ACADEMIC GUIDELINES FOR NGP STUDENTS (REV 10/18)

MATRICULATING IN THE NEUROSCIENCE GRADUATE PROGRAM (NGP)

The following pages outline the **Guidelines** governing all students that enter the Neuroscience Graduate Program (NGP) and comply with the guidelines and requirements in the "By-Laws of the Graduate Council" and the "Regulations and Guidelines for Thesis Preparation and Defense." Students are additionally subject to important guidelines contained in the OHSU “Graduate Studies Handbook.”

I. GENERAL TIME LINE

Year 1:

- Complete the fall NGP core course and usually one elective course
- Have minimum of three meetings with the NGP Director and one meeting with the assigned Academic Mentor
- Complete three laboratory rotations of minimum 2 months’ duration, present one rotation talk, and submit a one-paragraph summary of each rotation in the student’s Annual Report to the NGP
- Provide Annual Report to the NGP by May 1 including summary of myIDP
- Pass Written Comprehensive Exam (December of first year)
- Choose a Thesis Mentor

Year 2:

- Complete Neurobiology of Disease course (Year 1 or Year 2)
- Complete one or more required and elective course(s)
- Give one oral presentation on research (yearly talk requirement)
- Develop Qual Committee composition by Feb 1 in consultation with NGP director
- Complete Oral Qualifying Exam by the end of April of Year 2 (see below)
- Form Dissertation Advisory Committee (DAC) in consultation with NGP director and have first meeting six months after passing the oral qualifying exam (no later than October of 3rd year)

Years 3+:

- Minimum one meeting every six months with DAC; prepare meeting report and distribute to DAC and the NGP office
- Complete final required and elective course(s) if necessary
- Fulfill yearly talk requirement.

Year 5/Final Year:

- Minimum one meeting every six months with DAC
- Fulfill yearly talk requirement
- DAC must approve plan to proceed to dissertation
- Review OHSU guidelines for completion of Ph.D. (Graduate Studies) well in advance of defense
- Dissertation defense
- Clarify timing

II. FIRST YEAR CURRICULUM

Bootcamp Follows NGP retreat and precedes fall quarter, one week required course, ungraded

Fall Quarter

NEUS 624	Cellular Neurobiology (4 credits)
NEUS 625	Cell and Developmental Neurobiology (4 credits)
NEUS 627	Systems Neuroscience (4 credits)
NEUS 607	Neuroscience Seminar (2 credits)
CON 650	Principles of Scientific Conduct & Practice (2 credits)
1 elective	See attached list, can be taken later

Winter Quarter

NEUS 607	Neuroscience Seminar (2 credits)
NEUS 601	Research Rotation (TBD)
CONJ 620	Biostatistics for Basic Scientists, can be taken later
1 elective	see attached list, can be taken later

Spring Quarter

NEUS 626	Neurobiology of Disease (3 credits) (Offered next in 2020)
NEUS 607	Neuroscience Seminar (2 credits)
NEUS 601	Research Rotation (TBD)

Course requirements notes
Students are required to:

- Receive grades of B or better in all NGP core courses and complete and maintain a 3.0 average for all first-year courses
- Take a total 12 elective credits before thesis defense. Any elective credit outside of the list of electives provided below are to be approved by the NGP director
- Register for a minimum of 9 credits for all terms of graduate school until thesis defense.

NOTE: The OHSU registrar converts “+” or “-” grades to decimals. For example, a B- is equal to 2.7 and thus can result in academic probation.

If a student wishes to be excused from a required core course, the student and Thesis Mentor must petition the NGP director stating the reasons to be excused from the requirement. The NGP director will decide the issue and file a notation in the student's file.

The grade of Incomplete is reserved for circumstances beyond the control of the student (*e.g.*, illness) preventing completion of the course requirements by the end of the term **AND** it is possible to complete the requirements within the subsequent term.

Students prior to Oral Qualifying Exam: Students are required to notify and meet with the NGP director or designate immediately upon receiving an NP grade on Research. The NGP director will suggest a course of action for correcting research performance.

Candidate Students: After advancing to candidacy, students receiving an NP grade in Research must arrange a DAC meeting within two weeks of receipt of an NP grade in Research. The Mentor and Dissertation Advisory Committee will determine a course of action that the student must follow to improve research performance.

Elective courses
A total of 12 elective credit hours are required to be eligible for the degree. The course in Biostatistics (CONJ620 is a "required" elective unless the student has had a prior equivalent course in statistics, and then this requirement can be waived by the NGP director. Journal Clubs (JCs) qualify for up to three credit hours with each term equal to one credit hour. The electives should be consistent with the program of training for the student. Off-campus intensive workshops and courses can be considered for elective credit with advance permission of the NGP Director.

Courses available are listed in the course catalog and graduate students are encouraged to speak to the NGP Director, Academic Mentor, and/or Thesis Mentor when considering other courses as this list is constantly updating and new courses are added. Some of the elective courses are offered every other year. To determine availability (if not listed) check with the NGP office. If an appropriate course is available at another institution, this possibility can be discussed with the NGP director.

Often chosen electives from other programs at OHSU such as PMCB and BEHN include:

BEHN 615	Condition, Learning and Cognition
BEHN 616	Neurobiology of Learning & Memory
BEHN 617	Neurochemical Substrates of Addiction
BEHN 618	Behavioral Neuroscience
BEHN 619	Molecular Strategies in Behavioral Research
BEHN 625	Behavioral Genetics
BEHN 627/628/629	Neuroscience of Aging
BME565/ BME665	Intro to Computational Neurophysiology
CELL 615/NEUS 627	Advanced Topics in Developmental Neuroscience
CONJ 620	Biostatistics for Basic Science
CONJ 661	Structure/Function of Biological Molecules
CONJ 662	Genetic Mechanisms
CONJ 663	Bioregulation
CONJ 664	Cell Structure and Function Title: Molecular Cell Biology
CONJ 665	Development, Differentiation and Cancer
CONJ 667	Organ Systems
CONJ 668	Molecular Biophysics and Experimental Bioinformatics
CONJ TBA	Statistics for Basic Science
MSCI 621	Neuroscience and Behavior
NEUS 606	Neuroscience Journal Club
NEUS 630	Fluorescence Microscopy Toolbox (Kaech-Petrie)
NEUS 631	Special Topics in Neuroscience (Adelman)
NEUS 633	Topics in Neuroendocrinology (Ronnekliev)

NEUS 637	Advanced Topics in Developmental Neuroscience (Copenhaver)
NEUS 638	Advanced Optical Techniques in Neuroscience (Jahr)
PHPH 614	Neurophysiology and Pharmacology of Pain
PHPH 617	Pharmacokinetics: Drug Absorption, Distribution and Elimination
PHPH 619	Autonomic Drug Action
PHPH 620	Principle of Drug Discovery/Design
PHPH 622	Ion Channels and Genetic Disease

BEHN	Behavioral Neuroscience
BME	Biomedical Engineering
CELL	Cell and Developmental Biology
CONJ	Program in Molecular and Cellular Biosciences
PHPH	Physiology and Pharmacology
NEUS	Neuroscience Graduate Program

III. 1ST YEAR STUDENT ADVISING

First year student advising will be provided by the NGP Director at group meetings scheduled throughout the year and one-on-one as needed. Advising will also be provided by an assigned Academic Mentor. The Academic Mentor is selected by the NGP Director at the beginning of Year 1 from a list of NGP faculty with a history of graduate student training and advising. The Academic Mentor is there to provide consultation for NGP students with regard to academic and non-academic concerns, which is especially important before a thesis lab and DAC have been selected. Advisors are familiar with the NGP academic requirements, as well as with the Graduate Council By-Laws, Student Handbook and general School of Medicine regulations. 1st year students must meet at least once with the Academic Mentor in the Fall of Year 1.

Academic Mentors are expected to

- Meet with the student at least once in Fall of Year 1
- Meet in Years 2+ as needed
- Review and advise with regards to rotation decisions, course choice and registration.
- Report any concerns to the NGP director.

The responsibilities of the Academic Mentor are supplemented by the Thesis Mentor and DAC members once the student has passed the Written Comprehensive Exam and Advanced to Candidacy according to School of Medicine regulations. If the Academic Mentor becomes a student's Thesis Mentor or DAC member, a new Academic Mentor will be assigned by the NGP director.

IV. ROTATIONS

Research rotations in three different laboratories during the first year of the graduate program are a requirement. In extremely rare instances, a student may be permitted to join a thesis lab after two rotations, although the circumstances must be extraordinary for this to occur. Completion of fewer than three rotations requires consultation with and approval from the NGP director. Rotations do not occur during the fall NGP core course

(September – December, Year 1), but students can begin the first rotation in the summer preceding the first year. The purpose of the laboratory rotations is for students to familiarize themselves with the research projects and the laboratory environments of the faculty. The outcome of the rotations is the selection of a Thesis Mentor. A secondary purpose of the rotations is for the student to learn new techniques and experimental approaches. Rotations are selected in laboratories of NGP faculty. Rotations in non-NGP labs require permission of the NGP director prior to the rotation. In consultation with the rotation mentor, students are strongly encouraged to establish rotation expectations prior to or at the onset of each rotation.

Students will present an oral rotation talk together with their classmates and the NGP director for each rotation. A written summary (1 concise paragraph) of each rotation must be included as part of the student's Annual Report.

After the successful completion of three research rotations, a student should select a faculty member to serve as their Thesis Mentor. The decision of a student to enter into a laboratory to pursue thesis research is dependent upon a joint agreement between the faculty member and the graduate student. The Thesis Mentor must be a member of the School of Medicine Graduate Faculty and a member of the NGP faculty.

V. YEARLY TALK REQUIREMENT

All students in their second year and beyond are required to give one public presentation of their research each year. Second year students may use a poster presentation to fulfill this requirement. After the second year, the following are acceptable for the yearly talk requirement:

- Oral presentation at NGP retreat
- Vollum Friday seminars
- Platform (oral) presentation at a national or local meeting - poster and lightning talks do not count
- Oral presentation on their project at a departmental or center group meeting - individual lab meetings do not count.

VI. NGP WRITTEN COMPREHENSIVE EXAM

Overview
All first year NGP students are required to take the written comprehensive examination at the scheduled time (December, Year 1) following completion of the NGP core course. This examination tests the student's ability to think scientifically using concepts covered during the coursework. The exam is prepared by the NGP Curriculum Committee. The exam is a take-home (open book/open internet) format, but each student must complete the exam independently without consulting any other person. The consequence for non-independent completion is automatic failure of the exam. The NGP Curriculum Committee formulates exam questions from NEUS 624, 625, & 627. The committee will select questions based on relevance to course instruction, content, and rigor. The committee will assess test scores and will make recommendations to the NGP director regarding retaining or dismissing the student.

Examination format
The exam will consist of a series of questions to be answered in an essay and/or short answer, open book format. Questions will be equally distributed among subject material covered in NEUS 624, 625, & 627. Exam questions usually consist of several

components and are designed to test broad aspects of student's knowledge. Effort will be made to integrate key concepts across traditional discipline boundaries.

Grading
Each exam question will be graded by two members of the Curriculum Committee or a designated member of the NGP faculty. However, the overall performance on the Written Comprehensive Exam will be reviewed by the Curriculum Committee.

Outcome
The Curriculum Committee will analyze the scores of the exam and assign a final grade of **"Pass" or "Fail."** A passing grade is awarded to students who successfully answer ALL sections of the exam. Poor performance on one or more sections/parts of the exam will be discussed by the Curriculum Committee in consultation with the NGP Executive Committee and the NGP director. Those students who fail one or more portions of the exam, but who have otherwise good academic records, will be required to remediate their deficiencies. Students are required satisfy their remediation prior to the start of fall quarter of their second year of studies. Students who fail remediation will be subject to dismissal.

VII. NGP ORAL QUALIFYING EXAMINATION

Last modified 10/18

Overview
The oral qualifying exam tests the ability of the student to develop a question/hypothesis, design feasible experiments to address the hypothesis, and defend the hypothesis in written and oral format. These are foundational skills for any scientist. Thus, the exam is an important benchmark for the NGP in assessing whether a student has the skills necessary to successfully complete a thesis project. Students who pass the exam are Advanced to Candidacy.

Timetable for 2nd Year NGP Students

By February 1	Proposed exam committee members submitted to NGP Director
By March 1	Aims page submitted to committee chair
March 1 – 15	Work with committee chair to agree on Aims page; schedule oral examination
Two weeks before oral examination	Submit written proposal to exam committee
By April 30	Oral examination

Pre-exam process
The student and Thesis Mentor will identify at least four suggested NGP faculty members who would be willing to serve on the exam committee, and the student will forward this list to the NGP director. The NGP director will choose at least two faculty members from this list, appoint a third member (not necessarily on the student's list), and appoint the chair. The Thesis Mentor also serves on the exam committee for a total of four NGP faculty members.

Preparing the written proposal
Guidelines for the written component follow NRSA guidelines (see below). The written proposal must include the following sections of the NRSA:

- Project Summary/Abstract (30 lines of text limit)
- Project Narrative (3 sentence limit)
- Student's Biosketch (5 page limit)
- Applicant's Background and Goals for Fellowship Training (6 page limit)
- Specific Aims (1 page limit)
- Research Strategy (6 page limit)
- Bibliography/References Cited (No page limit)

The topic is expected to be the student's anticipated thesis work, but this is not a requirement. The student may discuss the proposal with the Thesis Mentor or any other individual in order to devise the Aims of the proposal. By March 1, the student will provide an Aims page to the qualifying exam committee chair, who will work with the student until the chair is satisfied that the Aims are of acceptable quality and depth. By March 15, the student and chair will have agreed upon the Aims, and the student will schedule the oral examination.

For the written document, significant preliminary data are not required, but the student is encouraged to incorporate summary figures that clarify the experimental approaches and describe possible outcomes for the proposed research. Acknowledgement of the source of any preliminary data or figures (*e.g.*, student or a lab member) must be included. The student may obtain feedback from the Thesis Mentor or any other individual prior to submitting the written document to the qualifying exam committee.

Oral exam
The student should prepare a ~15-20 minute presentation describing the proposal, and the student should expect committee members to ask questions throughout the presentation. This is not a general knowledge exam. Questions from the examining committee should focus on literature and methods relevant to the proposal, preferably of relevance to the student's chosen field. The examination typically lasts for ~60-90 minutes.

Committee responsibilities
Chair responsibilities: The chair will work with the student to ensure that the Aims are of acceptable quality and depth to proceed to the full examination. This can be done by email or in person. The chair is also responsible for:

- Reviewing the student's transcript and ensuring that required core courses have been passed, including ethics (CON 650)
- Ensuring that other committee members provide feedback on the written proposal to the student
- Contacting the PI prior to the oral examination to obtain an evaluation of the student's progress in the lab (this can be done at the onset of the exam if the student is asked to leave the room)
- Relaying to the NGP Director the action to be taken on the basis of the student's written proposal and oral examination.

All committee members: All committee members are responsible for reading all sections of the written proposal and for providing feedback on the content. The evaluation can be returned at the time of the oral exam. Committee members are responsible for questioning the student during the oral exam. Exam committee members may subsequently join the student's thesis advisory committee, but there is no requirement or expectation that this be the case.

NIH guidelines for preparing the NRSA research proposal can be located at the links

below. The program strongly encourages eligible students to submit their proposals to the NIH as NRSA fellowship applications.
http://grants1.nih.gov/grants/funding/424/index.htm#inst

https://grants.nih.gov/grants/how-to-apply-application-guide/forms-d/fellowship-forms-d.pdf

VIII. PH.D. DISSERTATION ADVISORY COMMITTEE GUIDELINES

Purpose
The purpose of the Dissertation Advisory Committee (DAC) is to advise and oversee the progress of the student's post-qualifying examination graduate education and training. The DAC must include a minimum of three NGP faculty members and other members with appropriate research expertise, to a maximum of five members. The Chairperson (not the Mentor) will be selected by the NGP Director after discussion with the student and mentor. The responsibility of the Chairperson is to obtain from the NGP office an update of the status of requirements including courses, electives, talk requirements, etc., and approve the student's report to the NGP office following each DAC meeting. If the focus of the student's research changes, then appropriate changes in the makeup of the DAC can be made with approval of the NGP Director. The DAC should advise the student in matters of curriculum requirements and research objectives. The DAC may assist the student in developing and focusing the specific research objectives, which should ultimately form the main body of the thesis. With regard to professional skill development and career planning, the DAC shares responsibility with the student, the Academic Mentor, and the OHSU Career and Professional Development Center.

Forming the Dissertation Advisory Committee
The DAC can include some or all of the members of the Oral Qualifying Exam Committee. Following the successful completion of the Oral Qualifying Exam, a request for a Dissertation Advisory Committee with the names of faculty that have agreed to serve must be completed and filed with the Dean's office. This occurs after the student and NGP Director have discussed and agreed upon the composition of the DAC. Changes to the committee can be made and must be discussed with the NGP Director then filed with the Dean's office.

Committee meetings
The first DAC meeting must be held no later than six months following passing the oral qualifying examination. At least one week prior to the first meeting, the student will use the NGP DAC committee report form to send committee members an updated description of his/her immediate research goals; a copy should also be sent to the NGP Administrative Office as well as the date of the DAC meeting. It is the responsibility of the student to schedule DAC meetings, but the NGP office will track DAC meetings and provide reminders to student, mentor, and NGP Director if meetings are overdue. The NGP Administrator will send the prior DAC meeting report to all committee members in advance of each scheduled meeting.

The DAC will meet at least every six months. At each meeting, the student will update the committee on the progress made toward the research objectives and the completion of NGP requirements. The student should be prepared to begin the meeting with a 15-minute overview of their more recent results and future directions. Within one week of the meeting, a copy of the summary as presented to the DAC should be sent electronically to the NGP office, and should include the following:

- Date, present participants, and absent members if necessary
- Progress since the previous DAC meeting
- Significant problems or issues that need to be addressed
- Goals for the next six months
- When appropriate, a summary of the student's future plans/career goals
- Estimated date of completion (this will be more precise as student advances)

Each DAC meeting report will be placed in the student's file.

Three to six months prior to the anticipated thesis defense, the student should have a DAC meeting to obtain approval for the beginning of thesis writing.

Preparation and submission of the thesis
All instructions and guidelines adopted by the Graduate Council By-Laws shall be followed carefully.

VIIII. MISCELLANEOUS

Grievances
The procedure for handling grievances is outlined in the OHSU Graduate Studies Handbook.

Extracurricular employment
The Neuroscience Graduate Program considers enrollment as a graduate student in the Ph.D. program to represent full-time employment, and students are therefore strongly discouraged from seeking outside employment. Any student wishing to pursue outside employment must submit a written request to the Thesis Mentor, the chair of the DAC, and the NGP Director. The student must receive written authorization from the above individuals prior to accepting employment.