# NEUROSCIENCE TRAINING PROGRAM
# Faculty Handbook

## Information For Neuroscience Training Program Faculty



## Information for Neuroscience Training Program Major Professors and Advisory Committee Members

# Information For Neuroscience Training Program Faculty

# Program Governance

## Criteria for Faculty Membership

The Neuroscience Training Program recognizes that there are multiple ways in which faculty members can contribute to the success of the Program. Faculty membership in the Neuroscience Training Program is evaluated using two major criteria.

1) Faculty are active in neuroscience research (as assessed by a record of grant support for neuroscience-related research and publication of recent peer-reviewed papers on neuroscience-related topics).

2) Faculty contribute to the training of Neuroscience Training Program graduate students (as assessed by participating in any of the following activities during the review period: 1) serving as thesis advisor to a NTP student, 2) teaching part of a neuro-related undergraduate or graduate course, 3) leading a NTP subgroup, 4) sponsoring a lab rotation for a NTP student, 5) serving on an advisory committee of a NTP student 6) serving on one of the standing committees of the NTP or 7) routinely participating in Monday seminar.

The NTP Steering Committee will weigh the relative importance and application of each of the criteria on an individual basis. Some of these criteria will be waived for new, independent junior faculty.

Every 4 years, the NTP Steering Committee will review faculty membership. Individual faculty members are responsible for providing an activity report for the review. The purpose of the review is to maintain a high level of quality in the categories of scholarship, training and productivity, which are necessary in order to recruit the highest quality student applicants and in order to ensure that the Program remains competitive for national and intramural funding. Faculty who are asked to leave the Program may reapply for membership at a later date.

Applications for faculty membership can be submitted at anytime. Prospective members are asked to submit a CV, research statement and statement of commitment to graduate training in neuroscience. The Steering Committee reviews submitted materials and approves new faculty members.

## Chair of Neuroscience Training Program

Appointments for the Chair of the Neuroscience Training Program will be for a three-year period contingent on approval by the Dean of the School of Medicine & Public Health and renewable for an additional three years following a faculty vote of confidence and assuming mutual agreement between the Dean and the Chair. There is a limit of two consecutive six-year terms for any individual for the Chair of the Neuroscience Training Program. Near the end of each six-year term, an election will be held for the Chair. All faculty members of the Neuroscience Training Program are eligible to vote for the chair following the release of an

advisory vote of the students of the program. Because the Dean of the School of Medicine & Public Health officially appoints the Chair of the Neuroscience Training Program, the results of the election are advisory to the Dean. The results of the election will be provided to the Dean three months prior to the beginning of the appointment period.

An election committee of three faculty members will be appointed by the Chair to oversee the voting procedure and act as tellers for the voting. A Program staff member will also serve on this committee. Candidates must be nominated by other faculty in the Program and be willing to serve if elected. If there are more than two candidates and no candidate receives a majority (over 50%) of the votes on the first election, then a runoff election between the top two candidates receiving the most votes will be held a week later.

**Faculty Membership on the Steering Committee**

While authority and governance on major issues remain within the Program at-large (see Program-Wide Meetings below), the Steering Committee oversees most of the routine business of the Neuroscience Training Program. The Steering Committee consists of ten faculty members and two student representatives. Five faculty members are elected, and five are appointed by the Chair. In order to maintain continuity, membership is rotating with two to four new members every year. All members are elected for three-year terms. Both the Chair of the Neuroscience Training Program and Director of the Center for Neuroscience are *ex officio* members. The Steering Committee meets monthly to consider any Program business.

**Program-Wide Meetings**

Program-Wide Meetings are held twice yearly. All faculty and students in the Program are encouraged to attend. The purpose of these meetings is to keep members apprised of ongoing activities and business, receive standing committee reports, solicit new ideas or comments/suggestions, and vote on major issues if necessary. Larger issues such as major changes in curriculum, seminar structure, or leadership issues will be discussed and voted upon in Program Meetings.

**Faculty Membership on Program Standing Committees**

The Neuroscience Training Program's successful functioning depends on the input and commitment of its faculty and students. The Chair of the Program appoints all committees and chairs, with the exception of the Steering Committee. Committee membership fulfills one of the requirements for membership in the Program. Appointments serve to balance turnover and continuity, as it is important to have some stability within the committees as well. Each committee has approximately 5-6 members.

**Admissions Committee**

This Committee determines the makeup of the student body and hence the quality of the Program. Members are involved in all aspects of the admissions and recruitment process.

Responsibilities: Reading applications, selecting candidates to visit campus, and participating in the three recruiting weekends in March. Also responsible for assigning student support from the training grant and other Program resources.

Meetings: Meets as needed from mid-January to the end of March. Interviews of prospective applicants take place on three Fridays in February or March.

**Recruitment Committee**

This Committee works in partnership with the Admissions Committee to plan recruiting efforts before, during, and after recruiting weekends.

Responsibilities: Identifying and setting up faculty member to pick up students from airport, identifying faculty to meet with applicants, tracking faculty contact with applicants, and encouraging faculty and student to participate in recruiting activities.

Meetings: Meets as needed from January to April. Most work will be conducted via e-mail.

**Student Advisory Committee**

This Committee serves as a second group of faculty, beyond the Student's Advisory Committee, that students can consult. The Committee serves as the Advisory Committee for first-year students and assesses and/or discusses issues relating to students beyond the first-year as the need arises.

Responsibilities: Welcoming and advising the first-year class, discussing possible rotations, course decisions, and general information. This function is gradually replaced as the first-year students form their thesis committees towards the end of the first year. Approves the makeup of the thesis committees chosen by the students. Also responsible for handling any student issues that may arise after the first year, including academic, personal, or disciplinary problems. This committee also administers the Travel Awards Competition.

Meetings: Two meetings in the fall with the first-year class, and as needed in the spring. Some work is done by email (approval of committees, etc.).

**Curriculum Committee**

This Committee has overall responsibility for the Program's curriculum. This includes reviewing course requirements, encouraging the development of new courses, and helping with other initiatives such as the neurobiology concentration in the biology major.

Responsibilities: Sets curriculum guidelines and requirements for the Program. Approves any new course proposals. Handles and discusses curriculum issues, suggestions, and needs. The committee also deals occasionally with undergraduate neuroscience curriculum topics.

Meetings: Approximately 2-4 a times a year or as needed. Some work is done by email (course approval, etc.).

**Seminar Topics Committee**

The central forum for intellectual exchange in the Program is the Neuroscience Seminar (please see p. 6 for additional information). This Committee oversees the selection and implementation of the Monday Night Seminar topics.

Responsibilities: Solicits and approves the student seminar topics (i.e., subgroups) for the upcoming academic year. The Committee requests topics and arranges for the ballot to be distributed.

Meetings: 2-3 times a year in the spring. Also deals with other seminar issues or suggestions that may arise related to neuroscience graduate training.

**Ethics Committee**

There is an NIH mandate that all students supported by federal training grants receive annual instruction in the responsible conduct of science (scientific ethics). First- and third-year students and all other trainees (students currently receiving stipend support from the training grant) are required to participate in the annual presentation.

Responsibilities: Organizes and guides the students in several subgroup meetings, arranges for presentations from outside speakers, helps choose topics and papers, and guides discussion.

Meetings: Meets 4-6 times in fall or spring, plus one Monday night seminar.

**Minority Affairs Committee**

The Program is committed to actively encouraging diversity in its community of scholars and to engaging in activities that inspire individuals from disadvantaged or underrepresented backgrounds to choose careers in neuroscience. This committee seeks to promote such activity, through gathering information on successful methods for recruiting minorities and ensuring the success of minority students that come to the Program.

Responsibilities: Organizing special lectures, usually in spring, of an invited minority neuroscientist. There are a variety of activities surrounding this visit including a round-table discussion of minority issues in science and a dinner for students and faculty. Update minority affairs Program website and attend various graduate recruiting fairs.

Meetings: 2-3 times per year.

## Program Website

The Program maintains a website as a resource for current faculty and students as well as prospective students. The URL is http://ntp.neuroscience.wisc.edu. All faculty are encouraged to keep their on-line research description and publication information up-to-date. Please send updates to the Program Office at any time for inclusion on the website. The website also contains Program forms, seminar schedule, alumni directory and general Program information for prospective students.

## Admissions Process

To reach potential students the Neuroscience Training Program is described in the directory of *Neuroscience Training Programs in North America* that is published on the web by the Association of Neuroscience Departments and Programs, of which the Program is a charter member (http://www.andp.org). In addition, a recruiting poster, with reply postcards attached, is mailed each year to colleges and universities throughout the country. Lastly, the Program is described in full on the Internet under the Program's website (http://ntp.neuroscience.wisc.edu/). The website allows prospective students to request information and application materials and communicate via email with any of the faculty in the Program. The Program also produces a paper recruiting bulletin that essentially duplicates the information available on the website in a portable format. More than 350 students from around the world inquire about the Program each year, and about half of them apply for admission. Highly qualified applicants are invited for interviews.

Admission to the Neuroscience Training Program is by recommendation of a five-member admissions committee, which includes the Chair of the Program and four faculty members. Selection for admission is based upon weighing many aspects of an applicant's background. Included among them are undergraduate performance in mathematics as well as the basic physical and life sciences, Graduate Record Examination scores, grade point averages, and written recommendations. The single factor that is weighed most heavily in deciding upon admission is evidence of prior research experience. Indeed, of all the indices available for predicting success in graduate school and later in a research career, our experience of more than two decades of evaluating applicants suggests that only prior research experience as an undergraduate has predictive validity. Applicants selected for final consideration by the admissions committee are invited to the Program for interviews. In general, offers of admission are made only with a personal interview. About 15% of those who apply for admission to the Program are accepted each year, and about 45% of those who are accepted matriculate.

## Graduate Student Recruiting

Faculty are encouraged to participate in the Neuroscience Training Program recruiting activities. Three recruiting weekends are scheduled in February and March of each year. Applicants arrive on Thursday evening and depart from Madison on Saturday or Sunday.

The majority of faculty interactions with potential students occur on Friday. In the morning, a continental breakfast is provided for faculty and applicants. During the day, applicants meet with faculty members who have similar research interests. These meetings are generally 30 minutes. On Friday evening there is a buffet dinner held at a faculty member's house. Both Neuroscience faculty and students are invited to socialize with the potential students. Invitations for these events are sent via e-mail every spring.

## Recruiting a Neuroscience Training Program Student Into Your Laboratory

### Neuroscience Research Symposium

In September of 2002, the Program held the first Neuroscience Research Symposium (NRS) at the BioPharmaceutical Technology Center. All first-year students are required to attend the NRS. The symposium includes research talks by students and faculty, poster sessions, and a keynote speaker. In 2004, the keynote speaker was an alum of the Program, Kim Wallen. At the symposium Kim was awarded the first distinguished alumnus award. Tom Reh was awarded the distinguished alumnus award in 2006. This event is held biennially. The next Symposium will take place in the fall of 2008.

### Rotations

The purpose of rotations is to help first-year students determine whom their major professor will be and what research subject they would like to study. Students normally complete three rotations before deciding on a major professor. Rotations typically last from four weeks to two months. During a rotation, faculty are expected to assign students a small project that can be completed in a short amount of time. After each rotation, the faculty sponsor and student complete an evaluation to determine the success of the rotation. Evaluation forms are available in the back of this Handbook, in the Program Office (7225 Medical Sciences Center), or on the web (http://ntp.neuroscience.wisc.edu/studforms.html).

## Neuroscience Seminar

The major forum for cohesiveness in the Program is the Neuroscience Seminar. The Seminar is held weekly throughout the academic year, and all Neuroscience graduate students are required to attend. The Seminar is central to the Program because it is the nexus for

intellectual and social interaction among the faculty that binds the members of the Program together each week. The Seminar effectively counters a problem that is a continuing challenge for large campus-wide graduate programs, namely faculty and student members being dispersed at different locations and therefore lacking the advantages of daily contact and interaction. Faculty are strongly encouraged to attend seminar as often as possible since students depend on input, criticism, and questions from faculty when they make presentations.

**Subgroup Topics**

The Seminar involves the discussion and presentation of selected topics in neuroscience, as well as research presentations by the students in the Program and by new faculty. Typically, five to six topics in neuroscience are considered each year. In late spring a call is sent out to faculty and students asking for volunteers to teach topics for the coming academic year. Each topic must have at least one faculty sponsor, but may be sponsored by two, three or even four faculty. Once topics have been gathered, a ballot is prepared, and Program students and faculty vote for their top five or six topics. Four or five of these topics will be held during the coming academic year and one will be held over for the next year. Once topics have been scheduled, Program students vote on the topics they would like to participate in. The Program Office makes final student assignments to ensure that each group is balanced. Faculty in the Program who have agreed to sponsor the topics then join with students to form study groups that will prepare a series of presentations for the Seminar covering the topic area. All Neuroscience students through the third year are required to participate in two of these groups each year. After the third year students participate in one subgroup per year. Students from each group present three lectures in the group's topic area to those who attend the Seminar.

**Student Seminar Presentations**

The determination of student assignments for subgroup-related Seminar presentations is made by the Program Office on a rolling eligibility basis following a "last shall be first" sequence. All first-year students are excused from making a presentation in the Seminar during the first semester of their first year in the Program. However, first-year students give a Seminar presentation during the second semester of the first-year because they automatically will be the most eligible students in the subgroup for making a Seminar presentation. Upon completing a subgroup-related Seminar presentation, students are placed at the bottom of the eligibility list. From time to time, more than one student with the same eligibility elects the same subgroup. In those instances when there are more students with identical eligibility than there are available opportunities to make a Seminar presentation, speaking assignments should be determined by chance, *e.g.*, by drawing straws.

Each student in the Program is allowed one Seminar presentation waiver. The waiver will excuse the student from a subgroup-related Seminar presentation, but it can be used only once at the student's discretion during the course of training. This waiver does not apply to the presentation of the thesis proposal.

**Subgroup**

The study group or subgroup meets 8-12 times or more to discuss the literature in the topic area and to prepare the three student-delivered presentations. These study groups usually function like journal clubs with students reading and presenting journal articles. Performance in the subgroup is graded by the faculty member(s) in charge of the group. Faculty sponsors should also record attendance for each meeting. A student whose work is unsatisfactory will be notified by the faculty member(s), and if this deficiency is not corrected, a grade of unsatisfactory (no credit) will be reported. On average each student makes a presentation in the Seminar at least once every other year, and these presentations give students outstanding training in presenting a seminar to a diverse and critical audience. The coverage of each topic area by the study group concludes with a guest lecture by a well-known neuroscientist from an outside institution.

Collectively, the speakers for the seminar constitute the Neuroscience Lecture Series, and the discussion of their research areas as part of the Seminar is a valuable component in the training of a Neuroscience student because it gives each student, in the five years in which they are in the Program, systematic exposure to a broad range of research in modern neuroscience. Moreover, the students are very well prepared to interact with Lecture Series speakers when they visit the University because they are familiar, through the Seminar, with the speaker's field in general and research in particular. Additional speakers, outside the Neuroscience Lecture Series, are also invited to speak when partial funding is available from outside sources such as the University Lectures Committee and Grass Foundation.

Faculty subgroup sponsors are responsible for arranging the study group meetings and inviting the guest speaker. Once a guest speaker has accepted an invitation, the Program Office should be notified so that an official letter of invitation can be sent. The Program Office can aid with travel arrangements and the itinerary.

The reasonable expenses for the speaker’s visit to UW-Madison are paid by the Program. A typical itinerary includes faculty visits during the day, a student-hosted lunch, lecture, reception, and a dinner with faculty and/or students. Occasionally, a faculty member will host a potluck dinner at their house. All Program students are invited to attend lunch with the guest speaker regardless of their subgroup selections.

If there is any reason to believe that the speaker's airfare will be excessive (*i.e.*, will exceed $500), approval **must** be given by the Program Office before the speaker is invited. The travel expenses of speakers from abroad will be reimbursed by the Program only up to the average round trip airfare for domestic speakers, currently about $500. In accordance with university policies, airfare purchased for over $500 must include quotes that show the ticket purchased was the least expensive.

Faculty often have meals with visiting speakers. A maximum of $150 is available for reimbursement for all faculty meals during a guest speaker’s visit. To process a reimbursement, the Program Office needs an **original itemized** receipt for the cost of the dinner and a list of people who attended the dinner. Reimbursement takes approximately 6-8 weeks.

# Opportunities for Teaching Neuroscience

### Undergraduate and Graduate Neuroscience Courses

During the past several years, faculty in the Program have developed several new courses in neuroscience for both advanced undergraduate and graduate students. The Program has been able to offer courses under its own auspices since 1977. New courses are needed to strengthen the list of mid-level courses for graduate students and to expand the list of courses available for the undergraduate neurobiology option. Courses offered by the Program can be crosslisted with other departments and the Program can be crosslisted on courses offered by other departments.

Faculty are encouraged to offer new courses on a trial basis under the Program's selected topics number, 675. Selected topics courses can be offered without prior approval from school or university curriculum committees. Contact the Program Office to inquire about how to set up a selected topics course. Once a course has proved successful, faculty instructor(s) should complete a proposal to offer a new course. This form is available from the Program Office. Program staff can help with filling out and submitting new course proposals.

### Professional Development Courses

An additional opportunity for instruction is in the Program's Professional Development for Biomedical Graduate Students Course 700. This course is required for first-year students in the Program. The course is designed to introduce graduate students to the skills necessary to succeed in science and survive graduate school. The course meets once a week for two hours for the first half of the fall semester. Various topics are covered in one or two one-hour sessions. Each section of the course is taught by a Neuroscience faculty member. If you are interested in teaching a session in this course, please contact the Program Office. In fall 2005, a senior professional development course was offered during the second half of the semester. The format is identical to the format for the first course, but the topics covered are more relevant for students ending in graduate school. This course will be offered every other year in the fall.

# Outreach Activities

### Brain Awareness Week

The Program is involved in many outreach activities. The biggest outreach effort of the Program is Brain Awareness Week (BAW). BAW is a national outreach effort spearheaded by the Society for Neuroscience and the Dana Alliance. Each year, the Program participates in this campaign by providing free neuroscience information to children and adults. The Program collaborates with the Madison Children's Museum to provide an educational experience for children and adults. Faculty and students volunteer their time to operate stations that children visit to learn more about the brain. Activities in the past have included optical illusions, memory testing, constructing a pipe cleaner neuron, senses, and touching a human brain.

### PEOPLE Program

The Neuroscience Training Program coordinates part of the curriculum for the high school PEOPLE Program. The PEOPLE Program is a UW-Madison based initiative to increase enrollment of minorities at UW-Madison. Students in the Milwaukee, Beloit, Madison, Waukesha, and Racine school districts are eligible to apply following their first semester in high school and participate in activities at UW-Madison each summer until they enroll in college. Successful completion of the PEOPLE Program, as well as admission and satisfactory progress at UW-Madison guarantees a full tuition grant for up to five years. The Program coordinates the unit in neuroscience for students during their first summer at Madison, where graduate students serve as instructors. Generally, 10-14 graduate students from the Program participate in this activity. This is a unique initiative to increase diversity at the UW-Madison and encourage high school students to become interested in neuroscience.

### Other Outreach Opportunities

The Program also visits area schools by request. Graduate and undergraduate students as well as faculty provide hands-on brain activities to students as well as families. Sometimes students are brought to the UW-Madison campus to learn about neuroscience. Volunteers for these presentations are solicited via e-mail. In addition, the Program occasionally participates in other community outreach activities. These have included the Future Fair in 1999, the UW-Madison Open House in 2000, Whys and Wows in 2003 and Science Expeditions since 2004.

## Opportunities for Undergraduate Mentorship

### Biology Faculty Advisor

There is always a need for advisors to serve undergraduates in the biology major with a neurobiology option. For more information, please contact Peter Lipton, 2-1709, plipton@wisc.edu.

### UW-Undergraduates

Undergraduates often approach the Program Office regarding opportunities for research experience. If you have an opening in your laboratory, please feel free to contact the Program Office. We can advertise it to the Undergraduate Neurobiology Society.

### IBS-SRP

Beginning in the summer of 2002, the Program began working with the Center for Biology Education Summer Research Program to place interested undergraduates in neuroscience labs. These undergraduates come from colleges across the country to conduct research for 9 weeks. Beginning in the summer of 2005, the Program will host at least 3-5 students in this program each summer. For more information on IBS-SRP program, please visit the website (http://www.wisc.edu/cbe/srp-bio/). If you are interested in serving as a research mentor for one of these students, please contact the Program Office.

# Neuroscience Events

### Annual Picnic

Each fall the Program sponsors the annual picnic. This event is an excellent setting for faculty and students to meet each other in an informal setting and welcome new faculty and students to the Program. The picnic is often held at the farm of faculty member Mary Behan. Mary Behan's farm is the perfect setting for this activity and includes a small pond, plenty of open space for croquet and volleyball, and a large bonfire. On years when Mary's farm is not available, the Program holds the picnic at a local park.

### Poster Fair

Every November or December, the Program sponsors a campus-wide neuroscience poster fair. The fair takes place at Union South and generally between 35-45 posters are presented. This poster session is open to any neuroscientist on campus and participants outside the Program have participated every year.

### Undergraduate Award in Neurobiology

Every spring the Program gives out a cash award to the best research in neurobiology conducted by an undergraduate. A call for nominations is sent every spring. Nominations consist of a paper written by the student about the research (i.e., journal article, thesis, or other manuscript) and a letter of nomination from their research mentor. Three Program faculty members from different areas of neuroscience decide on the recipient of the award. The award is presented in late April or early May prior to a lecture by a guest speaker.

# Assistance

If at anytime during your tenure in the Neuroscience Training Program you need assistance, there are many resources available to you. Heather Daniels, Assistant Director of Graduate Studies, is an excellent source of information about all aspects of the Program, and you may drop in to chat with her anytime. Please also note that the Chair, Tom Yin, would be happy to meet with you as well. Feel free to contact him by phone (262-0368) or email (yin@physiology.wisc.edu). As members of one of the foremost graduate programs in neuroscience in the nation, each of us has a responsibility to our colleagues and to the field. The faculty's responsibility is to do the best job possible in training those who will replace them and become the next leaders in neuroscience. The responsibility of students is to support and encourage each other to excel, now and in the future, regardless of gender or background.

# Information for Neuroscience Training Program Major Professors and Advisory Committee Members

A large part of this section of the faculty handbook has been extracted from the Program's *Graduate Student Handbook.*

## Sources of Support for Neuroscience Training Program Students

Beginning September 1, 2006, the Program's target stipend is $23,000. Below is a summary of the types of support for Program students. Major professors may supplement their students above the Program's target stipend as long as the supplement does not violate any University policies.

1) Neuroscience Training Program Training Grant. These traineeships come from a training grant awarded to the Program by the National Institute of General Medical Sciences. These traineeships pay tuition and fees and a 12-month stipend of $20,772. Each spring, major professors are sent a request form for support for the coming year. To request support from the Program's training grant or limited Research Assistantships, the student must complete and return the request form. Major professors who have students supported by the training grant are subject to a fee to cover supplementation costs. The fee for this academic year is $4,000.

2) Outside Fellowships. Various fellowships, administered by federal or private sources, are available to graduate students in the biological sciences. The Program encourages students to seek outside fellowships when appropriate. Some examples of fellowships that have been awarded to Neuroscience students in recent years are offered by the National Science Foundation (https://www.fastlane.nsf.gov/grfp/) and Individual Predoctoral Fellowships (NRSA) from the NIMH, NIAAA, NIDA and NINDS (http://grants2.nih.gov/training/nrsa.htm#fellowships). Information about outside fellowships can also be obtained from the Program Office (7225 Medical Sciences Center, 262-4932) or from the Fellowships Office of the Graduate School (217 Bascom Hall, 262-5837). Major professors are responsible for supplementing these awards up to the Program's target stipend.

3) AOF Fellowships. These Fellowships are awarded by the Graduate School, primarily to entering students. The Program supplements these fellowships up to the target stipend. Once a major professor is selected, this faculty member reimburses the Program.

4) Research Assistantships. Research grants and contracts awarded by outside agencies to support the research projects of individual faculty members may include funds for Research Assistantships that can be held by graduate students. Research Assistants receive remission of all tuition, but not fees. The Program also has funding for 2-3 Research Assistantships. Research Assistantships provided by the major professor are supplemented to the Program's target stipend by the Program. Major professors who have students supported by the Program's Research Assistantships are subject to a fee to cover supplementation costs. The fee for this year is $4,000.

# Funding for Travel to Scientific Meetings and Courses

### Funding through the Program

Students supported by the Program's Training Grant are eligible for $300 of travel expenses each fiscal year. In addition, the Program holds an annual Travel Award Competition in May. The Program awards two $500 travel allowances that can be used in the following fiscal year. There is a short application that needs to be filled out to apply for these awards. The Student Advisory administers this competition. From the pool of applicants, the Student Advisory Committee also selects the Program's nominee for the Society for Neuroscience Graduate Student Travel Award. This award is worth $750 plus the meeting registration fee.

### Outside Funding

There are several opportunities for students to obtain outside funding for travel. Many meetings have competitions for student travel awards. For example, the Women in Neuroscience group offers travel awards to the Society for Neuroscience meeting. Guidelines for these awards are at (http://www.sfn.org/index.cfm?pagename=WomeninNeuroscience_cwintravelgrad). The UW-Madison Graduate Student Collaborative and Graduate Student Professional Development Office offers $600 Vilas Travel Awards for dissertators. Information regarding this award can be found on the Graduate Student Collaborative site (http://info.gradsch.wisc.edu/admin/gsc/vilas.html). For students interested in attending the SACNAS National Conference, financial aid is available. For more information see http://64.171.10.183/confNew/confClient/current/register/attendee/financial_aid.asp?att_type=3 The Society for Neuroscience offers a Neuroscience Scholars Program for under-represented minority students. More information can be found on the Society for Neuroscience webpage (http://apu.sfn.org/index.cfm?pagename=NeuroscienceScholars_Main).

# Mentoring Neuroscience Training Program Students

Good mentoring and guidance are essential to the success of a student as she or he progresses through graduate training. While the Advisory Committee has ultimate oversight of a student's research project, a student clearly has the most interaction with the major professor. Before taking on a thesis student, the major professor should be able to make a long-term commitment to the training and success of the student. Although it is important for students to have funding support, productivity, and scientific excellence in the lab environment, frequent high quality personal interactions and guidance are also necessary. Because student progress and faculty mentoring style will naturally vary, it is the responsibility of the major professor as well as the student to ensure that the student advances through experimentation, preliminary examination, dissertation research, and writing of journal articles in a timely manner. Most students finish the Ph.D. in 5 years with a thesis of three published or publishable manuscripts. The major professor should help design experiments early on in the dissertation process that have a reasonable chance of success and will lend themselves to the process of manuscript writing. Advisors or potential advisors are welcome to consult with the Program chair for advice on mentoring matters.

# Graduate School Requirements For The Ph.D. Degree

All requirements of the Graduate School must be met.

The *Graduate School Academic Guidelines* includes information about the Graduate School's administrative and academic policies. The *Guidelines* contain information on those aspects of graduate training at the University of Wisconsin that apply to all graduate students regardless of their fields. The rules of the Graduate School are stated in these sections and students are responsible for knowing them. The Graduate School is the final authority in determining compliance. Students can ignore the sections dealing with Minor Requirements since the Program does not require a Minor.

Other Graduate School Publications that students should be familiar with are:
*Graduate School Catalog*
*A Guide to Preparing Your Doctoral Dissertation*
*The 3-D's: Deadlines, Defending and Depositing*

Most of these publications are available on-line on the Graduate School's web page (http://www.wisc.edu/for/current.html#publications). Updates to the publications occur as needed, and the electronic version is the official document of record.

# Program Requirements For The Ph.D. Degree

**Registration Requirements**

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 (dissertator status is explained on page 18) to be 8-12 graduate level credits (level 300 and above, no audits or pass-fail) during each of the fall and spring semesters. In the summer, students in the Program who are not dissertators may register for 2 credits, which is not considered full-time registration. If students decide to register for 2 research credits, they 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).

Students are eligible to become dissertators after they have passed the Program's Preliminary Examination and met the Graduate School's residence requirements. Dissertators register for 3 credits each semester and in the summer. Usually dissertators register for 2 credits of Research and Thesis and 1 credit of the Neuroscience Seminar each semester and 3 credits of Research and Thesis during the summer session. If students are dissertators and they wish to register for other courses, they can. Students should contact the Program Office for additional details.

Course numbers, drop/add procedures, and registration deadlines are published in the *Timetable*. It is available on the Registrar's website (http://registrar.wisc.edu/). It is each student's responsibility to be aware of the information published in the *Timetable*. Students will be responsible for any fees for additional credits, late registration, or late payment of tuition.

**Advisory Committee**

An Advisory Committee of five or more tenure-track or tenured faculty members will supervise the training of each graduate student. First-year students are advised by the Student Advisory Committee prior to selecting a major professor and forming an Advisory Committee. The Student Advisory Committee helps students select courses, laboratory rotations, and their major professors, and they can assist students with other issues that may arise during the first year.

Major professors will help students in choosing the additional Advisory Committee members. 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. To ensure that Advisory Committees reflect a broad perspective, the Program requires that at least three of the five members of the Committee be drawn from different areas of neuroscience. For example, an Advisory Committee that included at least one molecular, one cellular, and one systems neuroscientist would be acceptable, but one with three molecular and two systems neuroscientists would not meet the Program's guideline for breadth. At least three members of the Committee should be members of the Program. The composition of each student's Advisory Committee will be reviewed and must be approved by the Student Advisory Committee. If an Advisory Committee does not work well together, its membership can be changed. Students should notify the Program Office of all changes.

Students will meet with their Advisory Committees once each semester before they become a dissertator (during the first four academic semesters) and once each year after becoming a dissertator to review progress. At least four members of the Committee must be present at each meeting. The major professor chairs the Advisory Committee and will write a report that summarizes each meeting. Students should review each report and discuss it with their major professors. Every report must be signed by the student and the major professor and becomes part of his/her permanent record. The summary reports are used by the Steering Committee, Program faculty and Chair to monitoring progress. If a student believes the report does not describe his/her progress accurately or is in error in some other respect, the student should bring these concerns to the attention of his/her major professor immediately. If a satisfactory resolution cannot be achieved, the student should inform the Student Advisory Committee, who will assist the student in deciding whether to ask for a review by the Steering Committee. The Student Advisory Committee can handle any issues or problems that arise after the first year and are not resolved by the Advisory Committee. A report form is in the appendix of this Handbook, is available in the Program Office (7225 Medical Sciences Center), or on the web (http://ntp.neuroscience.wisc.edu/studforms.html).

Prior to each semester, a student progress report will be sent to all students, major professors, and Advisory Committees. The report shows the student's progress in completing the Program requirements. An example of this report is in the appendix.

It is the responsibility of the student to meet with his/her Advisory Committee at the required intervals. Advisory Committee meetings for all students who are not dissertators are to be held at the beginning of each semester and a summary report of the meeting should be filed in the Program Office no later than the end of the third week of the fall and spring semesters. Dissertators should meet with their Committees and file a summary report no later than the end of the third week of the fall semester.

A reminder notice to schedule the meeting will be sent to each student at least one month prior to the start of the semester. In addition, a progress report will be sent to each student and their Advisory Committee prior to all required meetings. If the Advisory Committee meeting has not been held and a summary report has not been filed by the end of the third week, one additional reminder will be sent stating that a hold will be placed on registration by the Program Office and will be removed only after the Committee meeting is held and a report is filed. No further reminders will be sent. Failure to register on time will result in the Registrar's Office assessing a late payment fee for which the student is responsible.

**Courses**

The Program requires that first-year students complete Neuroscience 610, Cellular and Molecular Neuroscience, and Neuroscience 700, Professional Development for Graduate Students in Biomedical Sciences, in the fall semester. In the spring semester Neuroscience 611, Systems Neuroscience, should be taken. Other course requirements include registration and active participation in Neuroscience 900, the Neuroscience Seminar, during each semester that a student is in the Program, and completion of the Mid-Level Course Requirement. The Mid-Level Course Requirement can be met by taking at least one course from each of two categories, Cell/Molecular/Developmental and Systems/Behavior, for a total of two additional courses in or relating to neuroscience. A list of approved courses available in each category is prepared biannually by the Program's Curriculum Committee. This list is available in the Program Office or on the web (http://www.neuroscience.wisc.edu/studforms.html). Students and faculty may propose that additional courses be added to the list by the Curriculum Committee. Competence in quantitative methods, *e.g.*, statistics, also must be demonstrated. Numerous options are available to meet this requirement and include UW-Madison courses as well as courses taken elsewhere. Once the Advisory Committee has been formed, an agreement will be made between the student and the Committee at its first meeting on the courses that will be taken for credit towards the Ph.D. degree. Part I of the Certification Form can be completed and filed in the Program Office at this time (see page 20 for details).

In the first year, it is wise to advise students to choose non-required courses that will be useful regardless of their future directions. Depending on a student's background, courses in statistics, biochemistry, histology, molecular biology, etc. can be good choices. Alternatively, students may begin work on the Mid-Level Course Requirement during the first year by taking one or more courses that have been approved by the Curriculum Committee for meeting the requirement. Unless a student has several prerequisites to complete, a typical first semester course load consists of Neuroscience 610, possibly one elective course, the Neuroscience Seminar, the Professional Development course, and Research and Thesis, for a maximum of 12 credits.

**Preliminary Examination**

The Preliminary Examination should be completed by the end of the second summer. Failure to pass the Preliminary Examination before the start of the spring semester of the third year will result in a student being placed on probation automatically. Reversion to regular status will not occur until a student has passed the Preliminary Exam. Two consecutive semesters of enrollment on probation precludes continuation in the Program.

If a student changes advisors during the first two years of study or experiences unusual circumstances beyond his/her control that delay normal progress substantially, such as an extended illness, he/she may petition the Steering Committee for an extension to complete the Preliminary Examination without sanctions.

At least three weeks before the day of the Preliminary Examination, the student should contact the Program Office to obtain a "Request for a Preliminary Warrant" form that should be completed and sent to the Graduate School. The Ph.D. office of the Graduate School issues a Warrant authorizing the Program to administer the Examination. The Warrant will be sent to the student by campus mail. The student should fill out the requested information on the Warrant prior to the Examination. The Preliminary Warrant is signed by the Advisory Committee and the Chair of the Program after a student has successfully completed the Examination. Part II of the Certification Form can also be filled out and filed at this time.

The Preliminary Examination consists of two papers, an "outside-area" paper and a thesis proposal, which are reviewed together by the Advisory Committee. The papers must be submitted to the Committee for review at least two weeks before the Preliminary Examination. If the papers are delivered late, the major professor will re-schedule the Examination to allow two weeks for the committee to read the papers. A waiver of this scheduling requirement requires written approval by the entire Advisory Committee.

The outside-area paper should be a critical evaluation of current knowledge about a topic that is not related to a student's area of research. The topic is chosen by the student and approved by the Advisory Committee. The purpose of this paper is to stimulate directed reading in a specific area, to integrate what is known, to criticize it, and to propose new experiments or ideas that clarify unresolved issues. Generally, this can be accomplished in 20 pages or less, as long as emphasis is placed on critical analysis and not on exhaustive description. Students should allow about 4 weeks, but not longer than 6 weeks, to write their outside-area paper.

The thesis proposal should include an introduction to the research problem, specific aims, description of methods to be used, preliminary results, and a discussion of the results and future goals. The introduction (generally 20-30 pages) consists of an in-depth overview of the essential areas related to the proposal. It should provide a strong conceptual framework and rationale for the proposed project. Often this part of the thesis proposal (with necessary updates) serves as the first chapter in the Ph.D. thesis. Obtaining satisfactory preliminary results for an acceptable thesis proposal may take longer than anticipated. Therefore, students should be exploring various research topics during the summer between the first and second years, and working in the laboratory on their proposal no later than the second semester of the second year. The aim of the proposal is to demonstrate that the thesis research is original and feasible. The proposal and preliminary results need not address every conceivable problem that might occur once the

research is fully underway. **In other words, the thesis proposal is not a preliminary thesis and should not be approached as such.**

The outside-area paper will be considered first, and its review should occupy at least one-third of the time allotted for the entire Preliminary Examination, which typically is 3 hours or less. Students must pass the Preliminary Examination to become a candidate for the Ph.D. degree. If a student fails one or both parts the first time, he/she will have a second chance within two months to retake the Examination. If a student fails again, continuation in the Program will not be possible.

**Presentation of Thesis Proposal in Neuroscience Seminar**

Related to the Preliminary Examination, but not part of it, is the presentation of the thesis proposal in the Neuroscience Seminar. This presentation can be made before the thesis proposal is examined, if a student wishes to obtain comments in advance from the group at large, or it can be deferred until after the proposal has been accepted. In either case, the sole purpose of the Seminar presentation is to give everyone in the Program the opportunity to become familiar with a student's work.

**Dissertator Status**

After students have completed all requirements for the Ph.D. degree, except for the Dissertation, they are classified by the Graduate School as a dissertator. To be eligible for dissertator status, the Graduate School requires students to:

1. Pass the Preliminary Examination
2. Complete 32 UW-Madison graduate level credits (300 or above courses)
3. Complete all Program requirements except the Dissertation and teaching requirement
4. Clear all I or P grades in non-research classes.

**Dissertation and Oral Defense**

After a student has completed his/her research and is beginning to plan the writing of the Dissertation, a meeting must be convened with his/her Advisory Committee before the writing commences. The purpose of this meeting is to plan with the Committee how the research will be presented in the Dissertation, its scope and the details of organization. A student should not begin writing until he/she had agreed with his/her Advisory Committee on its content and format. Students should also complete Part III of the Certification Form and file it with the Program Office.

As part of the thesis planning, students should consult the *3-D's, Deadlines, Defending and Depositing* and *A Guide to Preparing Your Doctoral Dissertation* on the Graduate School website (http://info.gradsch.wisc.edu/for/current.html#publications). These publications contain important information concerning formatting their thesis, submission of their thesis, and deadlines for completion of degree requirements.

A student and his/her Advisory Committee will set a date for the Oral Defense of the thesis. The date chosen for the defense must allow sufficient time prior to a student's departure from the University for revisions suggested by the Committee to be incorporated in the final

version of the Dissertation. At least three weeks before the final Oral Examination, a student should submit the Ph.D. Final Oral Committee Form to the Graduate School. This form is available in the Program Office and at the Graduate School in Bascom Hall. No later than two weeks before the defense and after the details have been approved by the major professor, students should provide the Program Office with the date, time, place of the Oral Defense and an abstract of the thesis. An announcement of the defense will be mailed to Program faculty, Program students, and other neuroscientists on campus.

The completed Dissertation should be delivered to a student's Advisory Committee at least two weeks before the oral defense. If the Dissertation is submitted later than this, the date for the defense will be rescheduled automatically by the major professor to allow at least two weeks for review. Any change in this schedule must receive prior approval in writing by all Committee members.

The thesis defense consists of a public presentation of the thesis followed by a closed meeting with the Advisory Committee. At the conclusion of the defense, the student will be asked to leave the room and the Committee will discuss whether to accept the thesis. This decision will be based on the quality of the public presentation and of the written Dissertation. The Committee will not approve the Dissertation until it is judged to be a satisfactory final version acceptable for the Ph.D. degree and for submission to the Graduate School. One copy of the final version of the Dissertation should be submitted to the Graduate School and three copies to the Program. The Program will bind copies of the Dissertation: one each for the student, the major professor, and the Program's permanent collection.

While the details of the Dissertation will be determined by the student and his/her Advisory Committee, all Dissertations are expected to be of publishable quality and to conform to a general standard. **The standard Ph.D. thesis consists of three published or publishable manuscripts on which you are the sole or first author.** The Dissertation should be written in a style that is compatible with that commonly used for manuscripts published in major scientific journals. Thus the Dissertation may consist of a series of published papers or publishable manuscripts accompanied by an informative introduction that includes sufficient background information so that all neuroscientists should be able to comprehend the significance of the thesis. Appropriate bridging chapters and a substantive, global discussion that integrates the chapters also should be included.

**Time to Degree**

It is expected that the Dissertation will be completed by the end of the fifth academic year. If this is not accomplished by the end of the summer following the sixth academic year, the student's major professor and one member of the student's Advisory Committee must meet with the Steering Committee to present a written statement that explains why the Dissertation has not been finished, and describes plans that the student and Advisory Committee have agreed upon to ensure completion. The student may attend this meeting if he/she wishes. Continuation in the Program beyond the fall semester of the seventh year will be at the discretion of the Steering Committee.

## Certification

At the end of this handbook is a Certification Form that becomes part of each student's permanent record. Mainly, this form gives the Program a convenient way to keep track of a student's academic progress. However, Certification also serves the important function of formalizing each student's individual program. Thus, Part I of the Certification Form is an agreement signed by the student and his/her Advisory Committee concerning the courses that will be taken for credit towards the Ph.D. degree. Students should file Part I of the Certification Form with the Program Office by the end of the second semester of their first year. The Preliminary Warrant for the Ph.D. degree will not be issued until Part I of the Certification Form is completed and filed in the Program Office. Part II of the form can be completed and filed after completing the Preliminary Exam. The Ph.D. Final Oral Committee Approval Form will not be signed by the Chair until Parts II and III of the Certification Form have been filed in the Program Office. These forms are available in the appendix of this Handbook, in the Program Office (7225 Medical Sciences Center), or on the web (http://ntp.neuroscience.wisc.edu/studforms.html).

## Training in the Responsible Conduct in Science

The National Institutes of Health (NIH) has mandated that all graduate students receiving financial support from an NIH training grant be given instruction in the responsible conduct of science. The Program believes that training in scientific ethics is important, regardless of source of support, and therefore requires it of all neuroscience students. Training in scientific ethics is included each year as part of the Neuroscience Seminar by a scientific ethics subgroup. **Participation in the scientific ethics subgroup, including planning and presentation of the ethics program, is required of all students supported on the Training grant and of all First- and Third-year students, regardless of their source of support.** For presentation in the Seminar, the scientific ethics subgroup selects the format and topic(s) to be covered in keeping with the Program's policy on training in scientific ethics: "The ethics subgroup should not present cases in the Seminar involving individuals or groups of individuals on the UW-Madison campus. However, discussion within the subgroups should not be limited."

One unexcused absence per year will be allowed for students required to participate in the scientific ethics subgroup planning sessions. Failure of a student supported by the training grant, or first- or third-year students to participate in the scientific ethics subgroup will result in the assignment of a directed essay. The essay will consist of a case study of a real issue or situation in scientific ethics, as described in the appropriate literature, and will be chosen by the student. The completed essay will be distributed to all members of the Ethics Committee, including the student members, for review.

Attendance at the Program-wide scientific ethics presentation is required of all students in the Program each year. Students failing to attend the ethics presentation also must complete a directed essay as described above.

**Teaching**

As part of the requirements, each student must teach one semester. Typically this involves being a laboratory instructor or section leader and should not require more than 10 hours per week. The teaching requirement may be fulfilled in other ways as well. For example, a student participating as an instructor in the summer one-week PEOPLE program will fulfill one-half of the teaching requirement.

## Typical Timetable for Student Progress

The following is a typical timetable of student progress in the Program from matriculation to earning the Ph.D. degree. Departure from the timetable may occur, but this timetable is the norm that is expected.

### I. FIRST YEAR:

(A) First Semester:

(1) Register for required fall courses and choose elective(s) after meeting with Student Advisory Committee.
(2) Attend Neuroscience Research Symposium
(3) Plan laboratory rotations and complete 1-2 of these rotations. Turn in report(s) on completed rotation(s).

(B) Second Semester:

(1) Register for required spring courses and choose elective(s) after meeting with Student Advisory Committee.
(2) Complete laboratory rotations. Turn in report(s) on completed rotation(s).
(3) Select major professor and other members of Advisory Committee by March 31.
(4) Have Advisory Committee members approved by the Student Advisory Committee.
(5) Meet with Advisory Committee and submit summary report to the Program Office no later than the end of the third week of the fall semester. Complete Part I of the Certification Form and submit to the Program Office.
(6) Participate in Ethics subgroup and Ethics presentation.

### II. SECOND YEAR:

(A) First Semester:

(1) Work toward completing Mid-Level Course Requirement and any other courses suggested by Advisory Committee.

(B) Second Semester:

(1) Meet with Advisory Committee and submit summary report to the Program Office no later than the end of the third week of the semester.
(2) Complete all course requirements.
(3) Attend Ethics presentation.
(4) Participate in Ethics subgroup (if supported by the training grant).

(C) Summer:

(1) Plan to complete Preliminary Examination by the end of the summer. Submit Request for Preliminary Warrant form to Graduate School.
(2) Complete 32 UW-Madison credits (Completion of the credits and the Preliminary Examination permits registration for 3 credits at the dissertator rate for all subsequent sessions).
(3) Submit Part II of the Certification Form after the Preliminary Examination is completed.

## III. THIRD YEAR:

(A) First Semester:

(1) Meet with Advisory Committee and submit summary report to the Program Office no later than the end of the third week of the semester. (This meeting can be omitted if the Preliminary Examination is completed after the spring Advisory Committee meeting and before the beginning of the fall semester.)
(2) Present thesis research proposal in Neuroscience Seminar.
(3) Conduct thesis research.

(B) Second Semester:

(1) Complete teaching requirement.
(2) Conduct thesis research.
(3) Participate in Ethics subgroup and Ethics presentation.

## IV. FOURTH YEAR:

(A) First Semester:

(1) Conduct thesis research.
(2) Meet with Advisory Committee and submit summary report to the Program Office no later than the end of the third week of the semester.

(B) Second Semester

(1) Conduct thesis research.
(2) Attend Ethics presentation.
(3) Participate in Ethics subgroup (if supported by the training grant.)

**IV. FIFTH YEAR:**

(A) First Semester:

(1) Meet with Advisory Committee to decide format and content of Dissertation and submit summary report to the Program Office no later than the end of the third week of the semester.
(2) Submit Part III of the Certification Form.
(3) Conduct thesis research.

(B) Second Semester:

(1) Submit Ph.D. Final Oral Committee form to Graduate School.
(2) Complete Dissertation and Oral Defense.
(3) Submit one copy of thesis to Graduate School and three copies to the Neuroscience Training Program.
(4) Attend Ethics presentation.
(5) Participate in Ethics subgroup (if supported by the training grant).

**General Program Requirements**

- Attend Neuroscience Research Symposium (first-year students only)
- Meet with Advisory Committee (each fall and spring semester for students who are not dissertators, each fall semester for dissertators)
- Participate in Scientific Ethics subgroup (students supported on training grant and first- and third-year students)
- Attend Scientific Ethics Presentation (all years)

**General Program Course Requirements**

These course requirements are common for all students in the Program

- First-Year Requirement: fall and spring semester sequence of neurobiology courses
- Professional Development Course: fall semester of first year
- Mid-Level Course Requirement: one approved course from each of two broad areas of neuroscience
- Neuroscience Seminar Course: all fall and spring semesters

## Primary Affiliation

Although a student works and resides in the academic department of his/her major professor, a student's only formal affiliation with the University of Wisconsin is as a graduate student with the Neuroscience Training Program. Thus, whenever identification of a student's University home department is required, the Program should be cited. It is important to include this identification when a student presents research at scientific meetings or publishes it. If a student received support from the Program's training grant at any time while conducting

research, the following statement should be included: "This research was supported by National Research Service Award (NRSA) T32 GM07507."

## Master's Degree

The Program does not have an elective Master's degree program and does not award the Master's degree under normal circumstances, but it will consider doing so for students who have decided not to complete the requirements for the Ph.D. degree. Students wishing to be considered for a terminal Master's degree must: (a) complete satisfactorily one year of coursework that covers molecular, cellular and integrative neurobiology; (b) participate for at least two semesters in the Neuroscience Seminar; and (c) submit a research paper, following the conventional format used for publication, that is based on at least one year of laboratory research. Candidates for the Master's degree will present the research paper orally to the full (five-member) Advisory Committee for evaluation.