

# NEUROBIOLOGY, B.S.

Neuroscience is the scientific study of the central (brain and spinal cord) and peripheral (nerves in body) nervous system. The neurobiology major at UW–Madison will provide a rigorous education in neuroscience principles that will prepare students for health-related careers (physician, physician assistant, veterinarian, dentist, neuroimaging technician, speech-language pathologist, neuropsychologist, drug rehabilitation counselor, physical therapists), academic careers (college and university faculty, research scientists, lab technician, K-12 teachers), and careers in pharmaceutical and biotech industries, venture capital and scientific consulting firms, medical and scientific journals, intellectual property law, neuroscience-related nonprofit organizations and foundations, and government agencies. UW–Madison is one of the leading universities in the world with more than 90 faculty engaged in neuroscience research and undergraduates will have access to this research faculty in formal classroom environments and through undergraduate research opportunities. Please see the Neurobiology Major (<https://neuromajor.wisc.edu>) website for more information.

## ABOUT THE CURRICULUM

The curriculum is designed to give students a solid foundation in basic biology, chemistry, physics, and mathematics before going on to study neuroscience at the molecular, cellular, systems, and cognitive levels. It is strongly encouraged that students engage in independent research in a neuroscience laboratory on campus. The Neurobiology Major Program Committee is committed to increasing opportunities for all students with interests in neuroscience and helping students accomplish their academic goals at UW–Madison. This major is tailored to attract students from a diverse array of backgrounds. Please see the Neurobiology Major website (<https://neuromajor.wisc.edu>) for more information.

## HOW TO GET IN

The advisors for the Neurobiology Major (<https://neuromajor.wisc.edu/>) are committed to providing students with first-rate guidance through the major to graduation and beyond. Most students are ready to declare a major by the end of the 3rd or 4th semester. **If you are interested in declaring the Neurobiology Major, you must first make an appointment to meet with an advisor.**

See our website (<https://neuromajor.wisc.edu/advising/>) to schedule an appointment.

## REQUIREMENTS

### UNIVERSITY GENERAL EDUCATION REQUIREMENTS

All undergraduate students at the University of Wisconsin–Madison are required to fulfill a minimum set of common university general education requirements to ensure that every graduate acquires the essential core of an undergraduate education. This core establishes a foundation for living a productive life, being a citizen of the world, appreciating aesthetic values, and engaging in lifelong learning in a continually changing world. Various schools and colleges will have requirements in addition to the requirements listed below. Consult your advisor for assistance, as

needed. For additional information, see the university Undergraduate General Education Requirements (<http://guide.wisc.edu/undergraduate/#requirementsforundergraduatetext>) section of the *Guide*.

General Education	<ul style="list-style-type: none"> <li>• Breadth–Humanities/Literature/Arts: 6 credits</li> <li>• Breadth–Natural Science: 4 to 6 credits, consisting of one 4- or 5-credit course with a laboratory component; or two courses providing a total of 6 credits</li> <li>• Breadth–Social Studies: 3 credits</li> <li>• Communication Part A &amp; Part B *</li> <li>• Ethnic Studies *</li> <li>• Quantitative Reasoning Part A &amp; Part B *</li> </ul>
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\* The mortarboard symbol appears before the title of any course that fulfills one of the Communication Part A or Part B, Ethnic Studies, or Quantitative Reasoning Part A or Part B requirements.

## COLLEGE OF LETTERS & SCIENCE DEGREE REQUIREMENTS: BACHELOR OF SCIENCE (B.S.)

Students pursuing a Bachelor of Science degree in the College of Letters & Science must complete all of the requirements below. The College of Letters & Science allows this major to be paired with either the Bachelor of Arts or the Bachelor of Science degree requirements.

### BACHELOR OF SCIENCE DEGREE REQUIREMENTS

Mathematics	Complete two courses of 3+ credits at the Intermediate or Advanced level in MATH, COMP SCI, or STAT subjects. A maximum of one course in each of COMP SCI and STAT subjects counts toward this requirement.
Foreign Language	Complete the third unit of a foreign language.
L&S Breadth	Complete: <ul style="list-style-type: none"> <li>• 12 credits of Humanities, which must include at least 6 credits of Literature; and</li> <li>• 12 credits of Social Science; and</li> <li>• 12 credits of Natural Science, which must include 6 credits of Biological Science and 6 credits of Physical Science.</li> </ul>
Liberal Arts and Science Coursework	Complete at least 108 credits.
Depth of Intermediate/Advanced Coursework	Complete at least 60 credits at the Intermediate or Advanced level.
Major	Declare and complete at least one major.
Total Credits	Complete at least 120 credits.
UW–Madison Experience	Complete both: <ul style="list-style-type: none"> <li>• 30 credits in residence, overall, and</li> <li>• 30 credits in residence after the 86th credit.</li> </ul>
Quality of Work	<ul style="list-style-type: none"> <li>• 2.000 in all coursework at UW–Madison</li> <li>• 2.000 in Intermediate/Advanced level coursework at UW–Madison</li> </ul>

## NON-L&S STUDENTS PURSUING AN L&S MAJOR

Non-L&S students who have permission from their school/college to pursue an additional major within L&S only need to fulfill the major requirements. They do not need to complete the L&S Degree Requirements above.

## REQUIREMENTS FOR THE MAJOR MATH, STATISTICS, CHEMISTRY & PHYSICS

Code	Title	Credits
<b>Mathematics (complete one):</b>		<b>5</b>
MATH 211	Calculus	
MATH 217	Calculus with Algebra and Trigonometry II	
MATH 221	Calculus and Analytic Geometry I	
MATH 275	Topics in Calculus I	
<b>Statistics (complete one):</b>		<b>3</b>
STAT 240	Data Science Modeling I	
STAT 371	Introductory Applied Statistics for the Life Sciences	
STAT/B M I 541	Introduction to Biostatistics	
<b>General Chemistry (complete one):</b>		<b>5-9</b>
CHEM 103 & CHEM 104	General Chemistry I and General Chemistry II	
CHEM 109	Advanced General Chemistry	
CHEM 115 & CHEM 116	Chemical Principles I and Chemical Principles II	
<b>Organic Chemistry (complete one):</b>		<b>3-6</b>
CHEM 341	Elementary Organic Chemistry	
CHEM 343 & CHEM 345	Organic Chemistry I and Organic Chemistry II	
<b>Physics (complete one)</b>		<b>8-10</b>
PHYSICS 103 & PHYSICS 104	General Physics and General Physics	
PHYSICS 201 & PHYSICS 202	General Physics and General Physics	
PHYSICS 207 & PHYSICS 208	General Physics and General Physics	
PHYSICS 247 & PHYSICS 248	A Modern Introduction to Physics and A Modern Introduction to Physics	
<b>Total Credits</b>		<b>24-33</b>

## 30 CREDITS OF BIOLOGY AND NEUROBIOLOGY

Will be calculated from General Biology, Neurobiology, Lab/Research Experience and Additional Elective (if required) sections.

### General Biology

Code	Title	Credits
<b>Choose one of these three sequences:</b>		
<i>Introductory Biology</i>		<i>10</i>
ZOOLOGY/ BIOLOGY/ BOTANY 151	Introductory Biology	

ZOOLOGY/ BIOLOGY/ BOTANY 152	Introductory Biology	
<i>Biology Core Curriculum</i>		<i>16-18</i>
BIOCORE 381	Evolution, Ecology, and Genetics	
BIOCORE 383	Cellular Biology	
BIOCORE 485	Principles of Physiology	
BIOCORE 587	Biological Interactions	
<i>Plus two from:</i>		
BIOCORE 382	Evolution, Ecology, and Genetics Laboratory	
BIOCORE 384	Cellular Biology Laboratory	
BIOCORE 486	Principles of Physiology Laboratory	
<i>Animal Biology</i>		<i>10</i>
ZOOLOGY/ BIOLOGY 101	Animal Biology	
ZOOLOGY/ BIOLOGY 102	Animal Biology Laboratory	
BOTANY/ BIOLOGY 130	General Botany	

### Neurobiology

Code	Title	Credits
<i>Required Neurobiology Courses</i>		
ZOOLOGY/ PSYCH 523	Neurobiology	3
PSYCH 454	Behavioral Neuroscience	3
ZOOLOGY 500	Undergraduate Neurobiology Seminar	1
<i>Distributed Neuroscience Coursework—choose three courses</i>		<i>9</i>
ANAT&PHY 335	Physiology <sup>1</sup>	
ANAT&PHY 435	Fundamentals of Human Physiology <sup>1</sup>	
AN SCI/ DY SCI 373	Animal Physiology	
BIOCHEM 501	Introduction to Biochemistry <sup>1</sup>	
BIOCHEM 508	General Biochemistry II <sup>1</sup>	
BIOCHEM/ PHMCOL-M/ ZOOLOGY 630	Cellular Signal Transduction Mechanisms <sup>1</sup>	
BIOCHEM/ NUTR SCI 645	Molecular Control of Metabolism and Metabolic Disease <sup>1</sup>	
B M E 520	Stem Cell Bioengineering <sup>1</sup>	
B M E 602	Special Topics in Biomedical Engineering (Introduction to Neuroengineering)	
CS&D 210	Neural Basis of Communication	
CS&D 503	Neural Mechanisms of Speech, Hearing and Language	
ED PSYCH 326	Mind, Brain and Education	
ED PSYCH 506	Contemporary Issues in Educational Psychology (Brain & Behavioral Development)	
GENETICS 520	Neurogenetics	
KINES 531	Neural Control of Movement	

NTP/ NEURODPT 610	Cellular and Molecular Neuroscience
NTP/NEURODPT/ PSYCH 611	Systems Neuroscience
NTP/ZOOLOGY 616	Lab Course in Neurobiology and Behavior
NTP/ NEURODPT 629	Molecular and Cellular Mechanisms of Memory
NTP 632	Neuroscience of Psychedelics
NTP/ MED PHYS 651	Methods for Neuroimaging Research
NTP 666	Neuroscience of Consciousness and its Disorders
NTP 670	Stem Cells and the Central Nervous System
NTP 675	Special Topics (Functional Brain Imaging of Cognitive Disorders)
NTP 675	Special Topics (Molecular Mechanisms of Brain Damage)
NTP 675	Special Topics (Trauma and Physiology Therapy)
NTP 675	Special Topics (Neuroendocrinology)
NTP 675	Special Topics (Reproductive Neuroendocrinology)
NTP 675	Special Topics (Brain Mapping in Health and Disease: Applications)
NTP 677	Basic Sleep Mechanisms and Sleep Disorders: from Neurobiology to Sleep Medicine
PHM SCI 310	Drugs and Their Actions
PHM SCI/ PHMCOL-M 521	Pharmacology I
PSYCH 406	Psychology of Perception
PSYCH 414	Cognitive Psychology
PSYCH 505	Depth Topic in Biological Science (Cognitive Neuroscience: Bridging Mind and Brain)
PSYCH 513	Hormones, Brain, and Behavior
PSYCH 601	Current Topics in Psychology (Neural Basis of Cognitive Control)
PSYCH 601	Current Topics in Psychology (Neuroeconomics)
PSYCH 603	Epigenetics and the Brain
PSYCH 606	Hormones and Behavior
PSYCH 612	Neuropharmacology
ZOOLOGY 400	Topics in Biology (Neural Movement Health&Disease)
ZOOLOGY 400	Topics in Biology (Neuroscience and Society)
ZOOLOGY 400	Topics in Biology (Neurogenetics of Sleep)
ZOOLOGY 400	Topics in Biology (Music and the Brain)
ZOOLOGY 400	Topics in Biology (Cell Biology: Neurons and Neural Circuits)

ZOOLOGY 470	Introduction to Animal Development 1
ZOOLOGY 555	Laboratory in Developmental Biology
ZOOLOGY 603	Endocrinology
ZOOLOGY 604	Computer-based Gene and Disease/Disorder Research Lab
ZOOLOGY 611	Comparative and Evolutionary Physiology
ZOOLOGY/ ANTHRO/NTP/ PSYCH 619	Biology of Mind
ZOOLOGY/ NTP 620	Neuroethology Seminar
ZOOLOGY 625	Development of the Nervous System
ZOOLOGY 655	Modeling Neurodevelopmental Disease
ZOOLOGY/ NEURODPT/ PSYCH 674	Behavioral Neuroendocrinology Seminar

### Lab/Research Experience

Choose one option from the 3 listed: Neuroscience Laboratory Course OR Directed Study OR Honors/Senior Thesis.

Code	Title	Credits
<i>1. Neuroscience Laboratory Course—one course:<sup>2</sup></i>		
BIOCORE 486	Principles of Physiology Laboratory	
ANAT&PHY 435	Fundamentals of Human Physiology	
ZOOLOGY 555	Laboratory in Developmental Biology	
ZOOLOGY 604	Computer-based Gene and Disease/Disorder Research Lab	
ZOOLOGY 612	Comparative Physiology Laboratory	
ZOOLOGY/ NEURODPT/ NTP 616	Lab Course in Neurobiology and Behavior	
<i>2. Directed Study—3 credits from:<sup>3</sup></i>		
ANATOMY 699	Independent Study	
ANESTHES 699	Independent Study	
BIOCHEM 699	Special Problems	
BIOLOGY 699	Directed Studies	
B M E 399	Independent Study	
BMOLCHEM 699	Special Research Problems	
CBE 699	Advanced Independent Studies	
CHEM 699	Directed Study	
COMP BIO 699	Directed Study	
CRB 699	Independent Study	
CS&D 699	Directed Study	
ED PSYCH 470	Research Experience in Educational Psychology	
ED PSYCH 699	Independent Reading Undergrad	
FAM MED 699	Directed Study	
GENETICS 699	Special Problems	

H ONCOL 699	Independent Study in Human Cancer Biology	ANATOMY 329	Human Anatomy-Kinesiology
KINES 399	Independent Study	BIOCHEM 507	General Biochemistry I
KINES 699	Independent Study	BIOCHEM/ NUTR SCI 510	Nutritional Biochemistry and Metabolism
MED PHYS 699	Independent Reading or Research	BIOCHEM 601	Protein and Enzyme Structure and Function
MEDICINE 699	Independent Study	BIOCHEM/ GENETICS/ MICROBIO 612	Prokaryotic Molecular Biology
MED SC-V 669	Small Animal Cardiology Rotation	BIOCHEM/ GENETICS/ MD GENET 620	Eukaryotic Molecular Biology
M M & I 699	Directed Study	BIOCHEM 625	Mechanisms of Action of Vitamins and Minerals
MOL BIOL 699	Directed Studies in Molecular Biology	F&W ECOL 401	Physiological Animal Ecology
NEURSURG 699	Neurosurgery: Directed in Study in Research	GENETICS 466	Principles of Genetics
NEUROL 699	Directed Research in Neurology	GENETICS 545	Genetics Laboratory
NEURODPT 699	Directed Study	GENETICS/ MD GENET 565	Human Genetics
NUTR SCI 699	Special Problems	GENETICS/ BIOCHEM/ MD GENET 620	Eukaryotic Molecular Biology
OBS&GYN 699	Directed Study	KINES 200	Introductory Neuroscience
ONCOLOGY 699	Special Research Problems	KINES 314	Physiology of Exercise
OPHTHALM 699	Directed Study	M M & I 301	Pathogenic Bacteriology
PATH 699	Independent Study	M M & I 341	Immunology
PATH-BIO 699	Directed Study	M M & I/ENTOM/ PATH-BIO/ ZOOLOGY 350	Parasitology
PEDIAT 699	Independent Study	M M & I/ BIOCHEM 575	Biology of Viruses
PHM COL-M 699	Independent Study	MICROBIO 303	Biology of Microorganisms
PHM SCI 699	Advanced Independent Study	MICROBIO 304	Biology of Microorganisms Laboratory
PHYSIOL 699	Independent Work	MICROBIO 330	Host-Parasite Interactions
POP HLTH 699	Independent Reading	MICROBIO 450	Diversity, Ecology and Evolution of Microorganisms
PSYCH 621	Mentored Research and Seminar	MICROBIO 470	Microbial Genetics & Molecular Machines
PSYCH 699	Directed Study	MICROBIO/ SOIL SCI 523	Soil Microbiology and Biochemistry
PSYCHIAT 699	Independent Study	MICROBIO 526	Physiology of Microorganisms
SURGERY 699	Independent Study	MICROBIO 527	Advanced Laboratory Techniques in Microbiology
SURG SCI 699	Directed Study	MICROBIO 551	Capstone Research Project in Microbiology
ZOOLOGY 699	Directed Studies in Zoology	MICROBIO 607	Advanced Microbial Genetics
<b>3. Honors/Senior Thesis (two semesters):</b>			
ZOOLOGY 681 & ZOOLOGY 682	Senior Honors Thesis and Senior Honors Thesis	PATH-BIO/ M M & I 528	Immunology
ZOOLOGY 691 & ZOOLOGY 692	Senior Thesis and Senior Thesis	PL PATH/ ONCOLOGY 640	General Virology-Multiplication of Viruses
B M E 389 & B M E 489	Honors in Research and Honors in Research	MICROBIO/ BMOLCHEM 668	Microbiology at Atomic Resolution
<b>Additional Electives (if needed)</b>			
Students may take additional credits from the list of Distributed Neuroscience Coursework, Independent/Directed study, or the following list, to attain 30 credits in the major:			
<b>Code</b>	<b>Title</b>	<b>Credits</b>	
ANAT&PHY 337	Human Anatomy		NTP/NEURODPT/ PSYCH 611
ANAT&PHY 338	Human Anatomy Laboratory		
AN SCI/ DY SCI 362	Veterinary Genetics		
AN SCI/ DY SCI 434	Reproductive Physiology		
AN SCI/ F&W ECOL/ ZOOLOGY 520	Ornithology		
AN SCI 610	Quantitative Genetics		

NTP 660	Neuroscience & Public Policy Seminar
NUTR SCI 431	Nutrition in the Life Span
NUTR SCI 631	Clinical Nutrition I
ONCOLOGY 401	Introduction to Experimental Oncology
ONCOLOGY/ PL PATH 640	General Virology-Multiplication of Viruses
PHM SCI 558	Laboratory Techniques in Pharmacology and Toxicology
PSYCH 449	Animal Behavior
PSYCH 450	Primates and Us: Insights into Human Biology and Behavior
PSYCH 505	Depth Topic in Biological Science (Comparative Psychology: What Animals Think)
ZOOLOGY/ ANTHRO/ BOTANY 410	Evolutionary Biology
ZOOLOGY 425	Behavioral Ecology
ZOOLOGY 430	Comparative Anatomy of Vertebrates
ZOOLOGY 470	Introduction to Animal Development
ZOOLOGY/ GEOSCI 541	Paleobiology
ZOOLOGY/ GEOSCI 542	Invertebrate Paleontology
ZOOLOGY 570	Cell Biology

## RESIDENCE AND QUALITY OF WORK

- 2.000 GPA in all major courses
- 2.000 GPA on 15 upper-level major credits, taken in residence<sup>4</sup>
- 15 credits in the major, taken on the UW–Madison campus

## HONORS IN THE MAJOR

Students may declare Honors in the Neurobiology Major in consultation with the Neurobiology undergraduate advisor(s).

### HONORS IN THE MAJOR REQUIREMENTS

To earn Honors in the Major in Neurobiology, students must satisfy both the requirements for the major (above) and the following additional requirements:

- Earn a 3.300 University GPA
- Earn a 3.300 GPA for all major courses
- Complete 14 credits, taken for Honors, with individual grades of B or better, while in residence, to include:
  - Two courses from PSYCH 454, ZOOLOGY/PSYCH 523, and ZOOLOGY 500
  - One course from the Required Neuroscience or Distributed Neuroscience course lists (above), taken for honors credit
  - A two-semester Senior Honors Thesis<sup>5</sup>, for a total of 6 credits, from:

Code	Title	Credits
BIOCHEM 681 & BIOCHEM 682	Senior Honors Thesis and Senior Honors Thesis	
BIOLOGY 681 & BIOLOGY 682	Senior Honors Thesis and Senior Honors Thesis	
B M E 389 & B M E 489	Honors in Research and Honors in Research	
CHEM 681 & CHEM 682	Senior Honors Thesis and Senior Honors Thesis	
CS&D 681 & CS&D 682	Senior Honors Thesis and Senior Honors Thesis	
GENETICS 681 & GENETICS 682	Senior Honors Thesis and Senior Honors Thesis	
H ONCOL 681 & H ONCOL 682	Senior Honors Thesis in Human Oncology 1 and Senior Honors Thesis in Human Oncology 2	
NUTR SCI 681 & NUTR SCI 682	Senior Honors Thesis and Senior Honors Thesis	
PSYCH 681 & PSYCH 682	Senior Honors Thesis and Senior Honors Thesis	
ZOOLOGY 681 & ZOOLOGY 682	Senior Honors Thesis and Senior Honors Thesis	

## FOOTNOTES

1

Students may apply only one DNS course toward the elective requirement

2

Lab courses may also count in the Distributed Neuroscience Coursework above.

3

Only Directed Study courses taken **after**—and not concurrent with—the completion of an Introductory Biology sequence are accepted in the major.

4

Major courses numbered 300–699 are considered upper-level.

5

The Senior Honors Thesis project must be approved by the Neurobiology Major Program Committee at least one month before beginning the first course (681). The project must focus on its relevance to a neuroscience-related topic. Please see the Neurobiology major website (<https://neuromajor.wisc.edu/>) for more information.

## UNIVERSITY DEGREE REQUIREMENTS

**Total Degree** To receive a bachelor's degree from UW–Madison, students must earn a minimum of 120 degree credits. The requirements for some programs may exceed 120 degree credits. Students should consult with their college or department advisor for information on specific credit requirements.

**Residency** Degree candidates are required to earn a minimum of 30 credits in residence at UW–Madison. "In residence" means on the UW–Madison campus with an undergraduate degree classification. "In residence" credit also includes UW–Madison courses offered in distance or online formats and credits earned in UW–Madison Study Abroad/Study Away programs.

**Quality of Work** Undergraduate students must maintain the minimum grade point average specified by the school, college, or academic program to remain in good academic standing. Students whose academic performance drops below these minimum thresholds will be placed on academic probation.

## LEARNING OUTCOMES

1. Demonstrate understanding of basic concepts in biology, chemistry, mathematics, statistics, and physics.
2. Demonstrate understanding of the ionic basis for the neuronal membrane potential and action potential, and as well as the factors that determine neuronal excitability.
3. Demonstrate understanding of the basic mechanisms for synaptic transmission, neurotransmitter release, postsynaptic effects, and modulation of pre- and postsynaptic mechanisms. Predict how specific physiological and pathological conditions alter neuronal function at the cellular and synaptic levels.
4. Differentiate between examples of neuroplasticity at cellular, systems, and organismal levels.
5. Demonstrate understanding of central and peripheral neuroanatomy, basic functions of brain regions, and well-known neural pathways. Predict how localized disruptions of neuronal function alter behavior, motor function, or perception.
6. Demonstrate understanding of basic principles underlying motor function, sensory function (auditory, visual, touch, taste), emotion, autonomic regulation, and higher order cognitive functions (language, memory, attention, decision-making).
7. Demonstrate how experimental tools in neuroscience are used to address experimental questions, such as intra/extracellular recording, molecular biology techniques, immunohistochemical staining, fluorescent and electron microscopy, genetic manipulation, brain imaging, behavioral testing.

## FOUR-YEAR PLAN

### SAMPLE FOUR-YEAR PLAN

This Sample Four-Year Plan is a tool to assist students and their advisor(s). Students should use it—along with their DARS report, the Degree Planner, and Course Search & Enroll tools—to make their own four-year plan based on their placement scores, credit for transferred courses and approved examinations, and individual interests. As students become involved in athletics, honors, research, student organizations, study abroad, volunteer experiences, and/or work, they might adjust the order of their courses to accommodate these experiences. Students will likely revise their own four-year plan several times during college.

The grid below is a suggested plan for finishing your Neurobiology major in 4 years. Please see an advisor for more information, as you may have completed some of the requirements listed.

### Freshman

Fall	Credits	Spring	Credits
Communication A		3 Ethnic Studies	3
Quantitative Reasoning A		3 MATH 221	5
Foreign Language (if required)		4 L&S Breadth	3
CHEM 103 or 109		4 CHEM 104	5
	<b>14</b>		<b>16</b>

### Sophomore

Fall	Credits	Spring	Credits
BIOLOGY/BOTANY/ZOOLOGY 151 <sup>1</sup>		5 BIOLOGY/BOTANY/ZOOLOGY 152	5
CHEM 343		3 CHEM 345	3
INTER-LS 210 (optional)		1 Social Science Breadth	3
Social Science Breadth		3 PHYSICS 207 <sup>2</sup>	5
	<b>12</b>		<b>16</b>

### Junior

Fall	Credits	Spring	Credits
Declare the Major <sup>3</sup>		PSYCH 454	3-4
ZOOLOGY/PSYCH 523		3 Distributed Neuroscience Course	2-4
STAT 371		3 L&S Breadth	3
L&S Breadth		3 Elective	3
PHYSICS 208		5 Lab Research	3
Lab Research <sup>4</sup>		3	
	<b>17</b>		<b>16</b>

### Senior

Fall	Credits	Spring	Credits
Distributed Neuroscience Course		3-4 ZOOLOGY 500	1
Social Science Breadth		3 Distributed Neuroscience Course	3
Electives		6 L&S Breadth	3
Lab Research		3 Social Science Breadth	3
		Lab Research	3
	<b>16</b>		<b>13</b>

### Total Credits 120

1

There are several options for fulfilling the introductory biology requirement. See listed Requirements.

2

There are several options for fulfilling the Physics requirement. See listed Requirements.

3

Students must declare a major by the time they reach 86 credits.

4

It is recommended that students in the Neurobiology major participate in multiple semesters of research.

## ADVISING AND CAREERS

### NEUROBIOLOGY MAJOR ADVISING

The advisors for the neurobiology major are committed to providing students with first-rate guidance through the major and to graduation. The neurobiology major advisors are also dedicated to helping a student focus their future plans after undergraduate study. If you are interested in declaring the neurobiology major, make an appointment to discuss this.

### CONTACT INFORMATION

Catherine Auger  
 Birge Hall, Room B156  
 430 Lincoln Drive  
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 Starfish (<http://go.wisc.edu/MeetBobW/>)

### L&S CAREER RESOURCES

Every L&S major opens a world of possibilities. SuccessWorks (<https://successworks.wisc.edu/>) at the College of Letters & Science helps students turn the academic skills learned in their major, certificates, and other coursework into fulfilling lives after graduation, whether that means jobs, public service, graduate school or other career pursuits.

In addition to providing basic support like resume reviews and interview practice, SuccessWorks offers ways to explore interests and build career skills from their very first semester/term at UW all the way through graduation and beyond.

Students can explore careers in one-on-one advising, try out different career paths, complete internships, prepare for the job search and/or graduate school applications, and connect with supportive alumni and even employers in the fields that inspire them.

- SuccessWorks (<https://careers.ls.wisc.edu/>)
- Set up a career advising appointment (<https://successworks.wisc.edu/make-an-appointment/>)
- Enroll in a Career Course (<https://successworks.wisc.edu/career-courses/>) - a great idea for first- and second-year students:
  - INTER-LS 210 L&S Career Development: Taking Initiative (1 credit)
  - INTER-LS 215 Communicating About Careers (3 credits, fulfills Comm B General Education Requirement)
- Learn about internships and internship funding (<https://successworks.wisc.edu/finding-a-job-or-internship/>)
  - INTER-LS 260 Internship in the Liberal Arts and Sciences

- Activate your Handshake account (<https://successworks.wisc.edu/handshake/>) to apply for jobs and internships from 200,000+ employers recruiting UW-Madison students
- Learn about the impact SuccessWorks has on students' lives (<https://successworks.wisc.edu/about/mission/>)

## PEOPLE

Neurobiology is a major in the Department of Integrative Biology. The faculty in this department are:

Professors: Hardin (chair, [jdhardin@wisc.edu](mailto:jdhardin@wisc.edu)), Bement, Blair, Damschen, Gammie, Halloran, Ives, Lee, Newmark, Orrock, Riters, Stanley, Stretton, Turner, and Vander Zanden

Associate Professors Amann, Grinblat, and Jensen

Assistant Professors Dugan, Sharma, Wang, and Weber

**Neurobiology Major Steering Committee:** Michelle Ciucci (chair, Departments of Communication Disorders and Surgery), Stephen Gammie (Department of Integrative Biology), Vaishali Bakshi (Department of Psychiatry), Darcie Moor (Department of Neuroscience), Yuri Saalman (Department of Psychology).