

## **Graduate Program Guidelines**

All requirements for the individual graduate degrees (M.S., M.D./Ph.D., Ph.D.) follow the requirements of the TTUHSC Graduate Program. The general requirements for those Programs are outlined in the TTUHSC Graduate catalog. The program follows the rules and regulations of graduate studies (i.e. grade point average, etc.) of the TTUHSC Graduate School. Those rules are outlined in the TTUHSC Graduate Catalog. Requirements for the thesis and dissertation style are defined by the TTUHSC Graduate School. Additional requirements regarding academic standing

### Grade Policy

The Translational Neuroscience and Pharmacology program reserves the right to either:

1. Terminate from the program; or
2. Take away a stipend from any student who receives a failing grade (C, D, or F) in any graduate course or who is on academic probation with the GSBS.

## **PhD Expectations**

### Research

In that the Translational Neuroscience and Pharmacology concentration considers research to be the foundation of graduate education, students will be expected to familiarize themselves with ongoing research in the laboratories of the Faculty in the spring semester of the first year of graduate study by taking GSBS 5098 Techniques in Biomedical Research and thereby undergoing 3 laboratory rotations. These rotations are designed to assist the graduate student in the selection of a research advisor early in their graduate career. Selection of a research advisor is an extremely important process; it is the research advisor who will direct the student's masters or doctoral work and who will imbue the student with his or her own philosophical approach to scientific research. All graduate students will also be encouraged to apply for extramural support in the form of fellowships, stipends, or research grants.

### Oral and Written Communication Skills

Skills to enable the student to verbally evaluate and communicate scientific research and information, he or she will engage in the following departmental activities. All students will be expected to enroll in the TNP Graduate Concentration Seminar Program

(GTNP 7101 and 7102) every semester, participate in all departmental seminars and journal clubs, and present a minimum of one (1) research seminar and (1) journal club presentation per year. The Faculty will serve as role models in the Seminar Program by presenting their own research periodically. They will also actively participate in the Journal Club by regularly presenting publications themselves, by assisting the student presenter with his or her presentation, and by asking provocative questions during the

presentations. In both seminars and journal clubs, students will be encouraged to ask thoughtful questions of the presenters. The Faculty believe that this type of activity will help develop the student's ability to critically evaluate and discuss the content of scientific presentations.

As part of the Qualifying Examinations, the Ph.D. and M.D./Ph.D. students will be orally examined by Faculty members. This activity is intended to help the student discuss scientific concepts in a logical manner and to enable the student to ascertain what he or she may or may not understand about a particular scientific subject or concept.

All students will be encouraged to present their research findings at both regional and national scientific meetings. This type of activity will strengthen the student's ability to think critically under pressure; also, it will enable the student to meet other scientists working in the student's research area.

All students will be expected to engage in certain endeavors designed to develop and hone their scientific writing skills. The Ph.D. and M.D./Ph.D. student will be asked to write and orally defend a grant application in the NIH format. This will serve as the Qualifying Examination and enable the student to apply to candidacy. In this exercise, the student will independently describe and discuss the details of a scientific project. An important component of scientific writing is that of writing research papers for peer reviewed journals. The Faculty feel that all students should, prior to the completion of the graduate program, submit their work for publication to peer reviewed journals.

### Core Work

Courses in Translational Neuroscience and Pharmacology will both establish a core background of knowledge in the disciplines but also emphasize the development of critical thought in graduate students rather than the ability to memorize facts.

Following completion of the GSBS Core Courses in the Fall Semester of Year 1; CTNP students will take the following courses:

Spring Semester Year 1: GTNP 5303 Principles of Translational Neuroscience and Pharmacology; GMBP Human Physiology; GTNP 7101 and 7102 Translational Neuroscience and Pharmacology Seminar and Readings; GSBS 5098 Techniques in Biomedical Science Research; and GSBS 5101 Responsible Conduct of Research.

Summer Semester Year 1: GTNP 7000 Translational Neuroscience and Pharmacology Research

Fall Semester Year 2: GTNP 5303 Medical Pharmacology; GIDN 5910 Integrated Neuroscience

TNP Students are expected to enroll in GTNP 7101 and 7102 (seminar and readings courses) every Fall and Spring semester with the following exceptions- Fall Semester Year 2 (while enrolled in Medical Pharmacology and Integrated Neuroscience course) and the semester in which they complete their PhD Dissertation Defense.

TNP students must also complete a graduate level course in statistics (please consult with TNP graduate director)

## Orientation

The Department will offer an orientation to all incoming graduate students to delineate the Department's philosophy of graduate education, the research interests of the Faculty, and to address any concerns a student might have about graduate education.

## Annual Advisory Meeting

All graduate students will meet annually with the TNP Graduate Program Director in June to discuss their own individual progress as a graduate student and to provide guidance and additional mentorship. This report will be included in each student's departmental file.

## Advisory Committee

The Ph.D. Student's Advisory/Dissertation Committee should be identified as early in the student's program as possible. The composition of the Advisory Committee must include at least 5 members, two committee members must be faculty outside of the Department of Pharmacology and Neuroscience. One of the Pharmacology Graduate Faculty included in this committee would be the mentor. The function of the Advisory Committee is to assist the students and mentor in evaluating the progress of the dissertation/thesis research. Therefore, it is expected that this committee would meet with the student periodically (at least annually) throughout the student's tenure in their research project. With some exceptions the Advisory Committee may also serve as the Qualifying Examination Committee (mentor may not serve as Chair of the QE Committee, but is the Chair of the Advisory/Dissertation Committee).

## Publication Requirement

must publish at least one peer-reviewed original research paper prior to graduation or request a waiver from the GSBS Dean. Consistent with GSBS policy all Ph.D. candidates

## Required Examinations for the Ph.D. & M.D./Ph.D. Degrees

Qualifying Examination: Refer to the appropriate year's GSBS catalog for current, required examinations. Catalogs can be found on the GSBS website at <https://www.ttuhsct.edu/biomedical-sciences/>

\*\*\*For the written portion of the Qualifying Examination- As stated in the GSBS catalog the written portion is to be in the form of an NIH R01 grant application. More specifically GTNP students are expected to go to grants.gov and complete most of the grant application package that are currently in place (i.e. SFR424 R&R, PHS 398 Research Plan, Project summary/abstract, Project narrative, Specific Aims, Significance, Background and rationale, Vertebrate Animals and Human Subjects (if appropriate), Authentication of Key Biological and/or Chemical Resources, PHS 398 Cover Page Supplement, Senior/Key Person Profile, PI/Student Biosketch, Research and Related Other Project Information, Bibliography, Resources, Equipment, and

Project/Performance Site Location(S). A Modular Budget and Budget justification is not necessary. The grant application package should be compiled into a single PDF document for distribution to the Qualifying Committee. Please contact the GTNP Graduate Program Director (Dr. Blanton) if you have any questions.

**PhD Dissertation Defense: Please refer to GSBS catalog requirements.**

## Masters Expectations

### Research

In that the Translational Neuroscience and Pharmacology concentration considers research to be the foundation of graduate education, students will be expected to familiarize themselves with ongoing research in the laboratories of the Faculty in the spring semester of the first year of graduate study by taking GSBS 5098 Techniques in Biomedical Research and thereby undergoing 3 laboratory rotations. These rotations are designed to assist the graduate student in the selection of a research advisor early in their graduate career. Selection of a research advisor is an extremely important process; it is the research advisor who will direct the student's masters or doctoral work and who will imbue the student with his or her own philosophical approach to scientific research. All graduate students will also be encouraged to apply for extramural support in the form of fellowships, stipends, or research grants.

### Oral and Written Communication Skills

Skills to enable the student to verbally evaluate and communicate scientific research and information, he or she will engage in the following departmental activities. All students will be expected to enroll in the TNP Graduate Concentration Seminar Program (GTNP 7101 and 7102) every semester, participate in all departmental seminars and journal clubs, and present a minimum of one (1) research seminar and (1) journal club presentation per year. The Faculty will serve as role models in the Seminar Program by presenting their own research periodically. They will also actively participate in the Journal Club by regularly presenting publications themselves, by assisting the student presenter with his or her presentation, and by asking provocative questions during the presentations. In both seminars and journal clubs, students will be encouraged to ask thoughtful questions of the presenters. The Faculty believe that this type of activity will help develop the student's ability to critically evaluate and discuss the content of scientific presentations.

An important component of scientific writing is that of writing research papers for peer reviewed journals. The Faculty encourage but do not require MS students to submit their work for publication to peer reviewed journals.

## Course Work

Courses in Translational Neuroscience and Pharmacology will both establish a core background of knowledge in the disciplines but also emphasize the development of critical thought in graduate students rather than the ability to memorize facts.

Following completion of the GSBS Core Courses in the Fall Semester of Year 1;

CTNP students will take the following courses:

Spring Semester Year 1:

GTNP 5303 Principles of Translational Neuroscience and Pharmacology; GMBP Human Physiology; GTNP 7101 and 7102 Translational Neuroscience and Pharmacology Seminar and Readings; GSBS 5098 Techniques in Biomedical Science Research; and GSBS 5101 Responsible Conduct of Research.

Summer Semester Year 1:

GTNP 7000 Translational Neuroscience and Pharmacology Research TNP Students are expected to enroll in GTNP 7101 and 7102 (seminar and readings courses) every Fall and Spring semester with the following exceptions

Fall Semester Year 2 (while enrolled in Medical Pharmacology and Integrated Neuroscience course) and the semester in which they complete their PhD Dissertation Defense.

TNP students must also complete a graduate level course in statistics (please consult with TNP graduate director)

## Orientation

The Department will offer an orientation to all incoming graduate students to delineate the Department's philosophy of graduate education, the research interests of the Faculty, and to address any concerns student might have about graduate education.

## Annual Advisory Meeting

All graduate students will meet annually with the Director of Graduate Studies to discuss their own individual progress as a graduate student. Attached is a copy of that form and a description of how the Report is produced. It is understood that both objective and subjective comments will likely be made by faculty. Their general impression of a student's progress will be reflected in their comments. The Graduate Director will summarize the faculty's comments in the Graduate Director's Student Progress Report Form. That Report will be included in each student's departmental file. (Individual faculty comments will not be included in the student's file).

## Advisory Committee

The M.S. Student's Advisory Committee should be identified as early in the student's program as possible. The composition of the Advisory Committee must include at least 3 members. One of the Pharmacology Graduate Faculty included in this committee would be the mentor. The function of the Advisory Committee is to assist the students and mentor in evaluating the progress of the dissertation/thesis research. Therefore, it is expected that this committee would meet with the student periodically (at least annually) throughout the student's tenure in their research project.

## Required Examinations for the M.S. Degree

M.S. Thesis Defense: Refer to the appropriate year's GSBS catalog for current requirements. Catalogs can be found on the GSBS website at

<https://www.ttuhschool.edu/biomedical-sciences/>