

**Graduate Student Handbook for the  
Department of Pharmacology/Toxicology**

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## **Welcome to the Department of Pharmacology and Toxicology!**

The mission of the department is to improve the treatment of medical disorders through a better understanding of the pharmacology of agents and their mechanisms of action with the purpose of developing safer and more effective pharmacological therapies to enhance human health. The department is committed to excellence in research, teaching and service in the area of pharmacology and toxicology, and in the training of graduate students to become independent, highly regarded scientists and expert teachers in pharmacology. The PHTX Department offers a PhD and MS in Pharmacology and Toxicology. The PhD program is designed to prepare individuals for a career in research and teaching in the area of Pharmacology at academic, industrial, private and government institutions in the USA and worldwide. The MS Program in Pharmacology and Toxicology prepares students to enter careers in industry or government or to pursue admission to other professional schools.

By choosing a career in biological sciences in general and in pharmacology and toxicology in particular, you have just made one of the most important decisions in your life. If you want to learn what is already known about how drugs act and want to discover what is not yet known about them, this is the place for you. If you are willing to work hard and put in long hours, yet don't mind having a good time doing it, you will not be disappointed. Research is hard work and fun at the same time, and you need to have both to be successful. In the beginning of your studies here, you will take courses to acquire a certain knowledge base without which you cannot achieve your goals as a scientist. As times goes by, we will tell you less and less what you need to learn, you have to learn to define that for yourself. As a scientist on a quest for the unknown, you will have to learn how to ask important questions, and find the necessary information to be able to answer these questions. We will be your mentors, partners and, hopefully, your life-long friends in this endeavor. As faculty, we will try to teach you everything we know about pharmacology, in the hope that you will end up knowing more than we do!

Yours,

Keith Shelton, Ph.D.  
On behalf of the PHTX Dept

## **GENERAL INFORMATION AND LOCATORS**

The **Department Chair's office** is located in the Health Sciences Research Hall (Formerly McGuire Hall) Room 100. The office of the Graduate Program Director is Room 746D in Blackwell Smith. The **PHTX Business Office** is located in Blackwell Smith 754, 804/828-8404.

### **CONTACT PEOPLE**

### **E-mail Address**

**Pharmacology/Toxicology Chairman**  
**Dr. William L. Dewey,**  
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**PTSO Student Resources on RAMPAGES** (maintained by the Pharmacology/Toxicology Student Organization and provides links to additional student resources):  
<https://rampages.us/phtxstudentresources/>

## **DOCTOR OF PHILOSOPHY (PH.D.) CURRICULUM**

### **Mission / Purpose**

The graduate program leading to a Ph.D. degree in the department of Pharmacology and Toxicology has as a mission to prepare individuals for a variety of career objectives in biomedical science. These objectives include training students for careers such as research faculty, teaching faculty, industrial scientists, and scientists in government regulatory agencies (but other related careers are not excluded). The program incorporates formal instructional activity and research training mentored by members of the faculty. The Ph.D. program is distinguished from the M.S. offered by the department in that the Ph.D. student is being prepared for a career as an independent investigator.

### **GOALS for PhD program**

The program is designed to provide students with the skills required to advance to positions as bioscience researchers/trainers in a broad spectrum of positions. The structure of the program provides a framework for the progressive development of a mastery of the current state of the subject matter of pharmacology and related sciences, an ability to synthesize this information and apply this foundation to the identification of key areas of investigation/experimentation. The program relates the above framework to the development of the ability to design, implement and interpret experimental approaches which address the questions identified. In addition, program will develop skills in the various means of communicating both the core of bioscience knowledge and the expression of experimental design, results and interpretation to a variety of potential audiences.

### **Course Requirements for the Ph.D. in Pharmacology and Toxicology**

Graduate Ph.D. students in Pharmacology and Toxicology rarely take courses designed for students in the professional schools (Medicine, Dentistry, Pharmacy, Nursing, Nurse Anesthesiology, Industrial Hygiene or Allied Health Science). A full-time course load is 9-15 credits in the fall and spring semesters and three credits in the summer.

Please note. Students on stipends will not receive their stipend if they are not registered in all three semesters (fall – 9+ credits, spring – 9+ credits and summer – 3 credits). It is the student's responsibility to register in a timely manner. Stipends lost due to failure to properly registered cannot be recovered. Registration for coursework *in excess* of 15 hrs in the fall and spring semesters and 3 hrs in the summer semester will be billed directly to the student. Student on stipends are therefore discouraged from registering for excess credit hours.

The student must achieve a 3.0 GPA overall or higher in graduate courses and at least a 3.0 GPA in Pharmacology and Toxicology courses to graduate. Students are required to meet the curriculum requirements found in the VCU Bulletin for their year of matriculation. **2023-2024 PHTX Ph.D. Bulletin:** [VCU Bulletin](#). Progression towards their degree can be monitored at **DegreeWorks:** <https://dwprod.vcu.edu/Dashboard/>.

A typical course plan for the full-time Ph.D. student is described below. During the first year, students will follow a program determined by the Biomedical Sciences Doctoral Portal (BSDP) in consultation with their counselor.

### FALL – YEAR 1

	CRN	SUBJ	COURSE	SECTION	CREDITS
Critical Thinking	34149	BIOC	661	002	1
Biochem, Cell and Mol Biology	30814	BIOC	503	001	5
Graduate Research Methods 1	17334	BIOS	543	901	3
Laboratory Safety	28012	IBMS	600	001	1
Laboratory Rotations	28016	IBMS	620	001	2
Laboratory Rotations	36730	IBMS	620	002	2
Research Seminar	25450	IBMS	690	001	1

### SPRING – YEAR 1

	CRN	SUBJ	COURSE	SECTION	CREDITS
Research Seminar	26087	IBMS	690	001	1
Laboratory Rotations	27748	IBMS	620	003	2
<b>Basic Concepts in Pharmacology</b>	<b>34734</b>	<b>PHTX</b>	<b>630</b>	<b>001</b>	<b>3</b>
Basic concepts virtual lab	TBD	PHTX	631	001	1
Advanced elective					3+

### SUMMER – YEAR 1 (Students choose doctoral dissertation project mentors)

Directed Research in Pharmacology (variable credits) PHTX 697 – 3 credits

### FALL – YEAR 2

	CRN	SUBJ	COURSE	SECTION	CREDITS
<b>Principles of Pharmacology</b>	<b>35778</b>	<b>PHTX</b>	<b>636</b>	<b>001</b>	<b>5</b>
Scientific Integrity	27854	OVPR	601	001	1
Or Responsible Scientific Research		OVPR	602		1
Or Responsible Conduct of Research		OVPR	603		1
Pharmacology Research Seminar	14976	PHTX	690	001	1
Directed Research	14998	PHTX	697	819	Var
<b>Principles PHTX Journal Club</b>	<b>37204</b>	<b>PHTX</b>	<b>639</b>	<b>002</b>	<b>1</b>
Advanced elective					3+

### SPRING YEAR 2 (minimum of 9 credits)

Advanced Electives 3 Credits (if desired)

There are several advanced electives: Students consult with their mentors and the Program Director to identify the advance elective most suitable for their research projects.

PHTX 690 1 Credit

PHTX 697 Variable Credits

### EACH ADDITIONAL SUMMER UNTIL GRADUATION

Directed Research in Pharmacology PHTX 697 – 3 credits

### EACH ADDITIONAL SPRING AND FALL UNTIL GRADUATION (minimum of 9 credits)

PHTX 690                      1 Credit  
PHTX 697                      Variable Credits (8 credits, if no other courses are taken)

**ADVANCED ELECTIVES:** Students are encouraged to take one or both of the advanced electives offered by PHTX in alternating years (PHTX 632 – Neurochemical Pharmacology or PHTX 633 – Behavioral Pharmacology). If neither of these electives are appropriate for a student’s chosen area of study a comprehensive list of approved electives can be found in the [VCU Bulletin](#). Other advanced electives may also be acceptable. Please contact the Graduate Program Director before registering for unapproved electives so that they may be examined to determine if they will fulfill the advanced elective requirement. Courses used as Advanced Electives must be a minimum of 600 level.

### **PH.D. GRADUATE ADVISORY COMMITTEE**

The initial advisor (during your first year) will be the BSDP Portal counselor (i.e. the Program Director). Upon completion of the third IBMS 620 Research Rotation course, the student must select an advisor (mentor). Choice of an advisor should be made in consultation with the Graduate Program Director and the Department Chair. Final approval of a mentor is at the sole discretion of the Department Chair. In agreeing to accept a student into their lab, a faculty member is agreeing to assume complete or partial fiscal responsibility for that student.

After selecting an advisor, full-time students immediately begin to carry out supervised research, typically in the laboratory of their advisor. It is expected that a tentative dissertation project will have been chosen by the student in consultation with the advisor by the beginning of the fall semester of their second year. In conjunction with the selection of an advisor, the student will select a Graduate Advisory Committee. The **Graduate Advisory Committee** must consist of 5 members with at least 2 members outside of the department. The Graduate Advisory Committee functions to assist the student in determining their course plan, help in the finalization of a dissertation project, eventually, approve the dissertation and conduct the final examination.

**Six (6) months** prior to taking the **comprehensive exams**, a **Graduate Student Advisory Committee** must be entered into [GradTrak](https://gradtrak.som.vcu.edu/) (<https://gradtrak.som.vcu.edu/>).

## COMPREHENSIVE EXAMINATION POLICY

### I. SCHEDULING OF THE EXAMINATION

Before admission to candidacy for the doctorate, students must successfully complete the written exam (Part I) plus an oral comprehensive exam (Part II). Students are qualified to take the comprehensive exams following successful completion of required courses, while maintaining an overall GPA of 3.0 and a GPA of at least 3.0 in departmental courses. Students are recommended to take their comprehensive exams immediately upon completion of their second year and in time to submit proposals for extramural funding (e.g. NIH F31). **Students must schedule the exam in GradTrak at least 2 weeks prior to the intended date of the exam. Please CC the Graduate Program Director as well as Harold Greenwald in the SOM office [Harold.greenwald@vcuhealth.org](mailto:Harold.greenwald@vcuhealth.org) on your email to your committee confirming the examination date office in lieu of completing the comprehensive examination scheduling signature form.**

### II. STRUCTURE AND ADMINISTRATION OF THE EXAMINATION

#### A. WRITTEN EXAM

The student will submit a written research proposal covering the topic of their research dissertation to their graduate advisory committee (GAC) and to the director of the Graduate Program before scheduling the oral examination. **It is recommended that the written proposal be submitted at least two (2) weeks prior to the oral exam.** The research proposal must be typed and is limited to six (6) single-spaced pages with a font size no smaller than 11 points and a one-half inch margin on all sides. The research proposal is designed to help the student focus on a research project, review the relevant literature in that area, and to learn how to design experiments to test specific hypotheses related to their work. Although preliminary data can be included, this is optional and does not count against the page limit. The major point of the research proposal is to evaluate the student's ability to critically evaluate a research problem.

The research proposal should contain the following sections with suggested page allotments noted in parentheses. Note that an extensive review of the literature is expected and the list of cited references is not counted against the page total:

1. *Title page* - include title, student's name, advisor's name and date submitted
2. *Abstract* (0.5-1 page) – does not count against page limit
3. *Hypothesis and Specific Aims* (1 page) (does not count against page limit)
4. *Background and Significance* (1- 2 pages)
5. *Preliminary Data* (optional; 2- 2.5 pages; does not count against the page limit)



6. *Experimental Approach and Methods* (3 pages)
7. *Literature Cited* (no page limit)

***It is highly recommended that the written component follow NIH guidelines for a F31 to allow students to receive feedback as well as formulate a better proposal for the final submission to NIH.***

### **Grading Policy**

The student's graduate advisory committee will evaluate the proposal and vote as to whether or not they find the document acceptable (this is usually done at the time of the oral exam). The student passes if there is no more than one dissenting vote. If two or more committee members vote to disapprove the proposal, it is returned to the student who will have an additional two weeks to submit the revised proposal. The student passes when there is no more than one vote to disapprove the submitted proposal.

**Each student is expected to prepare for the exam and the student's mentor is expected to excuse the student from major research obligations for a period not to exceed one month in order to allow the student to prepare for the written exam.**

**Students are encouraged to seek guidance from the mentor towards preparation of the written document. This can be in the form of devising the specific aims and aspects of the experimental design. However, the document has to be written and proofed by the student without input from the advisor.**

### **B. ORAL EXAM**

The **Oral Comprehensive Examination** must be conducted within two –four weeks of delivering the written component. After successful completion of the written research proposal, the student can schedule the Oral Comprehensive Examination through the Graduate School Office. **Exam scheduling needs to be done through GradTrak with at least two weeks' notice so that the GAC can review the written proposal and the SOM can assign an Exam Chair from the GAC.**

The **Oral Examination** of the student will be conducted by the student's Graduate Advisory Committee; the SOM will assign a member of the GAC to oversee the exam and submit outcome paperwork. In addition to the Graduate Advisory Committee, other interested faculty members may attend the examination, and may ask questions, where appropriate. The first round of questioning of the student will focus on the written research proposal. A second round of questions will be comprehensive in nature and may deal with any scientific issue. The oral examination is meant to comprehensively test the student's basic understanding of pharmacological principles.

#### **Grading Policy for Oral Examination**

At the conclusion of the oral exam, the student's GAC will discuss the student's performance and vote on whether the student passes or fails this part of the exam. A failing grade will be assigned if two or more votes to fail the student are cast.

A student which has failed their first attempt of the oral comprehensive examination will be advised of the reason(s) for failure. With the approval of the student's advisory committee and an affirming vote of the School of Medicine Basic Sciences Graduate Program Directors, the student will be given the opportunity for remediation. Following a reasonable remediation period, but no later than the following semester, the student will be allowed one additional attempt to successfully pass the examination. A second failure will result in the student being terminated from the doctoral program.

### **III. ADDITIONAL INFORMATION**

SOM Guidelines for Oral Exams:

Remote Oral Exams:

- a. Exams are scheduled in GradTrak and the subsequent form is emailed to GAC members, the Program Director and the SOM Grad Ed Office, Harold Greenwald. Signatures on this form are not required.
- b. Exams are conducted remotely using Zoom
- c. The outcome of the exam can be completed on available forms, signed/scanned or via an email sent to Harold Greenwald and copied to GAC members and the Program Director.

SOM Thesis/Dissertation Formatting Guidelines:

<https://medschool.vcu.edu/media/medschool2018/content-assets/graduate-education/8.Guidelinesdissertationsandtheses.pdf>

## **GRADUATION APPLICATIONS**

Graduate Applications can be filed online through [GradTrak](#). If you are graduating in December, you will need to file your graduation application by mid-September (*see the SOM Academic calendar*) and if you are graduating in May, you will need to file your application by the end of January.

## **DISSERTATION DEFENSE**

The student must conduct a substantial original investigation under the supervision of the advisor and prepare a dissertation reporting the results of this research. Forms and guidelines for the dissertation can be acquired from the Graduate School website <https://graduate.vcu.edu/forms/>

Students must schedule their dissertation defense using GradTrak with a minimum of 2 week notice, follow all School of Medicine processes and meet all mandatory deadlines.

<https://medschool.vcu.edu/education/graduate/current-students/>

When the dissertation has been completed, copies are submitted to the members of the advisory committee. The student's Graduate Advisory Committee decides upon the acceptability of the candidate's dissertation. The committee unanimously accepts the dissertation for defense, the candidate appears before them for a final oral examination.

All students are required to present a final departmental seminar prior to the oral dissertation defense. It is highly recommended that the student consult with the Faculty Director of the Pharmacology Seminar series (Dr. Ramamoorthy) and the Graduate Program Director, to schedule the defense seminar in the allotted times and dates for the regularly scheduled student seminars.

The student's GAC must be present at the final dissertation defense. Any other departmental faculty may also attend the final dissertation defense but only GAC members can vote on the defense. All material related to voting and signatures will be provided to the advisor prior to the defense. Following the oral dissertation defense, the GAC will vote on passage or failure of the examination. A favorable vote, with not more than one negative vote, is required to pass this examination.

**It is the policy of the Department of Pharmacology and Toxicology that every PhD student is expected to have at least one first author paper that at a minimum is accepted for publication in a peer reviewed Journal.**

### **Stages in Degree Completion**

1. Validation by Advisor and Graduate Advisory Committee that the body of research is an adequate basis for writing of the thesis/dissertation.
2. Student files the Graduation Application through GradTrak.
3. Advisor approves thesis/dissertation in "all but" final form as satisfactory for defense.
4. [Defense is scheduled using the GradTrak system.](#)

- Scheduling in GradTrak to occur as soon as possible but no later than two (2) weeks (*ten working days*) prior to the examination date.
  - Completed scheduling form and thesis/dissertation copy is registered in the Office of Graduate Education at least two weeks (*ten working days*) in advance of the defense date.
  - Thesis and dissertations should conform to University formatting requirements.
5. Defense implementation.
- Prior to the defense (10 - 14 days) the Chair of the examining committee receives the student file containing the defense report form and Performance Evaluation forms from the Office of Graduate Education (for the Ph.D. defense, the Chair is the faculty advisor; for an M.S. defense, the Chair is appointed by the Office of Graduate Education).
  - Following the defense, the student file, the completed defense report form bearing all Committee signatures, and Performance Evaluation forms are returned to the Office of Graduate Education.
6. Thesis/Dissertation Completion.
- All corrections, both substantive and in format are made.
  - The student uploads the thesis/dissertation to **Scholars Compass**.
  - The Advisor, GAC members and the Department Chair sign electronically sign the ETD approval form using DocuSign.  
<https://graduate.vcu.edu/facstaff/forms.html>
  - PhD students will submit the Survey of Earned Doctorates at this time.

### GETTING IT DONE TIPS

1. Initiate writing early.
2. Write Early and Often.
3. Even in advance of being “approved” for “writing it up,” you can and should be writing. Experimental protocols, sections of background that will be part of the introduction, figures, references, etc. can all be worked on as you go. This establishes the habit of writing in a way that is consistent with the thesis/dissertation format and will give you a head start on what is otherwise a daunting task.
4. Communicate with your Advisor and Committee twice a year.
5. Communicate with your Advisor and Committee twice a year. We cannot stress this point enough.
6. Advance planning with your advisor will avoid nasty surprises; for example, giving your advisor your thesis/dissertation to review two weeks before his/her competitive renewal is due in Washington is unlikely to be well received. Similarly, do not wait until you have the defense copy ready for distribution to your Committee to determine if they are available for the planned defense date. This sounds pretty obvious, but we have had examples where a student has “discovered” that a Committee member is on sabbatical leave two weeks before the planned defense date.
7. Direct “process” questions to the Office of Graduate Education.
8. Please do not rely on what someone tells you about the process. The odds are that they will not remember everything and may inadvertently misinform you.

9. Allow time for “post-defense” recovery and completion of corrections and the final requirements for degree completion.
10. Inevitably, the minute that your Committee says “congratulations!” at your defense, your mind and body will say, “I’m done!” NO YOU ARE NOT! It isn't easy to recover your focus to take care of the remaining details, but they are no less essential to completing your degree. No one has ever eagerly looked forward to corrections, copying, etc. but this MUST be done.
11. Plan your overall schedule well in advance. Once you have created what you believe to be a reasonable period in which you can complete writing, double the time allotted.

As anxiety increases, comprehension of instruction/reminders of what needs to be done seems to decrease. We understand that you “got to get it done.” Help us help you to do so and please understand (*particularly near the end of any term*) that many of your peers will have transferred their anxiety to the Office of Graduate Education in advance of your arrival. It would also be very helpful if you would let the Office of Graduate Education know in advance of your coming.

### **OBLIGATIONS OF STUDENTS WHEN TAKING LEAVE**

All full-time Ph.D. students are expected to: 1) Commit full-time to their training; 2) Abide by the [SOM graduate student vacation/leave guidelines](#); 3) Discuss their laboratory work schedules with their mentors; 4) Fully disclose to their mentors and instructors any proposed time away from the laboratory or classroom as soon as any time away from their doctoral training is being considered; 5) Obtain prior approval from their mentors for any and all time away from planned laboratory activities; 6) Arrange to make-up any missed laboratory or classroom work (including work missed during rotations) with their mentors and instructors; 7) Clearly communicate to their mentors, counselors/graduate program directors the details of any proposed absences from their doctoral training. Emergencies will be handled on a case-by-case basis.

### **VCU SOM: [Vacation, Parental and Emergency Leave for graduate students](#)**

**Students supported by individual NIH F fellowships or by the Training grant should become familiar with policies and procedures associated with their support mechanisms.**

### **FINANCIAL AID AND GENERAL FINANCES**

The department of Pharmacology/Toxicology has several different means of support for **PhD students** including training grants. Graduate stipends pay for tuition, fees and "living expenses". Most PhD students entering through the BSDP are paid by the university in your first two years and will receive paychecks on the 1st and 16th of each month. However, after your first two years in the program some students may be paid from a training grant. Training grant stipends are quite different from most forms of payment in that you are paid in "lump" sums at various times throughout the year. No taxes are deducted when paid from a training grant, therefore, you must file estimated taxes for the State (Form 760) and Federal (1040 ES) taxes. If you are confused about income tax payments or about the amount of your checks, talk to Ms. Tricia Gibson in the business office. Graduate students will usually receive a stipend plus tuition and

fees as long as their progress is satisfactory and funds are available. The stipend increases after the student successfully completes the comprehensive examination.

**SOM FELLOWSHIPS, RESEARCH GRANTS AND TRAVEL GRANTS**

Information on SOM travel grants and other scholarships can be found on the Student Resource Page (see appendix).

## MASTER OF SCIENCE (M.S.) CURRICULUM

### MISSION / PURPOSE

The graduate program leading to a M.S. degree in the department of Pharmacology and Toxicology has as a mission to prepare individuals for a variety of career objectives in biomedical science. These objectives include training students for careers such as industrial scientists and scientists in government regulatory agencies (but other related careers are not excluded). The program incorporates formal instructional activity and research training mentored by members of the faculty. The M.S. program is distinguished from the Ph.D. degree offered by the department in that the M.S. student is not being prepared for a career as an independent investigator.

### GOALS of MS Degree

The Department of Pharmacology and Toxicology offers a graduate program leading to the M.S. degree. This is a research-oriented degree program comprised of graduate course work and supervised research leading to a Masters' thesis. The M.S. program will be of interest to individuals planning on technical positions in pharmacology or toxicology research or testing, students interested in the health professions such as medicine or dentistry who desire additional research training and for those interested in a government position, such as with regulatory agencies, who seek training in pharmacology and toxicology.

### COURSE REQUIREMENTS

Students may achieve a Masters Degree as a part-time or full-time student. A full-time course load is 9-15 credits in the fall and spring semesters; and variable credits in the summer. The student must achieve a 3.0 GPA overall or higher in graduate courses and at least a 3.0 GPA in Pharmacology and Toxicology courses to graduate. Students are required to meet the curriculum requirements found in the VCU Bulletin for their year of matriculation. **2022-2023 PHTX**

**Ph.D. Bulletin:** <http://bulletin.vcu.edu/graduate/school-medicine/pharmacology-toxicology-ms/>.

Progression towards their degree can be monitored at **DegreeWorks:**

<https://dwprod.vcu.edu/Dashboard/>. A typical course plan for the full-time MS student is described below:

#### **FALL – YEAR 1**

	<b>CRN</b>	<b>SUBJ</b>	<b>COURSE</b>	<b>SECTION</b>	<b>CREDITS</b>
<b>Biochem, Cell and Mol Biology</b>	<b>30814</b>	<b>BIOC</b>	<b>503</b>	<b>001</b>	<b>5</b>
Graduate Research Methods 1*	17334	BIOS	543	901	3
Laboratory Safety	28012	IBMS	600	001	1
Research Seminar	25450	PHTX	690	001	1
Directed Research	14998	PHTX	697	819	Var

\*recommended

#### **SPRING – YEAR 1**

	<b>CRN</b>	<b>SUBJ</b>	<b>COURSE</b>	<b>SECTION</b>	<b>CREDITS</b>
Responsible Scientific Conduct	27870	OVPR	602	901	1
<b>Basic Concepts in Pharmacology</b>	<b>34734</b>	<b>PHTX</b>	<b>630</b>	<b>001</b>	<b>3</b>
Basic Concepts Virtual Lab	TBD				1
Research Seminar	14861	PHTX	690	001	1
Directed Research	14883	PHTX	697	818	Var

Advanced Elective (3 credits min)	--	--	--	--	3
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### **SUMMER – YEAR 1**

Directed Research in Pharmacology (variable credits) PHTX 697 – var. credits

### **FALL –YEAR 2**

	CRN	SUBJ	COURSE	SECTION	CREDITS
Principles of Pharmacology	35778	PHTX	636	001	5
Principles PHTX Journal Club	37204	PHTX	639	002	1
Pharmacology Research Seminar	14976	PHTX	690	001	1
Directed Research	14998	PHTX	697	819	Var
Advanced Elective (3 credits min)	--	--	--	--	3

### **SPRING – YEAR 2**

	CRN	SUBJ	COURSE	SECTION	CREDITS
Pharmacology Research Seminar	14861	PHTX	690	001	1
Directed Research	14883	PHTX	697	818	Var

\*\*M.S. students are required to give a seminar.

**ADVANCED ELECTIVES:** Students are encouraged to take one advanced elective offered by PHTX in alternating years (PHTX 632 – Neurochemical Pharmacology or PHTX 633 – Behavioral Pharmacology). If neither of these electives are appropriate for a student’s chosen area of study a comprehensive list of approved electives can be found in the [VCU Bulletin](#). Other advanced electives may also be acceptable. Please contact the Graduate Program Director before registering for unapproved electives so that they may be examined to determine if they will fulfill the advanced elective requirement. Courses used as Advanced Electives must be a minimum of 600 level.

Students will have selected an advisor prior to acceptance into the program. Full-time students will begin immediately to carry out supervised research, typically in the laboratory of their advisor. By the end of the first semester it is expected that a tentative thesis project will have been chosen by the student in consultation with the advisor. Before the beginning of the second semester, the student will select a Graduate Advisory Committee. The **Graduate Advisory Committee for the M.S student:** your committee should consist of at least two faculty members from inside this Department (i.e., *that would include your advisor*) and one faculty member from outside of this department. The GAC functions to assist the student in determining their course plan, help in the finalization of a thesis project, eventually, approve the thesis and conduct the final examination.

### **GRADUATION APPLICATIONS**

Graduate Applications can be filed online through [GradTrak](#). If you are graduating in December, you will need to file your graduation application by mid-September (*see the SOM Academic calendar*) and if you are graduating in May, you will need to file your application by the end of January.



**(NOTE: A notice will not be sent from the department in reference to graduation, it is the student's responsibility to file according to posted deadlines from the Dean's office!)**

### **THESIS DEFENSE**

The student must conduct a substantial original investigation under the supervision of the advisor and prepare a dissertation reporting the results of this research. Forms and guidelines for the dissertation can be acquired from the Graduate School website <https://graduate.vcu.edu/forms/>

Students must schedule their thesis defense using GradTrak with a minimum of 2 week notice, follow all School of Medicine processes and meet all mandatory deadlines.

<https://medschool.vcu.edu/education/graduate/current-students/>

When the thesis has been completed, copies are submitted to the members of the advisory committee. The student's Graduate Advisory Committee decides upon the acceptability of the candidate's thesis. The committee unanimously accepts the thesis for defense, the candidate appears before them for a final oral examination.

All students are expected to present a final departmental seminar prior to the oral thesis defense if at all possible. It is highly recommended that the student consult with the Faculty Director of the Pharmacology Seminar series (Dr. Ramamoorthy) and the Graduate Program Director, to schedule the defense seminar in the allotted times and dates for the regularly scheduled student seminars.

The student's GAC must be present at the final thesis defense. Any other departmental faculty may also attend the final thesis defense but only GAC members can vote on the defense. All material related to voting and signatures will be provided to the advisor prior to the defense. Following the oral thesis defense, the GAC will vote on passage or failure of the examination. A favorable vote, with not more than one negative vote, is required to pass this examination.

See the above section "**Stages in Degree Completion**" for Ph.D. "**DISSERTATION DEFENSE**" for example timeline for graduation process.

### **PART-TIME STUDENTS**

With respect to departmental and university regulations, it is not necessary for a MS student to be registered full-time in every semester. This allows students the flexibility to complete their degree requirements while working full or part-time; however, it would normally be expected that at least a year of full-time laboratory work would be required to complete the thesis project.

### **CONTINUING FOR THE Ph.D.**

M.S. students interested in our Ph.D. program must apply to the Ph.D. program through the Biomedical Sciences Doctoral Portal process. Completion of the M.S. degree does not ensure acceptance. On the other hand, applicants who are unsure if they want to earn a Ph.D. and desire

some experience in biomedical research before committing to a doctoral program may well be served by our M.S. program. Outstanding performance in our M.S. program should help the student gain admittance to a doctoral program here or elsewhere. M.S. students seeking to go on to medical or dental school are encouraged to complete their M.S. degree before enrolling in these programs. M.S. students at VCU seeking admittance to medical school at VCU will not be enrolled until they complete the Master's degree.

### **FINANCIAL AID**

Students in the M.S. program do not receive financial aid through the Department of Pharmacology and Toxicology. It is possible that students working on their thesis project may be employed as a research assistant on their advisor's research grant. In addition, various forms of financial aid are available for graduate students through the [University Services/Financial Aid Office](#). A form to request financial aid through that mechanism is included in the application package.

## **ADDITIONAL INFORMATION AND RESOURCES**

### **GRADUATE STUDENT POLICIES AND FORMS**

<https://medschool.vcu.edu/current-students/#d.en.337656>

This page contains a comprehensive and updated list of forms, policies and procedures. If you have a question not addressed in the handbook there is a good chance you can find the answer here.

### **TERMINATION FROM THE PROGRAM AND APPEAL PROCESS**

Appeal of termination from the program for any reason shall be governed by the School of Medicine Basic Sciences appeals process:

<https://medschool.vcu.edu/media/medschool2018/content-assets/graduate-education/10.DismissalfromacademicprogramandappealCOMPLIANT.pdf>

### **STUDENT SERVICES**

**Health insurance requirement and University Student Health Services.** In accord with current federal law, VCU requires all students to carry health insurance. Please see the full description of this policy. Independent of the VCU health insurance requirement, University Student Health Services provides a range of medical services to all students. Please see their website for more information.

**University Counseling Services** (1000 E. Marshall St. Rm 412 (VMI Building)) University Counseling Services (UCS) provides direct psychological, mental health, and preventative services to all students. To schedule an appointment, students should contact the UCS at [counseling@vcu.edu](mailto:counseling@vcu.edu) or 804-828-3964).

**Division for Academic Success** (1000 E. Marshall St. Rm 231 (VMI Building)). The Division for Academic Success (DAS) offers disability and academic support services to students in the VCU Health Sciences schools: Allied Health Professions, Dentistry, Medicine, Nursing and Pharmacy. Students wishing to improve their academic performance or needing accommodations should contact the DAS via registration on their website, email ([acadsuccess@vcu.edu](mailto:acadsuccess@vcu.edu)) or phone (804-828-9782).

**VCU Career Services** (1110 E. Broad St. Rm. 205 (Hunton Student Center)) VCU Career Services is available to help students identify and achieve their career goals. The Director for Health Sciences Career and Professional Development meets individually with graduate students to discuss career interests and strategies. Career Services coordinates a number of educational workshops on topics such as Maximizing myIDP, Writing CVs, and interview strategies, and hosts opportunities to connect with alumni and potential employers throughout the year. Students can schedule an appointment by phone (804-828-1645) or visit [careers.vcu.edu](http://careers.vcu.edu) to sign into HireVCURams.

**Office of Student Engagement** (1000 E. Marshall St. Rm 206 (VMI Building)) The Office of Student Engagement focuses specifically on the qualitative experience of being a health sciences student and develops strategies to enhance that experience. Specifically, this office has led to the development of a comprehensive system of assistance by attending to student success, student satisfaction, and student support.

## **STUDENT ORGANIZATIONS AND ACTIVITIES**

In addition to research, there are many organizations and activities in which to be involved. The following organizations are the most active on the VCU campus.

### **PHARMACOLOGY AND TOXICOLOGY STUDENT ORGANIZATION (PTSO)**

The PTSO is governed by the students in the Department of Pharmacology/Toxicology. In addition to welcoming and orienting new students in the program, they serve as a liaison between the students and the faculty of the department. They also organize and coordinate educational and social events to foster departmental interaction. The PTSO is open to any student (M.S., Ph.D. or MD/PhD) and postdoctoral graduate fellows in the department. See the PTSO Constitution in the Appendix section for additional information.

### **HONOR COUNCIL**

The Honor System on the VCU campus is a student run organization whose goal is to uphold academic integrity; to ensure that those who cheat, plagiarize, facilitate academic dishonesty, abuse academic materials, steal or lie are punished or removed from the university according to due process offered by administrative hearings and appeals. As an elected member of the PTSO, the Honor Council representative allows our department to have a voice in the new policies being made and activities planned during Honor Council meetings. This is especially important since graduate students are in the minority compared to dental, medical and pharmacy students. The Honor Council representative should be publicly known within the department and available so that people can ask questions, voice an opinion or suggestion about current policy or come to them as an accuser or accused for advice and guidance.

The Honor System is implemented with a report from **anyone** (faculty, students or staff) identifying suspicious behavior to the Honor Council representative. The Honor council representative then confronts the accused while maintaining the anonymity of the accuser. If the accused refuses to explain the conduct in question or if the explanation does not satisfy the accuser, then the accuser must decide whether they are willing to forsake anonymity in order to pursue the case further. If the case does continue, then the Honor Council representative reports to the chairman of the Honor Council within 24 hours and the accused is notified in writing of the charges and the name of the Student Body Prosecutor. The accused can choose to defend himself/herself or their Honor Council representative or a court appointed defense. All the participants in the court proceedings are expected to maintain confidentiality about the entire case. Students are presumed innocent until proven guilty. Their names are held confidential at all times. A jury of 7 students, one of whom is from the school of the accused, will render a

verdict based on testimonies of witnesses and evidence presented by the prosecution and defense. The same jury will also decide the penalty if the accused is found guilty. Penalties can range from receiving an F on the assignment or in the class to being suspended or expelled from the university.

### **STUDENT GOVERNMENT ASSOCIATION**

The objectives of the SGA are twofold: 1. Promote student activities and 2. Collectively represent VCU students' interest within the university and campus-wide issues. The SGA is composed of elected representatives from each school and/or department on the medical campus. Although anyone may be elected to serve as an SGA officer (president, vice president-social, vice president-student life, secretary, treasurer or yearbook editor), only current SGA representatives can vote. SGA representatives may serve on university-wide committees, including the Executive Budget Committee, the Strategic Planning Committee, Parking Committee, etc. Recently the SGA has been pro-actively involved in several student life issues including: student loan subsidies, new equipment for the VCU gym and improved student parking. The SGA is responsible for a budget of over \$70,000, which is generated from the \$28 fee paid by all full-time students. Social events account for the majority of expenditures and the yearbook is also included, which is free to all students. Several social events are held each semester, including happy hours, Halloween party, and a formal in February. Alcohol is usually provided at no or nominal charge. The SGA meets monthly, usually on the third Wednesday of the month at 6:00 p.m. in the Larrick Center. All students are invited to attend and free pizza and soda are provided.

### **OTHER ACTIVITIES**

**Departmental seminars** are held on **Tuesdays at 12:00 p.m.** and are mandatory for all graduate students in our department. Students usually have lunch with the more prominent speakers who are invited to present seminars to ask questions regarding their research, background, experiences, etc. The seminar topics comprise a wide variety of topics in Pharmacology and Toxicology.

## **STUDENT AWARDS**

### **ANTHONY AMBROSE AWARD**

The Anthony Ambrose Award for the best mid-career graduate student is an annual award made possible by a generous gift to the Department of Pharmacology and Toxicology by Mrs. Ambrose to honor her husband, Dr. Anthony Ambrose, a long time faculty member who brought to this department a wealth of information gained from a lifetime of pharmacological and toxicological investigations.

#### **Eligibility:**

All students who have successfully completed their written and oral comprehensive exams in the preceding year (usually from the beginning of the Summer semester) are eligible for this award. Students can be nominated for the award only once.

#### **Nominations:**

Eligible students are identified by the Program Director and requested to send their resume according to the template provided by the Director. Students in our program are only eligible for the Anthony Ambrose Award one time. A letter from the students' advisor will be requested by the Program Director and information compiled for all students in a booklet sent to all faculty in the department. The final voting is electronic by all faculty and tallied by the Graduate Office. Winners are usually announced at the Departmental Award Ceremony.

#### **Information Included on Ballots:**

- GPA
- Meeting where seminar or results were presented
- Manuscripts accepted for publication
- Special Awards
- Service (i.e., officer in PTSO, student representative on Tenure Promotion Committee, etc.)
- Advisor's Comments

#### **Cash Award:**

First Place – Cash award and a plaque

The names of the Ambrose Award winners are also placed on a plaque in the Graduate Office.

### **LAUREN WOODS AWARD**

The Lauren A. Woods award for graduate students is an annual award made possible by a generous gift to the Department of Pharmacology and Toxicology by Dr. and Mrs. Lauren A.

Woods to honor research excellence among doctoral students in the department. Dr. Woods was a distinguished pharmacologist who served for many years as Vice President for Health Sciences at Virginia Commonwealth University.

### **Eligibility:**

Eligibility is defined as, any student who has defended his/her thesis (beginning from the Summer semester) of that year.

### **Nominations:**

Faculty advisors and eligible students are informed by the Program Director of their eligibility. Students are requested to send a resume according to a template and advisors are requested for a nomination letter. The Graduate Office compiles the information in a booklet and submits to the faculty for voting. Two awards are made each year and winners announced at the Departmental Award Ceremony.

### **Information Included on Ballots:**

- Abstract (The abstract should be prepared as described in the University Graduate Council Thesis and Dissertation Manual in Section 3.10)
- Publications
- Honors, awards, etc.
- Elected offices
- Lectures and Seminars
- Photograph (wallet portrait)
- Nomination letter directly submitted by the advisor to the Graduate Office.

### **Award**

Cash award and a plaque

Names of the Lauren Woods Awardees are added to the plaque in the Graduate Office.

### **C.C. Clayton Award**

The Clayton awards honor the memory of the founder of advanced degree education at VCU by recognizing and tangibly rewarding student achievement. Awards are made to students in MS and PhD programs in each Department in the School of Medicine. Each department/ program will have the opportunity to nominate students provided that the following criteria are met:

#### **Doctoral student:**

- As of January 1, in the academic year of the nomination, the student will have completed ~ 45-60 credit hours; the implication is that the student nominated is a student in his/her second year or third of study.

- A GPA of 3.75/4.0 in courses at this institution at the graduate level will have been maintained as documented by a Banner transcript copy.
- Additional evidence of scholarly achievement will be shown; "evidence" shall minimally be a one-page description of research in progress provided by the student.
- Submission of a resume prepared by the student.
- Submission of a letter from the Chair or Program Director nominating the student which describes the basis for selection
- The current address, V-number and Social Security Number of the student nominated
- Each qualified Ph.D. student will receive an award of \$1,000 from the School of Medicine.

**Masters student:**

- As of January 1, in the academic year of the nomination, the student will have completed ~45-60 credit hours; the implication is that the student nominated will be a student in his/her second year of study.
- A GPA of 3.75/4.0 in courses at this institution at the graduate level will have been maintained as documented by a Banner transcript copy.
- Additional evidence of scholarly achievement will be shown; "evidence" shall minimally be a one-page description of research in progress provided by the student.
- Submission of a resume prepared by the student.
- Submission of a letter from the Chair or Program Director nominating the student which describes the basis for selection
- The current address, V-number and Social Security Number of the student nominated
- Each qualified Masters student will receive an award of \$500 from the School of Medicine.

**Honor Society of Phi Kappa Phi**

The Phi Kappa Phi Honor Society recognizes outstanding academic achievement of graduate students.

To be eligible for nomination the student must fulfill the following criteria:

1. The individual must be a first-time graduate (Master's or Ph.D.) degree candidate
2. The person must have completed a minimum of one academic year at VCU; (i.e. the person must be in at least the third semester of study at VCU)
3. The person must have a cumulative graduate GPA > 3.50
4. The person should be performing in the upper 10% of your degree program
5. The person must be of worthy character



# APPENDIX

## **The Pharmacology and Toxicology Student Organization Constitution**

### **Article I. Name**

The Pharmacology and Toxicology Student Organization (PTSO) will be a registered university organization.

### **Article II. Mission and Purpose**

The Pharmacology and Toxicology Student Organization's mission is to offer students the opportunity to network among peers and faculty with similar career orientations, participate in community outreach through volunteerism, to provide leadership skills and experience, and to nurture student development in a research setting.

### **Article III. Membership**

Any graduate student in the Department of Pharmacology and Toxicology or a Neuroscience student in a Pharmacology and Toxicology laboratory is eligible to be a member of the PTSO.

This organization complies with all State and Federal laws and VCU policies on nondiscrimination. This organization supports and encourages respect for political, religious, ethnic, racial, physical, generational, sexual and affectional, and intellectual differences because such respect promotes free and open inquiry, independent thought, and mutual understanding.

### **Article IV. Officer Elections and Responsibilities**

#### *Section I. Elected Officers*

- The PTSO executive board shall have a President, a Vice President, a Secretary, a Treasurer, a
- Student Government Association (SGA)/Graduate Student Association (GSA) Representative, an Honor Council Representative, a Webmaster/Social Chair, and a Community Outreach Chair. All officers comprise the PTSO Executive Board.
- All officers must be active members of the PTSO.
- Election of officers shall be held annually. The acting President will collect nominations for the succeeding year and hold an anonymous election for each position. The winning nominee for each position will be contacted and receive a week notice to accept or decline. If a week passes or the nominee declines, the next runner-up will be contacted. If all nominees for an officer position decline, the PTSO Advisor will be contacted for direction. Any vacancy which may occur in an office position shall be filled by appointment by the president pending approval by the executive board.
- The term of office shall be from August to May.
- Any officer may be removed from an elected position by majority vote of the presiding executive board.

- Any officer removed may appeal to the general membership.

*Section 2. Officer Responsibilities*

A. The President shall:

- Oversee the operation of the PTSO
- Maintain organization status with the University
- Maintain the mission and purpose of the organization
- Serve as liaison between the PTSO and both Director of Graduate Studies and Chair of the Department of Pharmacology and Toxicology
- Organize and chair executive board meetings
- Coordinate selection of the incoming executive board for the following academic school year
- Serve as chair of the Student's Choice Seminar and Professor of the year committees
- Serve of the Departmental Retreat Committee

B. The Vice President shall:

- Support the president's roles in their entirety: helping to manage finances, events, and direction of the PTSO
- Lead the PTSO gear sale and delegate roles as needed
- Attend University meetings and events when the president is unable to attend

C. The Treasurer shall:

- Keep a current record of all finances
- Assist the president in requesting additional funding for the PTSO
- Check the accuracy of all bills and invoices and pay them on time

D. The Secretary shall:

- Be responsible for taking, distributing, and filing meeting minutes for executive board meetings
- Maintain the master file of all meeting minutes

E. The SGA/GSA Representative shall:

- Attend all SGA/GSA meetings
- Seek feedback, including student concerns, from fellow peers
- Vote on funding requests at the month general body meeting
- Record and inform executive board officers of SGA/GSA meeting minutes

F. The Honor Council Representative shall:

- Be familiar with the University's Honor System
- Attend the orientation and training session for members of the Honor Council held by the Office of Student Conduct and Academic Integrity
- Serve on an Honor Council hearing panel when needed

G. The Webmaster/Social Chair shall:

- Maintain the PTSO's web presence, including the Facebook page
- Organize and advertise social events
- Communicate effectively all costs and materials with the President and Treasurer
- Work with the President and Treasurer to ensure appropriate funds are requested for events in the annual budget proposal

H. The Community Outreach Chair shall:

- Organize and lead all community service events
- Communicate effectively all costs and materials with the President and Treasurer
- Work with the President and Treasurer to ensure appropriate funds are requested for events in the annual budget proposal

### **Article V. Meetings**

The PTSO will meet at least once during each academic semester. The president can schedule additional meetings as necessary. All board members are expected to attend these meetings, unless informed otherwise.

Minutes shall be taken at meetings and will be made available to the executive board.

### **Article VI. Hazing**

This organization complies with all State and Federal laws and Virginia Commonwealth University policies on hazing. This organization recognizes hazing to be any action taken or situation created to inflict physical or mental discomfort, embarrassment, harassment or ridicule upon any individual or group. Further, the members of this organization understand that any individual or group found responsible for hazing will be subject to disciplinary action, which may result in probation, suspension, or revocation of registration privileges.

### **Article VII. Rules of Procedure**

In order to maintain active status, this organization will comply with all VCU policies and procedures, including financial regulations, which pertain to student organizations.

### **Article VIII. Amendments**

Amendments to the constitution of the PTSO must be approved by majority vote of presiding executive board.