaches to neural systems.

More detailed information is available :
<http://collegecatalog.uchicago.edu/thecollege/neuroscience/>

BACHELOR OF ARTS

BA Neuroscience Majors complete nine core neuroscience courses outside of the general education requirements. Seven elective courses are required to complete their B.A.

BACHELOR OF SCIENCE

B.S Neuroscience Majors complete nine core neuroscience courses outside of the general education requirements. Ten elective courses, in addition to enrollment in faculty supervised research, is required to complete their B.S.

BACHELOR OF SCIENCE W/ HONORS

The BSH program expands on the B.S program requiring additional faculty supervised research and a multi-quarter training course.

Undergraduate Research for Elective Credit

Importantly, the major permits student to receive elective credit for laboratory research in BA, BS, and BSH programs.

Students have an opportunity to transform knowledge learned in the classroom into tangible skills. Under the supervision of neuroscience faculty, students develop valuable scientific techniques and problem-solving skills while learning to function independently in a laboratory setting.

Independent Research

By their third year, students majoring in neuroscience are strongly encouraged to participate in research with a faculty member.

Students can work in a laboratory setting through several mechanisms. Summer research and fellowship opportunities are offered, as well as the potential for paid student research opportunities.

Interested students should do online research, utilize the CCRF resource, and read faculty and lab web pages to get a sense of the kind of research being completed on campus.

College Center for Research and Fellowship

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- Assisting students in finding and applying to research opportunities at the University of Chicago and beyond.
- Helping students find Faculty and research mentors.
- Working with students to navigate and secure funding sources for their research.
- Encouraging and supporting students to present and publish their research.

Summer Research Opportunities

Neuroscience Metcalf

The Metcalf summer research internship provides undergraduates with the opportunity to gain laboratory research experience working with NSCI faculty. This fellowship is competitively awarded to first, second, and third year NSCI majors. Fellows may not register for any classes during this time and will be required to perform 10 weeks of full-time research in their host labs.

DNUFO

The Developmental Neurobiology Undergraduate Fellowship Opportunity (DNUFO) is an undergraduate summer research program designed to facilitate cross-departmental collaboration. This fellowship is competitively awarded to first, second, and third year NSCI majors. DNUFO Fellows will be required to perform 10 weeks of full-time research in their host labs as well as various other responsibilities.

Quantitative Biology

The Quantitative Biology Summer Research Fellowship is an opportunity for students to complete a research project in any field of biology using quantitative tools. Fellows present research that is primarily computational in nature, although students may also engage in experimental data collection to support their aims. Students will take part in a regular student-led seminar with the aim of acquiring new quantitative skills to support their research progress.

College De France

The University of Chicago has partnered with College de France to create a 10-week paid fellowship opportunity for NSCI majors. First, second, and third year students are eligible for this fellowship. During the spring quarter, students will prepare for the summer by reading and studying the methods, findings, and interests of the laboratory that they will join at the Collège de France and the Institut du Cerveau et de la Moelle Epiniere.

"This program gave me the opportunity to advance my ideas and questions in the lab, and ultimately enabled me to conduct my own research on one of my questions! It was a valuable experience that furthered my understanding of what rigorous scientific inquiry should be".

-John Havlik '19



HOW TO FIND A RESEARCH LAB



Road map to a mentor

1. IDENTIFY POTENTIAL FACULTY MENTORS

Visit the faculty page at neuroscience.uchicago.edu to begin your search.

Make a list - Not all faculty will be taking new students so be sure to cast a wide net.

Check out each lab's website - Most labs have their own website but all will have faculty profiles for you to read up on their work.

Still need help identifying? - If you need additional help, contact the CCRF.

2. EDUCATE YOURSELF

Make an educated choice on which lab you would like to join.

Study - Read up on each faculty member's work. Before approaching the P.I. (Principal Investigator aka laboratory head), know something about their lab.

3. WRITE A COVER LETTER

To get to the interview stage, you will need a well written and concise cover letter, generally less than a page in length.

Salutation - Address your letter to Dr. or Prof. regardless of their rank or degree.

State your vitals - Include your year, major, whether you are an Honors Student, and your level of interest in Summer Research

Know your stuff - Tell the faculty member what interests you about their research.

Experience - Write about your past laboratory experience or explain the you are eager to learn.

Goals - Describe your long-term career goals.

Ask - Request to speak with the faculty member about opportunities in their lab.

4. INTERVIEWS

Meet the faculty and let them get to know you.

Prepare - Your diligent research and networking should lead to 3-5 interviews

Practice - Answer the following questions with a friend:

Why do you want to do research?

What is your particular interest in neuroscience?

What are your career goals?

What draws you to this laboratory?

Tell me about your previous research.

GOOD LUCK!

If you are lucky, you will receive more than one offer, speak to the respective laboratory members. Visit the laboratories. Go someplace where you feel comfortable. Comfortable begets productivity.

Study Abroad Program

Those participating in the College-sponsored Fall quarter program on Neuroscience will take 2 Neuroscience courses and 1 Psychology course taught by Chicago faculty at the University of Chicago's Center in Paris. All 3 courses will count toward the Neuroscience major, and the Psychology course may be used in the Psychology major.

Neuroscience majors are encouraged to apply, though the program is open to students of all majors.

NEURO Club

The Neuroscience Education, Undergraduate Research & Outreach (NEURO) Club is a Registered Student Organization (RSO) at the University of Chicago centered on students interested in the field of Neuroscience and in educating the on-campus and surrounding community about Neuroscience.

For upcoming events and other information visit:
www.facebook.com/TheNeuroClub

Meet a Neuroscientist

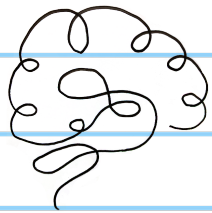
Have lunch with UChicago NSCI faculty and learn about exciting research on campus! Faculty members from across the major will speak informally about their work. If you are interested in getting into research, this is an excellent way to narrow down the type of approaches and topics that are appealing to you.

You can sign up for Lunch With a Neuroscientist on our website.

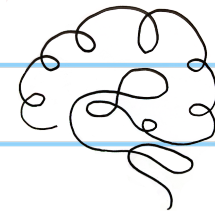
Questions about the major?

Students will have opportunities to meet with the Neuroscience Director and Advisors each quarter to ask questions, get help navigating the curriculum, and learn more about opportunities within the major.

Please see the NSCI undergraduate webpage for more details



F.A.Qs



How do I register for NSCI 29100/2, 29700 research electives?

First, obtain a "Reading & Research form" (R&R) from a student advisor and fill it out with the thesis course 29100/29700. Be sure to include your research description and have a faculty mentor (P.I.) sign off on the R & R form. Submit it to the Neuroscience Institute reception desk, and NSCI administration will review and approve. If approved, you can pick up the Institute's completed form and submit it to the College advising reception desk in Harper Memorial Hall.

(NSCI 2910X must have a new form filled out and approved for every quarter of research you're enrolled in).

I am a BS student but want to take NSCI 29700 research elective. Can I register?

No. Only BA students are able to register for NSCI 29700. BS students must register for Neuroscience Thesis Research (NSCI 29100).

I'm thinking of making a career change into Neuroscience; who can I talk to?

You can email neuromajor@uchicago.edu or come to the quarterly advising meetings. You can also set up one-on-one time with a senior advisor by scheduling time with them through the advising calendar on our site.

Can I get paid for tech work while in a lab when I am enrolled in Neuroscience Thesis Research (NSCI 29100)?

There is a strict rule that you can either receive credit for research or get paid for research. If you're being paid for work in the same lab that you're doing thesis work, you must suspend the paid position while you're enrolled in Neuroscience Thesis Research

Where are you located?

We're located at 5812 S. Ellis ave. Head up to the 4th floor, turn left out of the elevators, and look for Suite P-400. If you have any trouble, please give us a call at 773.702.9802

Notes

