The Neuroscience Training Program (NTP) was established in 1971. Currently, it comprises over 80 faculty members whose research interests range from molecular neurobiology to integrative systems. The program is designed to prepare students for careers in research and teaching. On average the number of students in the program is approximately 55. The program is best suited for students who are independent and wish to take a direct role in determining their graduate education. Training leads to the Ph.D. degree in neuroscience or the M.D./Ph.D. degree in cooperation with the School of Medicine and Public Health.

The doctoral program of each graduate student in the training program is tailored to meet individual needs. Each student's program is supervised by an advisory committee of five faculty members selected by the student in consultation with the major professor. During the first year students complete three laboratory rotations and take one-semester courses in molecular/cellular neuroscience and systems neuroscience. Students also take one upper-level course in molecular/cellular and systems neuroscience. Additional advanced courses may be taken to complement individual research interests.

A preliminary examination is required of all Ph.D. degree candidates at the end of the second year of graduate study. The examination consists of two written papers that are presented orally to the student's advisory committee. The first paper is a critical evaluation of a research topic outside the student’s major area of interest. The second paper is a thesis research proposal. Additional requirements for the Ph.D. degree are attendance at the weekly neuroscience seminar and completion of one semester of teaching.

The central forum for intellectual exchange in the program is the neuroscience seminar (NTP 900 Neuroscience Seminar: Current Topics in Neurobiology), which meets weekly and is attended by neuroscience students and faculty. During an academic year, members of the program choose six topics in current neuroscience research for consideration. Topics are reviewed intensively in study groups supervised by faculty sponsors. Critical summaries of each topic are then presented by students to participants in the seminar as a series of lectures and discussions. Each three- to four-week topic session concludes with a lecture by an outside invited speaker who is well known for his or her research in the topic area. In the course of every three- to four-year period, most of the major research areas in neuroscience are reviewed in the neuroscience seminar; consequently, students become familiar with the breadth of contemporary neuroscience.

The average time taken by students to complete the Ph.D. degree is five years. The program prepares students for careers primarily in research and teaching in universities and colleges and careers outside of academia. Of the more than 200 students who have earned the Ph.D. degree in the program, more than 95 percent have careers in biomedical science.

### NEUROSCIENCE & PUBLIC POLICY PROGRAM

The Neuroscience & Public Policy Program (N&PP) offers three integrated degree tracks with the cooperation of the Neuroscience Training Program, the La Follette School of Public Affairs and the University of Wisconsin-Madison Law School. The N&PP is based on two strongly held beliefs: first, that sound science and technology policy and law are essential for the well-being of societies; second, that a step toward ensuring such policy is to train future scientists in the making of public policy or the law and prepare them to participate in bringing science and society closer together.

The program offers students the opportunity to earn a Ph.D. degree in neuroscience as well as a master of public affairs (MPA), a master of international public affairs (MIPA), or juris doctorate (J.D.). In each of the degree tracks, the program brings together faculty from neuroscience, public policy, bioethics, sociology, and law and other related fields to train research neuroscientists who will be qualified to help shape public policy or the law. The cross-disciplinary training combines didactic and laboratory research training in neuroscience with a classroom-based and hands-on education in public policy or the law.

For more information about the double and dual degree tracks offered through the neuroscience & public policy program including admissions and program requirements please visit the program website (https://npp.wisc.edu).

### ADMISSIONS

The admissions deadline for the Neuroscience Training Program is December 1; no exceptions will be made for late materials so we strongly encourage prospective applicants to send in required materials as early as possible. Admission to the program is based mainly on demonstrated ability and interest in science and mathematics. The minimum course prerequisites are mathematics through calculus and a year each (two undergraduate semesters) of chemistry, physics, and biology. All course prerequisites must be taken at the college level and must be completed before enrollment in the program. Applicants for admission must submit all undergraduate and graduate transcripts directly to the neuroscience training program, three letters of recommendation, and a statement of research interests and goals. Prior laboratory research experience, though not required, is a component of successful applications. GRE general and/or subject test scores are NOT required for the application and will not be considered for admission if submitted.

For more information about Neuroscience Training Program admissions, visit the program website (https://ntp.neuroscience.wisc.edu/admissions-requirements).

Prospective international students should visit the program website (https://ntp.neuroscience.wisc.edu/international-applicants-2) for more information related to international admissions.

### GRADUATE SCHOOL ADMISSIONS

Graduate admissions is a two-step process between academic degree programs and the Graduate School. Applicants must meet requirements of both the program(s) and the Graduate School. Once you have researched the graduate program(s) you are interested in, apply online (https://grad.wisc.edu/admissions).

### FUNDING

Resources to help you afford graduate study might include assistantships, fellowships, traineeships, and financial aid. Further funding information (https://grad.wisc.edu/funding) is available from
the Graduate School. Be sure to check with your program for individual policies and processes related to funding.

**PROGRAM RESOURCES**

Each student receives a stipend that covers tuition, fees, living costs, and health insurance and is guaranteed for five years if progress is satisfactory. Financial support is provided from the Program’s NIH training grant, fellowships, and faculty research grants. Limited support is available for international students.

Our program also works with students to submit proposals for fellowships. For more information on those funding opportunities please visit our website (https://ntp.neuroscience.wisc.edu/funding-opportunities).

**REQUIREMENTS**

**MINIMUM GRADUATE SCHOOL REQUIREMENTS**

Review the Graduate School minimum academic progress and degree requirements (http://guide.wisc.edu/graduate/#policiesandrequirementstext), in addition to the program requirements listed below.

**MAJOR REQUIREMENTS**

**MODE OF INSTRUCTION**

<table>
<thead>
<tr>
<th>Mode of Instruction Definitions</th>
<th>Face to Face</th>
<th>Evening/Weekend</th>
<th>Online</th>
<th>Hybrid</th>
<th>Accelerated</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Yes</strong></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Mode of Instruction Definitions

**Evening/Weekend:** These programs are offered in an evening and/or weekend format to accommodate working schedules. Enjoy the advantages of on-campus courses and personal connections, while keeping your day job. For more information about the meeting schedule of a specific program, contact the program.

**Online:** These programs are offered primarily online. Many available online programs can be completed almost entirely online with all online programs offering at least 50 percent or more of the program work online. Some online programs have an on-campus component that is often designed to accommodate working schedules. Take advantage of the convenience of online learning while participating in a rich, interactive learning environment. For more information about the online nature of a specific program, contact the program.

**Hybrid:** These programs have innovative curricula that combine on-campus and online formats. Most hybrid programs are completed on-campus with a partial or completely online semester. For more information about the hybrid schedule of a specific program, contact the program.

**Accelerated:** These on-campus programs are offered in an accelerated format that allows you to complete your program in a condensed time-frame. Enjoy the advantages of on-campus courses with minimal disruption to your career. For more information about the accelerated nature of a specific program, contact the program.

**CURRICULAR REQUIREMENTS**

Minimum 51 credits

<table>
<thead>
<tr>
<th>Credit Requirement</th>
<th>32 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residence Requirement</td>
<td>Half of degree coursework (26 credits out of 51 total credits) must be completed graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university’s Course Guide (<a href="http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle">http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle</a>).</td>
</tr>
<tr>
<td>Graduate GPA Requirement</td>
<td>3.00 GPA required.</td>
</tr>
<tr>
<td>Other Grade Requirements</td>
<td>The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.</td>
</tr>
</tbody>
</table>

Assessments and Examinations

Candidates must meet with their advisory committee once per semester until they become a dissertation and then once per year thereafter.

The preliminary examination consists of two papers: a dissertation proposal, and a critical research paper unrelated to the proposal. The preliminary examination should be completed by the end of the second summer of graduate study. Students who fail one or both parts of the preliminary examination may retake the examination within two months. Failure to pass the examination the second time will result in dismissal from the program.

The final dissertation must be submitted to the advisory committee and an oral defense of the thesis must be given. The thesis defense consists of a public presentation of the thesis followed by a closed meeting with the advisory committee. Deposit of the doctoral dissertation in the Graduate School is required.

<table>
<thead>
<tr>
<th>Language Requirements</th>
<th>No language requirements.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctoral Minor/Breadth Requirements</td>
<td>Completion of a doctoral minor is not required of students in the NTP doctoral program.</td>
</tr>
</tbody>
</table>

**REQUIRED COURSES**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTP 900</td>
<td>Neuroscience Seminar: Current Topics in Neurobiology</td>
<td>10</td>
</tr>
<tr>
<td>NTP/NEURODPT 610</td>
<td>Cellular and Molecular Neuroscience</td>
<td></td>
</tr>
<tr>
<td>NTP/NEURODPT/PSYCH 611</td>
<td>Systems Neuroscience</td>
<td></td>
</tr>
<tr>
<td>NTP 700</td>
<td>Professional Development for Biomedical Graduate Students</td>
<td></td>
</tr>
<tr>
<td>NTP 701</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTP 990</td>
<td>Research and Thesis</td>
<td>1</td>
</tr>
<tr>
<td>One Intermediate/Advanced Course in Molecular/Cellular/Developmental Neuroscience</td>
<td>3-4</td>
<td></td>
</tr>
</tbody>
</table>
BIOCHEM/PHMCOL-M/ZOOLOGY 630  Cellular Signal Transduction Mechanisms

B M E/ANATOMY/MED PHYS/PHMCOL-M PHYSICS/RADIOl 619  Microscopy of Life

NTP/NEURODPT 629  Molecular and Cellular Mechanisms of Memory

NTP/NEUROL 735  Neurobiology of Disease

NTP 670  Stem Cells and the Central Nervous System

NTP 675  Special Topics

NTP/NEURODPT/ZOOLOGY 765  Developmental Neuroscience

PHMCOL-M 781  Molecular and Cellular Principles in Pharmacology

ZOOLOGY 604  Computer-based Gene and Disease/Disorder Research Lab

One Intermediate/Advanced Course in Systems/Behavioral Neuroscience  2-4

B M E 601  Special Topics in Biomedical Engineering

CS&D 850  Hearing Science I: Basic Acoustics and Psychoacoustics

COMP SCI/B M I/PSYCH 841  Computational Cognitive Science

KINES 713  Neural Basis of Normal and Pathological Movement

KINES 721  Neural Basis for Movement

KINES 861  Principles of Motor Control and Learning

NTP/NEURODPT 630  Neuronal Mechanisms for Sensation and Memory in Cerebral Cortex

NTP 777  Basic Sleep Mechanisms and Sleep Disorders: from Neurobiology to Sleep Medicine

NTP 675  Special Topics

NTP/MED PHYS 651  Methods for Neuroimaging Research

PSYCH 711  Current Topics in Psychology

PSYCH 733  Perceptual and Cognitive Sciences

PSYCH 954  Seminar-Physiological Psychology

PSYCH 918  Seminar-General Psychology

Other advanced courses as recommended by the advisory committee.

When students enroll in NTP 990, they should plan to enroll for the appropriate number of credits to reach the minimum required credits each semester to have full-time student status.  3

1 Students in our program are expected to be enrolled in this course each semester it is offered until they graduate.

2 PSYCH 711 is a special topics course. The following topics under this course listing are approved to take and will count as a midlevel:

• Cognitive Neuroscience of Attention and Memory
• Introduction to Neural Network Modeling of Cognition

3 *Two PSYCH 733 courses (8 weeks each) must be taken to meet the mid-level systems requirement. The following course topics are approved:
  • Cognitive Neuroscience of Reading and Dyslexia
  • Knotty Problems in Psycholinguistics

4 See “Credits Per Term Allowed” policy (http://guide.wisc.edu/graduate/medicine-public-health-school-wide/neuroscience-phd/#policiestext) for further information on full-time registration.

POLICIES

GRADUATE SCHOOL POLICIES

The Graduate School’s Academic Policies and Procedures (https://grad.wisc.edu/acadpolicy) provide essential information regarding general university policies. Program authority to set degree policies beyond the minimum required by the Graduate School lies with the degree program faculty. Policies set by the academic degree program can be found below.

MAJOR-SPECIFIC POLICIES

GRADUATE PROGRAM HANDBOOK

The Graduate Program Handbook (https://ntp.neuroscience.wisc.edu/handbook) is the repository for all of the program’s policies and requirements.

PRIOR COURSEWORK

Graduate Work from Other Institutions

With program approval credits from former graduate institutions may be allowed to count toward degree. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

UW–Madison Undergraduate

With program approval credits from graduate level courses (numbered 300 or above) taken as an undergraduate at UW–Madison may be allowed to count toward degree up to 7 credits. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

UW–Madison University Special

With program approval, coursework numbered 300 or above taken as a UW–Madison Special student may be allowed to count toward the degree up to 15 credits. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

PROBATION

Failure to pass the preliminary examination before the start of the spring semester of the third year will result in being placed on probation. Two consecutive semesters of enrollment on probation precludes continuation in the program.

ADVISOR / COMMITTEE

An advisory committee of five or more tenure-track or tenured faculty members will oversee your graduate education. During the
first year, before an advisory committee has been formed and a major professor selected, the First-Year Advisory Committee will serve as your advisor. The First-Year Advisory Committee will help you select courses, laboratory rotations, and your major professor, and they can assist you with other issues that may arise during the first year.

After you have chosen a lab, your major professor will help you in choosing the other members of your advisory committee. Choose this committee carefully, taking time to discuss potential members with faculty and other students. Selection of a major professor and the additional four members of the advisory committee should be completed by the end of March of the first year. At least five members of the committee must be tenure-track or tenured professors at UW–Madison. At least three members of the committee should be members of the program. To ensure that advisory committees reflect a broad perspective, at least three different areas of neuroscience or approaches to neuroscience must be represented on the committee. Examples of different areas include behavior/cognition, development, synaptic transmission/membrane excitability. Examples of different approaches include electrophysiology, genetic/model organisms, biochemistry/pharmacology, human brain imaging, stem cells. The student is responsible for describing how the proposed committee represents at least three areas/approaches. The composition of each student’s advisory committee will be reviewed and must be approved by the First-Year Advisory Committee. All changes to the makeup of your advisory committee, must be approved by the First-Year Advisory Committee. N&PPP students are required to have at least one member of the N&PPP Steering Committee represented on their thesis advisory committee.

In order to have your committee approved you must fill out and turn in the NTP Advisory Committee Approval Form (https://ntp.wiscweb.wisc.edu/wp-content/uploads/sites/81/2017/02/ NTP-ADVISORY-COMMITTEE-APPROVAL-FORM.doc) which is found on the NTP website (https://ntp.neuroscience.wisc.edu/forms). After you return the form to the NTP office, the First-Year Advisory Committee will review your proposed committee and approve your committee or make suggestions for additional members to ensure a broad perspective.

The advisory committee will meet with you once each semester before you become a dissertator (during the first four or five academic semesters) and once each year after you become a dissertator to review your progress. At least four members of the committee must be present at each meeting. Your major professor chairs the advisory committee and will write a report (https://ntp.wiscweb.wisc.edu/wp-content/uploads/sites/81/2017/10/ Advisory-Committee-Report-12.12.14.doc) that summarizes each meeting. You should review each report and discuss it with your major professor. Every report must be signed by you and your major professor and becomes part of your permanent record. The summary reports are used by the steering committee, program faculty, and director to monitor progress. If you believe the report does not describe your progress accurately or is in error in some other respect, you should bring these concerns to the attention of your major professor immediately. If a satisfactory resolution cannot be achieved, you should inform the First-Year Advisory Committee, which will assist you in deciding whether to ask for a review by the steering committee. The First-Year Advisory Committee can handle any issues or problems that arise after the first year and are not resolved by your advisory committee. An


Once a committee is formed you are required to have a committee meeting every semester until you become a dissertator. As a dissertator you are required to have one meeting per year until your thesis defense.

For each meeting you have there is a required form you must fill out to find those forms see this link (https://ntp.neuroscience.wisc.edu/forms).

**CREDITS PER TERM ALLOWED**

Full-time registration is required of all students in the program during the fall and spring semesters. The Graduate School considers full-time registration for students who are not dissertators (please see below) to be 8–15 graduate-level credits (level 300 and above, no audits or pass-fail) during each of the fall and spring semesters. Though the maximum number of credits is 15, we strongly encourage students to enroll for a maximum of 12 credits. In the summer, students in the program who are not dissertators may register for 2 credits during the 8-week summer session, which is not considered full-time registration. If you decide to register for 2 research credits, you are responsible for knowing about other obligations that may be affected by part-time registration in the summer, such as visa regulations or those of certain funding agencies that may require continuous full-time registration for the calendar year (see Graduate School Academic Guidelines for additional caveats). You are eligible to become a dissertator after you have passed the program’s preliminary examination and have met the Graduate School’s residency requirements. Dissertators register for 3 credits each semester including the summer. Usually dissertators register for 2 credits of Neuroscience 990 Research and Thesis and 1 credit of the Neuroscience Seminar Neuroscience Training Program fall and spring semesters, and 3 credits of Research and Thesis during the 8-week summer session. It is advantageous to all concerned for you to become a dissertator as soon as possible since tuition payments for dissertators are much lower. If you are a dissertator and you wish to register for other courses, you may be able to. Please contact the program office for additional details.

**TIME CONSTRAINTS**

The final dissertation must be completed by the end of the fifth academic year. If the dissertation is not completed by the end of the summer following the sixth academic year, the student’s advisory committee must meet with the steering committee to present a written statement explaining why the dissertation has not been completed.

**OTHER**

All admitted students are funded and receive a stipend. The stipend rate is set by the program.
PROFESSIONAL DEVELOPMENT

GRADUATE SCHOOL RESOURCES

Take advantage of the Graduate School’s professional development resources (https://grad.wisc.edu/pd) to build skills, thrive academically, and launch your career.

LEARNING OUTCOMES

1. (Knowledge) Develop the knowledge base necessary for a career as an independent, professional scientist.

2. (Research) Develop and complete original research that advances their specific area of neuroscience.

3. (Communication) Learn to effectively communicate to diverse audiences through writing, oral presentations, and discussions.

4. (Teaching) Learn teaching and mentoring skills necessary for future scientific careers.

5. (Professional and Ethical Conduct) Receive training in responsible conduct of research, and will learn and foster principles of ethical and professional conduct.

6. (Career Preparation) Provided with diverse training that will prepare them for a range of flexible and sustainable careers (e.g., academia, industry, government, science policy and administration, science commerce, science writing, law, and science education and outreach at all levels).

PEOPLE

Faculty: Professor Mary Halloran (director). For a comprehensive faculty list, visit the program website (https://ntp.neuroscience.wisc.edu/faculty-trainers).