



# **A Guide to Pharmaceutical Sciences Graduate Programs**

**2019-2020**

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**Note:** The forms on pages 26-36 are available online at

<http://pharmacy.oregonstate.edu/phd-student-resources>

Templates for student-advisor agreements are also available at the above URL.

The annual review of progress is provided annually in Spring term as an online survey.

### **Getting started**

Welcome to the Oregon State College of Pharmacy. Oregon State is a leading public research university that is the state's Land Grant university and is one of only two universities in the U.S. to have Sea Grant, Space Grant and Sun Grant designations. The College of Pharmacy at Oregon State places high priority on graduate education and the improvement of human health by advancing the discovery and understanding of medicines. We strive to prepare our graduate students of today to be the pharmaceutical sciences researchers of tomorrow. We're pleased that you've chosen to join our graduate programs. Upon graduation we expect that pharmaceutical sciences graduate students will be competent to:

- Expand the knowledge of their discipline(s), having developed:
  - Research and scholarship skills.
  - An extensive understanding of the knowledge base of the discipline.
  - A broad, general understanding of pharmaceutical and health biosciences.
- Communicate research findings to improve the knowledge base in pharmaceutical sciences,
  - Give oral presentations in scientific and public forums
  - Produce scientific writing for manuscripts for peer-reviewed journals
- Enter the profession of pharmaceutical science, having developed:
  - A network of professional peers and role models.
  - An understanding of the requirements of academic, industrial, or other workplaces.
  - A sense of the culture of pharmaceutical science.
  - A deep appreciation for the ethical conduct of research.
- Teach and mentor future pharmaceutical scientists, having experienced:
  - A compelling learning environment.
  - Opportunities to serve as a teacher and mentor.

### **Week 1**

1. Meet with graduate program coordinator Debra Peters in room 115, Pharmacy Building.
2. If you have not already done so, email professors whose labs you are interested to work in for your research rotations (normally three) and arrange meetings with them to determine which term (Fall, Winter or Spring) they are able to host you in their lab. If you have already committed to a specific professor's research group for your PhD, contact the professor – this professor will be your “major advisor” for your PhD.
3. Obtain a university ID card from the ID Center in the Memorial Union (room 103).
4. Register for a university email ONID account (mandatory) at the website “<http://onid.oregonstate.edu/>” and choose “Sign Up For ONID.”
5. Register for the gspharm listserv (mandatory) at the website “<http://lists.oregonstate.edu/>”.
6. Sign up for health insurance at “<http://studenthealth.oregonstate.edu/graduate-assistant>”.
7. If receiving a GRA (graduate research assistantship) or GTA (graduate teaching assistantship), get help with setting up payroll.
8. Outline a program of study (POS) for your first term with your research advisor or the Director of Graduate Programs and register for classes. Also try to plan out all of your courses for the first year – different courses are offered with different frequencies and this may impact your ability to meet program requirements. See [GradProgram\\_POSbuilder\\_template](#) for a template spreadsheet for this.

9. Discuss expectations for research work with your research advisor.
10. Obtain keys – ask your research advisor make the appropriate request to the Dean’s office.
11. Take advantage of university orientation programs to get familiar with the Valley Library, electronic resources, and university programs for graduate students.
12. Discuss with your research advisor (professor whose lab you will work in) the potential need for laboratory safety training, radiation safety training, animal care and use training, dive certification, NMR check-out, English language training, or other specific concerns.
13. Familiarize yourself with safety equipment and procedures specific to your chosen lab, (e.g. eyewash/shower, fire extinguisher, first aid kit, fire blanket, fire escape routes, radiation areas).
14. Browse the Graduate School Catalog:

<https://catalog.oregonstate.edu/college-departments/graduate-school/>

Note that the OSU Graduate School (<https://gradschool.oregonstate.edu/>) is currently located in Heckart Lodge, 2900 SW Jefferson Way, phone 541-737-4881.

**Resources for students at Oregon State University**, compiled by the Office of Student Life:  
<https://experience.oregonstate.edu/resources>

**Note for Accidents and Grievances:**

For any injury more than a simple scratch, an accident report should be filled out in consultation with your major advisor.

Students are strongly urged to bring issues of grievance to their major advisor, the Graduate Studies Committee (Kerry McPhail, Graduate Program Director), the Department Chair (Theresa Filtz), the Executive Associate Dean (Gary DeLander), or the Dean (Grace Kuo), preferably in that order, for resolution prior to utilizing university channels. University-level grievance procedures are detailed on the graduate school website (<http://gradschool.oregonstate.edu/progress/grievance-procedures>) and included in the subset of resources below:

**Student Advocacy**

- **Ombuds Office**: The Ombuds Office provides informal and impartial conflict resolution services for all members of the University community.
- **ASOSU Office of Advocacy**: The ASOSU Office of Advocacy provides assistance for students who have a dispute with a member of the University; free and confidential.

**Campus Support Services**

- **Equal Opportunity and Access (EOA)**: The Office of Equal Opportunity and Access insures equal opportunity by responding to discrimination or harassment concerns or complaints, implementing policies and practices, giving advice and guidance, and providing training and education related to affirmative action and equal opportunity.
- **Human Services Resource Center**: HSRC works to alleviate the effects of hunger, poverty, and other human needs so that students can pursue a quality education. Services provided include an emergency food pantry, meal subsidies, emergency housing assistance.
- **Diversity and Cultural Engagement (DCE)**: Diversity and Cultural Engagement provides support for campus diversity and cultural centers.
- **Survivor Advocacy and Resource Center**

**Health and Wellness**

- **Center Against Rape and Domestic Violence (CARDV)**: CARDV is a private, non-profit community service organization dedicated to helping survivors of sexual and domestic violence and their children stay safe, and is free and confidential.
- **Counseling and Psychological Services (CAPS)**: CAPS is intended to assist students in students addressing the challenges and difficulties they are facing. CAPS provides confidential sexual assault support services. Their services are free or of minimal charge.
- **Student Health Services (SHS)**: SHS provides health care (medical and psychiatric), self-care guides, and a Sexual Assault Nurse Examiner.
- The Human Services Resource Center (HSRC) ([hsrc@oregonstate.edu](mailto:hsrc@oregonstate.edu), 541-737-3747). The HSRC has a [food pantry](#), a [textbook lending program](#) and other resources.

**Safety**

- **Department of Public Safety (DPS)**: DPS provides crime prevention and safety tips, campus crime reports, and the OSU Emergency Alert System.
- **SafeRide**: SafeRide is a service dedicated to assault prevention, to OSU students, Faculty and Staff. One of the most important services they offer is free transportation to and from campus for all OSU students. To call for a ride, dial 541-737-5000 or 7-5000. Before calling, please review their policies, boundaries and hours of operation.

## **Guidelines for the Concurrent Degrees of M.S. and Ph.D. in Pharmaceutical Sciences**

See also: [Committee Meetings, Exams and Thesis](#)

All matriculating Ph.D. students are offered the opportunity to enroll concurrently in the degree of Master of Science (M.S.) in Pharmaceutical Sciences. Graduate students will thus have the opportunity to gain an M.S. degree *en route* to a Ph.D. degree, with the M.S. defense generally being held on the same day as the Ph.D. preliminary (oral candidacy) exam.

**In consultation with their major advisor and graduate program committee, students will select either a thesis or non-thesis MS degree**, for which the Graduate School requirements are stated below. In either case, M.S. degrees require a total of 45 credit hours and up to 9 credit hours of blanket courses *that are not part of the 'capstone' research project credits* can be counted towards this target. No more than 50% of the credits can be slash courses (the 5XX component of a 4XX/5XX course). Training in the conduct of scholarly or professional activities in an ethical manner (e.g. GRAD520) is required.

Thus, an acceptable non-thesis MS program of study (POS) could be 30-33 credit hours of non-blanket graduate level classes (4XX/5XX, stand-alone 5XX, 6XX or approved 7XX), 3-6 credit hours of PHAR 501 (research rotation) as capstone, 1-3 credit hours of PHAR 507 (seminar) and 8-6 credit hours of other blanket courses (more PHAR 501 or 503).

### **THESIS MS (at least 45 credits)**

*Didactic (lecture/theory) course credits:* 24

*'Capstone' research:* 6-12 credit hours of PHAR 503

*Committee:* at least four members of the graduate faculty – two in the major field, one in the minor field if a minor is included, and a Graduate Council Representative. When a minor is not included, the fourth member may be from the graduate faculty at large.

### **NON-THESIS MS (at least 45 credits)**

*Didactic (lecture/theory) course credits:* 30

*'Capstone' Project:* 3-6 credits of PHAR 501

*Committee:* three members of the graduate faculty – two in the major field and one in the minor field if a minor is included. When a minor is not included, the third member may be from the graduate faculty at large.

### **Important information for planning a graduate program of study**

- The didactic course work from the M.S. program can be used for the Ph.D. program, with the exception of 501 and 503 or other non-graded credits.
- *MS and PhD thesis topics may overlap*
- The same thesis credits cannot be used for M.S. (PHAR 503, 6-12) and Ph.D. (PHAR 603, ≥36) degrees.
- First year graduate students should register for lab research under PHAR 501 (non-thesis) or 503 (thesis), **NOT PHAR 601 or 603**.
- Students should submit the **concurrent degree (change of degree) form** to add the M.S. degree before they submit their Ph.D. program of study or take their Ph.D. preliminary oral exam. This should be checked and completed BEFORE the first program meeting, when both M.S. and Ph.D. program of study documents are prepared.

### **Academic requirements overview**

The Graduate School at Oregon State University sets minimum requirements for graduate degrees. In certain instances the College of Pharmacy stipulates more stringent requirements for its students than the minimums established by the Graduate School. Students should pay particular attention that the College of Pharmacy differs from the Graduate School in requiring that the oral prelim exam be completed within **9 academic terms** of commencing a PhD degree program, that the remote participation policy is more stringent in regard to student participation, and that a 3.0 GPA must be maintained in all didactic coursework to remain in good standing.

### **Curriculum**

See Coursework and course curricula below. All pharmaceutical sciences graduate students are required to take PHAR 525 (735), Foundations of Drug Action I (3 credits, fall term) and PHAR 669, Grant-writing (2 credits, fall term). Training in responsible conduct of research is also required, and may be satisfied by enrollment in GRAD 520. Otherwise, the coursework to be completed in the first two to two-and-a-half years of the program varies based on disciplinary tracks. Guidelines for programs of study in medicinal chemistry, pharmacology, and pharmaceuticals are listed under “Course Curricula” in this handbook, but students should consult their major advisor for specifics.

### **Credit Requirements**

OSU requires a total of 108 credits for a Ph.D. degree, and 45 credits for an M.S. degree. Graduate students must complete 27 credit hours of didactic course work for a Ph.D. degree and 24 credit hours for an M.S. degree (thesis or non-thesis). “Didactic courses” exclude thesis, seminar, and reading and conference classes (“blanket credits”, meaning courses with a “0” in the middle number, e.g., PHAR 507). With the exception of PHAR 503 and PHAR 603 (thesis research), students may only include a maximum of 15 blanket credits on their program of study. Despite this OSU rule, pharmaceutical sciences graduate students should register for 1 credit of PHAR 507 (Seminar) each term.

Students paid as a GRA or a GTA with a tuition waiver must sign up for the maximum number of credits each academic term (16) and 5 credits in summer term using a variable number of units of PHAR 603 or PHAR 503 (PhD or MS Thesis Research) to fill out their schedule as needed.

### **Rotation Requirements**

New students who have GTA funding are required to complete three research rotations in their first year. Rotations are generally completed within the student’s discipline, but a student is allowed to choose a lab outside their own discipline to gain a breadth of experience if desired.

Rotating students must register for a minimum of 3 credits of PHAR 501 (for MS degree) or PHAR 601 (for PhD degree) each term in year 1 for their rotations.

### **GPA requirement**

Pharmaceutical sciences graduate students are required to maintain a 3.0 GPA in all didactic coursework to remain in good academic standing. This requirement is more rigorous than the university’s requirement of a 3.0 GPA overall. The College of Pharmacy graduate studies committee is responsible for decisions regarding the progress of students not meeting the pharmaceutical sciences program GPA requirement for didactic courses or the OSU overall GPA requirement, which may include loss of funding. “C” grades are acceptable as long as the student average does not fall below 3.0.

### **Preliminary exam for PhD students**

All pharmaceutical sciences PhD students are required to complete their preliminary exams within **nine terms** of enrollment (excluding summer). Students who do not complete their preliminary exams in a timely manner may be subject to academic probation and/or a loss of GRA or GTA funding. Students

who are in danger of not completing their preliminary exam by the end of the ninth term MUST submit a letter explaining the circumstances to the graduate studies committee at least 6 weeks before the end of the ninth term. Thus, students should begin to plan their preliminary exam dates at the beginning of their third year, and not wait until close to the deadline.

### **Policy on distance participation in exams and committee meetings**

OSU will allow any member of a thesis committee, including the student, to participate remotely via videoconference in committee meetings. However, the College of Pharmacy requires that the student MUST be on an OSU campus for their preliminary oral and thesis defense exams. For a program meeting or a preliminary exam, the College of Pharmacy also requires that a faculty member is physically present at the same remote site as the student participating remotely. The remote participation form must be completed and submitted to the Graduate School prior to any meeting in which a member will be at a remote location (forms can be found at <https://gradschool.oregonstate.edu/forms/>).

### **Waiver of course requirements**

Students who, in consultation with their major advisor, desire to waive any of the above pharmacy program requirements need to submit a letter to the graduate studies committee (email Debra Peters). The letter should explain the reason for the waiver request and be co-signed by the major advisor. If approved, the committee will issue a letter to be included with the student's Program of Study and kept on file.

### **Continuous enrollment policy**

OSU has a continuous enrollment policy for graduate students. Students must be enrolled for a minimum of 3 credits each academic term every year, or request a leave of absence, to remain in good standing. Please discuss the continuous enrollment policy with your thesis advisor or the Graduate Studies Director if you will be taking any time off from your studies for any reason, including leaving for an internship during the academic year. Please see the graduate school catalog for more detail if needed. Requests for leave of absence must be filed AT LEAST two weeks before the beginning of the term.

### **Program committee meetings**

The first committee meeting must be held within four terms of matriculation by OSU policy and within two terms for MS students and PhD students going directly into a chosen research lab (on GRA). The next committee meeting is generally the preliminary exam meeting held within nine terms of matriculation by College of Pharmacy policy (excepting dual degree students). After successful completion of the preliminary exam, a student is required to have annual thesis committee meetings until graduation. More detailed information about committees and meetings is provided in the section below on [Committee Meetings, Exams and Thesis](#).

### **Annual assessment of progress**

Starting in their second year, students and advisors are required to complete an annual assessment of progress. The form and instructions are provided as an online survey in March. The annual assessment may be discussed with the thesis committee if needed.

## **Life as a pharmaceutical sciences graduate student**

### **Funding**

Graduate assistantships are normally granted only to PhD-seeking students in pharmaceutical sciences. Graduate students admitted without funding should **not** expect that funding will become available at some point in their graduate program.

A limited number of teaching assistantships (GTAs) are available each year to outstanding students to assist with undergraduate or professional courses. Along with a stipend, these assistantships provide a complete tuition waiver for the academic year. **Note that no more than five years of GTA support will be provided to any one student.** Funding for graduate research assistants (GRAs) is generally available to graduate students in or beyond their second year who are devoting the majority of their time to research. The research performed by these assistants is usually applicable to the doctoral dissertation. These research assistantships are funded by grants to individual faculty members from outside agencies so availability is variable.

Students are encouraged to work with their major advisers to apply for the limited number of highly competitive Graduate School fellowships and awards available each year:

<https://gradschool.oregonstate.edu/finance/graduate-fellowships-and-scholarships>

Look out for other internal and external award/fellowship opportunities circulated by email throughout the year.

### **Teaching**

Pharmacy graduate programs do not have a formal teaching requirement. However, opportunities for gaining experience in the classroom are available for those wishing to teach PHAR 210, Terminology for Health Professionals. See the Graduate School website for information on courses related to teaching and the Graduate Certificate in College and University Teaching:

<https://gradschool.oregonstate.edu/graduate-student-success/teaching-and-facilitation>

### **Annual Spring retreat of the College of Pharmacy**

Students (except first years) are expected to present an oral or poster presentation at each year's graduate student/faculty research retreat which is currently held in March at the beginning of Spring break. Details about the schedule and location of the research retreat are generally available during spring term every year.

Sometime before the retreat, first year students should find the Student Multimedia Services (<https://is.oregonstate.edu/sms/printing>) ; also see: <http://www.ncsu.edu/project/posters> for some very nice hints on effective poster presentations.

### **Literature reading good practices**

Every week spend one to two hours reading broadly in science, looking at Science, Nature and specialty journals.

Every week perform a directed PubMed or SciFinder search, or join an automated literature retrieval service.

Develop an electronic database of references (e.g. Zotero®, Mendeley®, Endnote®, Papers®, or other reference software), keep it updated, and keep a file drawer of manuscripts of greatest interest and importance. The OSU library has regular tutorials on the use of reference manager software to help keep all of these papers organized.

Find time to read papers (have them accessible) while waiting in line, eating lunch, in the doctor's waiting room, trying to go to sleep, etc.

### **Seminars**

Pharmaceutical sciences seminars are announced through the gspharm listserv, and are mandatory (PHAR 507) for graduate students. Seminar topics outside of the student's discipline provide breadth to a program of graduate study that complements the depth necessary for successful thesis work.

Attend three to four seminars around campus per month (Chemistry, Toxicology, Biochemistry, Botany, Zoology, CGRB, Microbiology, Vet Med, etc.). Take notes and keep a seminar book of ideas.

### **Conferences**

Every PhD student is required to attend *at least one regional or national meeting and give a presentation (poster or oral) prior to graduation*. Therefore, discuss conference attendance with your advisor. Local, regional and/or national meetings provide opportunities for students in all pharmacy disciplines to practice public speaking and engage in scientific discourse with fellow researchers in a variety of settings. The College of Pharmacy has some funds to allow senior graduate students to attend a national meeting. Students in their 3<sup>rd</sup> – 5<sup>th</sup> year are encouraged to apply for the travel funds. The Graduate School provides graduate student travel awards to cover up to half of the full cost of attending a conference (see <http://gradschool.oregonstate.edu/awards/travel-award>). Therefore, work with your advisor and the college to secure funds for you to travel to a meeting.

Attending a conference is work! Prepare before the conference by becoming rigorously up-to-date with the literature. Meet as many people in your field as possible by talking with them at poster sessions, asking insightful questions at scientific sessions, and by joining in the social activities. Keep a conference notebook with ideas, contacts, potential postdoctoral opportunities, and follow-up tasks.

### **Publications**

All graduating Ph.D. students are required to have either published or submitted a first-author manuscript containing primary research (not simply a literature review) for publication in the peer-reviewed literature prior to graduation. Work with your advisor to prepare and submit your scholarly work to peer-reviewed journals in your field.

### **Intellectual Property**

OSU has an Office of Commercialization and Corporate Development (OCCD, <https://advantage.oregonstate.edu/>). A licensing officer from OCCD will present a seminar (normally in January) to provide further information and answer questions.

To learn more about intellectual property and inventorship see below and/or ask faculty:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4526723/>

<https://innovate.uncg.edu/title-to-ip-and-inventorship/>

[https://agsci.oregonstate.edu/sites/agsci/files/main/research/vrc\\_release\\_inventorship-gattari.pdf](https://agsci.oregonstate.edu/sites/agsci/files/main/research/vrc_release_inventorship-gattari.pdf)

### **Professionalism**

Join a scientific society as a student member. The College of Pharmacy has a chapter of the American Association of Pharmaceutical Sciences (AAPS) that all students, MS, PhD and PharmD,

are encouraged to join. AAPS provides funds for a seminar speaker every year chosen by the student members.

Most regional and national societies (e.g., Society of Toxicology (SoT), Society for Neuroscience, American Society for Pharmacology and Experimental Therapeutics (ASPET), American Society for Pharmacognosy (ASP), etc, have reduced rates for students, allow members to apply for travel awards to conferences, provide job search opportunities, and other benefits. Societies are one means to be involved in the future of your profession.

Find a journal club on campus whose research interests are closely aligned with yours. Within the Department of Pharmaceutical Sciences, Pharmaceutics has a required journal club, and medicinal chemistry and pharmacology also run journal clubs (you can sign up for PHAR 505, Reading and Conference). Outside of Pharmacy, the Molecular and Cellular Biology program has a journal club, and there is an epigenetics journal club run by Dr. Michael Freitag. Discuss other options with your major advisor.

Get involved in shaping the department and the future of your discipline. The graduate studies committee has a student member. Graduate students are often asked to meet prospective faculty at interview lunches and to provide feedback to faculty search committees. OSU has a graduate student senate focused on issues of common concern.

### **Ethics**

The ethics involved in scientific research are too numerous to delineate here but include a responsibility to be a wise steward of the public's money by avoiding unnecessary spending, working diligently, and reporting all work honestly.

All graduate students are required to take a course in scientific research ethics (GRAD 520).

Graduate students have a responsibility to keep accurate and detailed lab notebooks for future reference and to acknowledge everyone who provides intellectual, physical, and monetary support. Plagiarism, fabrication or falsification of research data are serious ethical breaches which will result in dismissal from the university. Students should never perform a procedure or use equipment for which they have not received training or have uncertainties about their skills. Everyone should be responsible for cleaning up their own messes. University laboratories are often excitingly diverse environments with scientists of many nationalities working together; *mutual respect is absolutely expected*.

### **Safety**

Laboratory safety should be discussed with your rotation advisors and your major advisor before you start work in any laboratory and before you start any new protocol. At a minimum, students in all of our research labs in pharmacy should be wearing a lab coat, closed-toe shoes, leg coverings, gloves and safety glasses when working at the bench. More detailed requirements and information for specific kinds of lab tasks (e.g. chemical safety, biosafety) are available on the OSU environmental health and safety website at <http://oregonstate.edu/ehs> in the sections on "safety documents" and "manuals and plans". Always ask if you are not sure about a procedure, operating equipment or entering a new area.

Dr. Phil Proteau is our chemical hygiene and safety officer for the College of Pharmacy.

If working late or odd hours, check to see who is in the building and let them know that you are present. Many labs have a neighbor with a common door. Get to know your neighbors and check in on them.

Never let anyone you do not know well into the locked building after hours or on weekends and make sure that the external doors are closed behind you when you leave. In the past, equipment

has been stolen from unlocked labs and unauthorized individuals have occupied the building. Laboratory doors should be locked during the day if no one is working in them.

### **Time sheets, sick leave and vacation**

As a graduate student employee, you need to fill out a timesheet online every month (Debra Peters, [debra.peters@oregonstate.edu](mailto:debra.peters@oregonstate.edu), can answer your questions about this). It is important to communicate with your research advisor well ahead of time if you want to take vacation time, and also to let them know when you are ill, as soon as possible. Many students are far from home and if faculty do not hear from a student, they will be concerned for the student's wellbeing.

For information about your position see the Collective Bargaining Agreement for 2016-2020:

<https://hr.oregonstate.edu/policies-procedures/administrators/graduate-employee-cge-contract-resources>

Article 30 of the Collective Bargaining Agreement addresses sick leave accrual. Student employee benefits for each academic term include: tuition and fee remission, health insurance, and sick leave accrual. Sick Leave accruals will be available at the beginning of each academic term. Accrual balances may be viewed by the Graduate Employee in the on-line time and attendance system and at [mytime.oregonstate.edu](http://mytime.oregonstate.edu). For pharmaceutical sciences student employees (0.46-0.49 FTE), leave accrual is 10 hours per term.

## **Committee Meetings, Exams and Thesis**

### **MS Degree Committee Meetings, Exams and Thesis or Project Report**

Program Committee Meeting:

A committee meeting and program of study form **MUST** be submitted before completing 18 graduate credits by university rules. ***The College of Pharmacy expects the MS thesis committee meeting to be held by the 4<sup>th</sup> academic quarter of study or before 18 graduate credits recorded on the program of study are accrued, whichever comes first.***

**Thesis MS Committee Structure** (four members total): The thesis committee is chaired by the student's primary advisor. Additional committee members need to include at least one other in the major field, and one in the minor field if a minor is included, or from the graduate faculty at large. The fourth member is a graduate council representative (GCR); students should obtain a list of potential representatives from the Graduate School.

**Non-Thesis MS Committee Structure** (three members total): The thesis committee is chaired by the student's primary advisor. Additional committee members need to include at least one other in the major field, and one in the minor field if a minor is included, or from the graduate faculty at large. No graduate council representative (GCR) is required.

#### **To prepare for a first committee meeting:**

- 1) Establish that all potential committee members are willing to serve and schedule a mutually acceptable meeting time.
- 2) Receive approval from the graduate school for selection of the graduate council representative if relevant (only for a thesis MS).
- 3) Inform the OSU graduate school of meeting time and location.
- 4) **If the MS is going to be concurrent with a PhD degree, submit a "change of degree" form.**

#### **To the first committee meeting bring:**

- 1) A completed program of graduate study on the official form with grades entered.  
(one copy for each committee member)
- 2) Program on form without grades.  
(one copy for signing)
- 3) Any waivers of programmatic requirements
- 4) Current C.V.  
(one copy for each committee member)
- 5) One to two page summary of research to date (emphasize graphic information) and a short description of future work planned.  
(one copy for each committee member)
- 6) A fifteen minute presentation on your research to date and plans for the future using Power Point slides.

Note that your major professor may assist you with this material for your first program meeting (this is not an exam)

## PhD Degree Committee Meetings, Exams and Thesis

### Program Committee Meeting:

A committee meeting **MUST** be held by a PhD student's 5<sup>th</sup> quarter of study by university rules. ***The College of Pharmacy expects the PhD thesis committee meeting to be held by the 4<sup>th</sup> academic quarter of study.***

Committee Structure (five members total): The thesis committee is chaired by the student's primary advisor. Additional committee members need to include at least one other from the College of Pharmacy. OSU will assign a graduate school representative on the committee; students should obtain a list of potential representatives from the Graduate School.

### To prepare for a first committee meeting:

- 1) Establish that all potential committee members are willing to serve and schedule a mutually acceptable meeting time.
- 2) Receive list and approval from the OSU Graduate School for selection of the Graduate Council Representative (GCR).
- 3) Inform the OSU Graduate School of meeting time and location.

### To the first committee meeting bring:

- 1) A completed PhD program of study on the official form with grades entered, AND a MS program of study form if doing a concurrent MS degree (one copy of each for each committee member)
- 2) Any waivers of programmatic requirements
- 3) Current C.V.  
(one copy for each committee member)
- 4) One to three page summary of research to date (emphasize graphic information) and a short description of future work planned.  
(one copy for each committee member)
- 5) A twenty minute presentation on your research to date and plans for the future using Power Point slides.

Note that your major professor may assist you with this material for your first program meeting (this is not an exam)

## Preliminary Exam

The preliminary exam is taken near or immediately after the completion of all didactic coursework, ideally early in the student's third year of study. All PhD degree-seeking students in pharmacy are required to complete preliminary examinations within nine academic (non-summer) terms of the start of their graduate studies.

An extension may be requested by students or faculty members who anticipate that a preliminary exam will not be completed within nine academic terms. The request is made to the graduate studies committee by detailing circumstances causing delay and providing a plan for completion. Students transferring from a Masters to a PhD degree within the pharmacy graduate program will be considered individually at the time of transfer, taking into consideration the amount of coursework completed. Transfer students should discuss a timeline for completion of preliminary exams at their first committee meeting.

Students who have not completed preliminary exams by the beginning of their tenth academic term will no longer be considered in good academic standing, and will be reviewed by the graduate studies committee. As a reminder, good academic standing is required for GRA or GTA support.

At least **6 weeks** before your Preliminary Oral Exam submit your signed [program of study](#) to the Graduate School.

At least **2 weeks** before your Preliminary Oral Exam schedule your Oral Preliminary Exam by submitting the [online Exam Scheduling Form](#) (after your program of study has been approved by the Graduate School).

Schedule three hours for the exam by conferring with all committee members, reserving a room, and notifying the graduate school at least two weeks in advance. Paperwork will be sent to the graduate school representative prior to the exam for completion at the exam.

To pass preliminary exams, Oregon State University allows for one dissenting committee vote. Students who fail a preliminary exam may, at the discretion of the student's committee, retake the exam after a minimum period of 30 days and before a maximum period to be determined by the student's exam committee but not to exceed 12 months. The College of Pharmacy allows only one retake of the preliminary exam.

### **Nature of the Exam: two parts, written and oral, for all students**

#### *a) Written*

The written part of the exam consists of a student's thesis proposal. The thesis proposal **MUST** be distributed to all committee members at least two weeks prior to the scheduled oral examination. Within one week, the thesis committee will review the written document and the major advisor will inform the student if the written document is of sufficient quality to pass. If the student passes the written portion of the prelim exam, the oral examination will continue as scheduled. If the thesis committee determines that the written portion of the exam does not pass, the oral examination will be cancelled and rescheduled. In this case, the student is advised to ask the major advisor and other committee members for information regarding the reasons for failure of the written section. The advisor and committee members should be prepared to provide general information to the student regarding the general nature and degree of problems with the written documents (for example, "grammatical errors and typos were abundant and need correcting", or "major sections, such as the background, are missing and the research plan is so vague that the experimental design is not comprehensible").

The second submission of the written portion of the prelim exam will proceed to oral examination regardless of whether the written exam is deemed passable. At the second try, the student will have the opportunity to defend their written proposal regardless of pre-judged quality. If the student fails the written and/or oral exam, the student may, at the discretion of the thesis committee, be allowed to retake the oral exam. Only one retake of the oral exam is allowed.

#### *b) Oral*

The oral exam consists of a thesis proposal presentation followed by Q&A. To begin, prepare a brief (15-20 minute) presentation of your thesis proposal. Initial questions will be based on the written document/thesis proposal. Questions will then expand to include any topics relevant to the discipline and the student's program of study. Students are encouraged to form a "mock" committee

of other, often senior, students to practice fielding questions.

### Written exam thesis proposal

A creative proposal of your thesis project is written in the form of an NIH predoctoral PhD fellowship (F31) application (<http://grants.nih.gov/grants/guide/pa-files/PA-14-147.html>). The proposal should be limited to 7 single spaced, 11 point Arial font pages maximum for the narrative, excluding references. Use one-half inch margins (top, bottom, left, and right) for all pages. The proposal format and structure are described below.

Students are expected to have consulted with their major advisor regarding thesis proposal topics prior to developing the prelim exam proposal. However, faculty should not provide substantial input in the writing of the proposal. Faculty may be willing to “proofread” student proposals for basic grammatical errors and provide input into correct grant structure. Students may utilize other students for help in understanding unfamiliar techniques and are encouraged to schedule “mock prelims” for practice with senior graduate students.

### Characteristics of a good thesis proposal

- Builds on your area of expertise.
- Is hypothesis driven or addresses significant scientific need-based questions
- Is based on a subject about which enough is already known that specific and focused hypotheses or experimental questions are readily developed.
- Does not have a fatal flaw at the outset, *e.g.*, – successful completion of a first aim is necessary for all subsequent aims. This common problem can usually be remedied by providing alternative hypotheses.
- Includes sufficient background information to permit an effective review without reviewers having to refer to the literature.
- Is written with clarity, correct grammar and spelling, and concision.

### Structure of the thesis proposal (adapted from NIH SF424 R&R Application Guide):

1. *Specific Aims* (1 page). State concisely the goals of the proposed research and summarize the expected outcome(s), including the impact that the results of the proposed research will exert on the research field(s) involved. List succinctly the specific objectives of the research proposed, *e.g.*, to test a stated hypothesis, create a novel design, solve a specific problem, challenge an existing paradigm or clinical practice, address a critical barrier to progress in the field, or develop new technology.
2. *Research Strategy* (6 pages). Organize the Research Strategy in the specified order and using the instructions provided below. Start each section with the appropriate section heading—Significance, Innovation, Approach. Cite published experimental details in the Research Strategy section and provide the full reference in the Bibliography and References Cited section.

#### (a) *Significance*

- Explain the importance of the problem or critical barrier to progress in the field that the proposed project addresses.
- Explain how the proposed project will improve scientific knowledge, technical capability, and/or clinical practice in one or more broad fields.

- Describe how the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field will be changed if the proposed aims are achieved.

### (b) *Innovation*

- Explain how the application challenges and seeks to shift current research or clinical practice paradigms.
- Describe any novel theoretical concepts, approaches or methodologies, instrumentation or interventions to be developed or used, and any advantage over existing methodologies, instrumentation, or interventions.
- Explain any refinements, improvements, or new applications of theoretical concepts, approaches or methodologies, instrumentation, or interventions.

### (c) *Approach*

- Describe the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the project.
- Discuss potential problems, alternative strategies, and benchmarks for success anticipated to achieve the aims.
- If the project is in the early stages of development, describe any strategy to establish feasibility, and address the management of any high risk aspects of the proposed work.
- Point out any procedures, situations, or materials that may be hazardous to personnel and precautions to be exercised.
- If research on Human Embryonic Stem Cells (hESCs) is proposed but an approved cell line from the NIH hESC Registry cannot be identified, provide a strong justification for why an appropriate cell line cannot be chosen from the Registry at this time. If an applicant has multiple Specific Aims, then the applicant may address Significance, Innovation and Approach for each Specific Aim individually, or may address Significance, Innovation and Approach for all of the Specific Aims collectively.

More information on writing an NIH-style grant proposal is available through the NIAID website at <https://www.niaid.nih.gov/grants-contracts/prepare-your-application>.

## Final Defense

- a) Writing the thesis: plan 4-6 months start to finish, writing part-time during this period.
- b) Students **MUST** obtain instructions for procedure, format and details for finishing the thesis from the university graduate school (<https://gradschool.oregonstate.edu/progress/thesis-guide>). OSU allows two different formats for a graduate thesis, standard or manuscript. The student and major advisor should determine which format is appropriate.
- c) Before scheduling your thesis defense, you should prepare a list of:
  - Papers published (full citation)
  - Papers submitted
  - Manuscripts in preparation
  - Regional and national meetings attended and source of funding
  - Honors/fellowships/awards received
  - Post graduation employment plans

Submit it to your major advisor and the Graduate Studies Committee (Kerry McPhail, Director of Graduate Programs). Your major advisor will hold off on signing your dissertation until this requirement is met.

- d) Plan a date for the defense at least two months in advance with your committee; reserve a room for a one-hour seminar and a two-hour final exam.

- e) **File all paperwork required by the Graduate School well in advance of the defense date.**

At least **15 weeks** before your Final Oral Defense of Dissertation submit [diploma application](#).

At least **2 weeks** before your Final Oral Defense of Dissertation:

- Schedule your Exam by submitting the [online Exam Scheduling Form](#) to the Graduate School
- Submit pre-text pages to the Graduate School
- Give dissertation to your whole committee

- f) Immediately after setting your defense date, contact Debra Peters (room 135 Pharmacy) to advertise the seminar date as required by the University.

- g) Provide chapters to your major advisor for review as they are completed; proofread and spell-check beforehand.

- h) Distribute the thesis, with the approval of your major advisor, 2 weeks before the final defense date.

- i) Defend your thesis starting with a 50 min seminar for the scientific community. Following the seminar, two hours should be scheduled for the thesis defense exam with the committee. Students should be able to describe the specific methodologies used, identify critical observations, defend conclusions made based on these observations, and place their studies in the broader context of bioscience research. Students may pass the examination with up to one dissenting vote. If a student fails to satisfactorily defend the thesis, only one additional attempt is permitted and must follow a written appeal to the College of Pharmacy Graduate Studies Committee. The thesis defense must be completed within five years after the preliminary exam.

- j) Make final copies of your thesis after completing any revisions recommended by the committee and obtaining required signatures. **Please complete a graduate student final checklist (the form is available at the end of this document) before seeking the department chair's signature.** To avoid paying another semester's tuition, all documentation must be presented within Graduate School deadlines (two weeks into the next term or six weeks from the defense date, whichever is earlier.)

- One electronic (pdf) file for the university library
- One hardbound copy for your major advisor (ask if needed)
- One hard bound copy for the pharmacy library.
- One hard bound copy for your parents.

(paper and binding requirements are described in OSU thesis instructions noted in part b above).

- k) Celebrate your hard-earned achievement and find a real job.

## **Course Curricula**

Students are to register for a minimum of 16 credit hours (CH) each term with additional research credits or elective courses in addition to the required coursework. Before choosing a thesis laboratory, students are required to complete three laboratory rotations (one per quarter) in Pharmaceutical Sciences during the first year of their program.

Course curricula in the graduate program in pharmaceutical sciences will vary from student to student and should be discussed early with the graduate program director or first rotation advisor.

See the OSU Schedule of Classes website to check quarter/term and time of day of courses to ensure no overlap:

<https://classes.oregonstate.edu/>

Specific curricula for each of the subdisciplines: medicinal chemistry, pharmacology and pharmaceuticals are provided on the following pages.

**NOTE THAT THE MOST UP-TO-DATE INFORMATION IS ON THE OSU SCHEDULE OF CLASSES WEBSITE ABOVE. COURSE DETAILS CHANGE PERIODICALLY.**

## **Pharmacology Subdiscipline in Pharmaceutical Sciences**

Pharmacology is the study of mechanisms of drug action, including the search for new drug targets by understanding mechanisms of disease. Research in pharmacology utilizes knowledge and techniques developed in a wide array disciplines including biochemistry, molecular biology, cell biology, physiology, and increasingly, computational techniques.

The required curriculum for Pharmacology students is:

- Minimum of 3 (usually 5 or more) **credit hours (CH)** of research rotation (PHAR 501 and/or 601) each academic term (fall, winter and spring) in the first year.
- 1 CH of Seminar (PHAR 507) every academic term of every year.
- Foundations of Drug Action I and II (PHAR 525 and 527, 3 CH each or PHAR 735 and 737 for PharmD/PhD students), fall and winter terms, respectively.
- A full series of biochemistry courses, either BB 590, 591, and 592 (3 CH each) or BB 550 and 551 (3 and 4 CH, respectively) taught various terms.
- Grant Writing, PHAR 669, 2 CH in fall term, usually taken in second year.
- Research Ethics (*e.g.* GRAD 520, 2 CH)

A Biochemistry series is required but may be waived by request to the Graduate Studies Committee for students who have completed an upper level undergraduate course in biochemistry.

Pharmacology students are strongly recommended to take at least one term of Pharmacology within the Integrated Drug Actions courses in the form of PHAR 591, 592 or 593, 5 CH each.

The graduate minor in Biological Data Sciences is strongly recommended to provide training for students to apply modern approaches to pharmacology research. Requirements can be found at <https://cgrb.oregonstate.edu/training/bls/course-requirements>. Alternatively, select courses in computational methods can be found under the BDS, MB, BOT, CS or ST prefixes.

Students will need to choose elective courses in consultation with their advisor to complete at least 27 major course (didactic) credits.

**Potential elective courses include (but are not limited to, please discuss with your advisor):**

Cancer and Chemoprevention	PHAR 563
Biochemistry lab I, II, and III	BB 593, 594
Advanced Cell Biology	BB 560
Methods of Data Analysis	ST 511, 512, 513
Applied Biopharmaceutics and Pharmacokinetics	PHAR 572
Molecular Therapeutics	TOX 699
Advanced Xenobiotic Metabolism	TOX 575
Target Organ Toxicology	TOX 512
Applied Bioinformatics	BB 585
Special topics in Biochemistry	BB 650, 651, 652
Immunology	MB 516
The Human Microbiome	MB 436
Embryology and Development	IB 525
Scientific Communication	IB 515
Science and Policy	IB 518
Cancer Systems Biology	VMB 561
Modeling of Physiological Systems	BIOE 512

### Pharmaceutics Subdiscipline in Pharmaceutical Sciences

Prerequisites: Students must be proficient in using computers. Insufficient computer skills may be remedied with undergraduate coursework, *e.g.*, CS101. Students whose undergraduate degree is not in the pharmaceutical sciences or pharmacy must take PHAR 733 and/or 734 to increase their background knowledge. Students are also expected to have or obtain a math background equivalent to the elective courses listed below. **Note that CH = credit hours.**

The required curriculum for Pharmaceutics students is:

- 3 research rotations (PHAR 501 and/or 601) of 3-5 or more CH in year 1, fall, winter and spring
- Seminar (PHAR 507, 1 CH) every term every year
- Foundations of Drug Action I (3 CH, PHAR 525 for MS/PhD; 735 for PharmD/PhD students)
- A scientific ethics course, *e.g.* Responsible Conduct of Research (GRAD 520, 2 CH), offered most terms
- Introduction to Grant Proposal Writing (PHAR 669, 2 CH), fall term

**Potential elective courses include (but are not limited to, please discuss with your advisor):**

Pharmaceutics I	PHAR 733 (3 CH)
Pharmaceutics II	PHAR 734 (3 CH)
Calculus+	MATH 251, 252, 253, or 254
Bioanalytical Chemistry	CHEM 524 (3 CH)
Physical Chemistry	CHEM 540 (3 CH), 541 (3 CH)
Radiotracers Chem	CHEM 519 (3 CH)
Biochemistry	BB 590, 591, 592 (3 CH each)
Exp. App. to Biopharm	PHAR 571 (3 CH)
Appl. Biopharmaceutics & Pharmacokinetics	PHAR 572 (3 CH)
Pharmacodynamic & Pharmacokinetic Modeling	PHAR 580 (3 CH)
Current Topics in Pharm. Sci.	PHAR 573 (3-9 CH)
Special Topics in Pharm. Sci.	PHAR 699 (3-9 CH)
Adv Drug Metabolism	PHAR 575 (3 CH)
Statistics	ST 511, 512, 513, 551, 552, 553, 521, 522, 515, 531
Immunology	MB 516 (3 CH)
Pharmacokinetics	PHAR 750 (4 CH)
Nanomedicine I	PHAR 574 (3 CH)
Advanced Pharmaceutics	PHAR 770 (4 CH)
Cancer Biology	CELL 616 (OHSU)
Tissue Biology	CELL 613 (OHSU)
Radiation Biology I	NSE 583 (OHSU)
Advanced Xenobiotic Metabolism & Disposition	TOX 575 (2 CH)
Vaccines and New Therapies	VMB 674 (3 CH)

## Medicinal Chemistry Subdiscipline in Pharmaceutical Sciences

Course requirements for two possible tracks within medicinal chemistry, bioorganic chemistry or molecular biology/biochemistry, are detailed below. Students will need to consult with their major advisor to discuss tracking and choice of electives. **Note that CH = credit hours, except for in course codes, where CH = Chemistry**

The required curriculum for Medicinal Chemistry students is:

- Foundations of Drug Action I (3 CH, PHAR 525 for MS/PhD; 735 for PharmD/PhD students)
- Biochemistry (6 CH, BB 590, 591) in fall and winter
- Bioorganic Chemistry (3 CH, PHAR 537, alternating years in winter)
- Structure Determination by Spectroscopic Methods (3 CH, CH 535, fall)
- Introduction to Grant Proposal Writing (2 CH, PHAR 669, fall)
- Responsible Conduct of Research (2 CH, GRAD 520, most terms)

### Waiver of course requirements

Students who, in consultation with their major advisor, desire to waive any of the above program requirements need to submit a letter to the graduate studies committee (email Debra Peters). The letter should explain the reason for the waiver request and be co-signed by the major advisor. If approved, the committee will issue a letter to be included with the student's Program of Study and kept on file.

### Suggested Courses for the Bioorganic Chemistry Track

CH 630, 631      Adv. Organic Chemistry      6 CH (fall, winter)

### Suggested Courses for the Molecular Biology/Biochemistry Track

BB 592      Biochemistry      3 CH (spring)

### Potential elective courses include (but are not limited to, please discuss with your advisor):

BB 654	Proteins	3 CH
BB 593, 594, 595	Biochemistry Lab	3 CH/each
BDS 599	Special Topics: ST/Intro to UNIX, LINUX	1 CH
BDS 599	Special Topics: ST/Command-line data analysis	1 CH
CH 661	Separations: Chromatography + Related Methods	4 CH
CH 636, 637, 638	Selected Topics in Organic Chemistry	3 CH/each
CH 697	Mass Spectrometry of Organic Compounds	3 CH
CH 524	Bioanalytical Chemistry	3 CH
MB 554	Microbial Genetics	4 CH
MB 556	Microbial Genetics and Biotechnology	3 CH
MB 599	Selected Topics: Problem Solving	3 CH
MB 668	Bioinformatics and Genomics (first module)	2 CH
MB 516	Immunology	3 CH
MB 530	Bacterial Pathogenesis	3 CH
PHAR 575	Advanced Xenobiotic Metabolism	3 CH
PHAR 564	Receptor and Signal Transduction	3 CH
ST 511	Methods and Data Analysis	4 CH
TOX 575	Advanced Xenobiotic Metabolism & Disposition	2 CH

**Pharmacy professional courses approved for use on a graduate program of study**

The graduate council of OSU approved the use of the following professional pharmacy student courses as eligible for use on a graduate student program of study. No other professional pharmacy courses have been approved.

PHAR 733	Pharmaceutics I (3 CH)
PHAR 734	Pharmaceutics II (3 CH)
PHAR 735	Foundations of Drug Action I (3 CH)
PHAR 737	Foundations of Drug Action II (3 CH)
PHAR 746	Pharmacy Management (3 CH)
PHAR 747	Infectious Diseases and Treatments (3 CH)
PHAR 748	Drug Actions in Immunology and Inflammation (3 CH)
PHAR 750	Pharmacokinetics/Biopharmaceutics (4 CH)
PHAR 752	Integrated Drug Structure, Action and Therapeutics I (7 CH)
PHAR 753	Integrated Drug Structure, Action and Therapeutics II (7 CH)
PHAR 754	Integrated Drug Structure, Action and Therapeutics III (6 CH)
PHAR 770	Advanced Pharmacokinetics (4 CH)
PHAR 773	EBM III: Evidence Synthesis and Decision Analysis (3 CH)
PHAR 776	PHARMA-CSI (advanced kinetics elective, 2 CH)

NOTE: The forms on the following pages are available online at:  
<http://pharmacy.oregonstate.edu/phd-student-resources>

## Pharm. Sci. Graduate Student Rotation Evaluation Form

STUDENT:

INSTRUCTOR:

YEAR AND QUARTER:

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Please evaluate the student's performance in the listed categories; use numerical scores of 1 (poor) to 5 (excellent) and provide explanatory or additional comments.

Acquired knowledge (1-5) \_\_\_\_.

Ability to work with others (1-5) \_\_\_\_.

Maturity (1-5) \_\_\_\_.

Effort (1-5) \_\_\_\_.

Laboratory Skills (1-5) \_\_\_\_.

Communication (1-5) \_\_\_\_.

Overall average (1.0-5.0) \_\_\_\_.

GRADE for this rotation \_\_\_\_.

(4.5 - 5.0 = A, 4.0 - 4.5 = A-, 3.5 - 4.0 = B+, 3.0 - 3.5 = B, 2.5 - 3.0 = B-, 2.0 - 2.5 = C, < 2.0 = F)

Please provide detailed explanations of grades at either extreme (*i.e.* A, or C or less)

Additional comments:

The signatures below indicate that this evaluation was discussed by the student and the mentor.

Student Signature \_\_\_\_\_ Date \_\_\_\_\_

Mentor Signature \_\_\_\_\_ Date \_\_\_\_\_

When completed, please make a copy for yourself and send the original form to Debra Peters

**Ph.D. PRELIMINARY EXAM in *Pharmaceutical Sciences*: student evaluation and scoring guide**

Candidate Name: \_\_\_\_\_ Date: \_\_\_\_\_

Evaluation/Guidance	Does not meet Expectations	Meets Expectations	Exemplary Performance
1. <b>Problem Definition:</b> States the research hypothesis clearly and understands the gap in knowledge			
2. <b>Background:</b> Demonstrates sound knowledge of literature in the research area, and of prior work on the specific research problem			
3. <b>Impact of Proposed Research:</b> Demonstrates the potential value of the proposed research problem in advancing knowledge within the area of study and significance to improving health			
4. <b>Approach:</b> Provides a sound plan for applying state-of-the-art research methods/tools to testing the hypothesis, shows a good understanding of how to use methods/tools effectively, describes the limitations of the methods and provides appropriate alternatives			
5. <b>Expected Results:</b> Provides a sound plan for analyzing and interpreting research results/data, including appropriate use of statistics			
6. <b>Timeline:</b> Has developed an appropriate timeline for completion of the proposal given the Approach			
7. <b>Quality of Written Communication:</b> Communicates research proposal clearly and professionally in <b>written</b> form			
8. <b>Quality of Oral Communication:</b> Communicates research proposal clearly and professionally in <b>oral</b> form			
9. <b>Critical Thinking:</b> Demonstrates capacity for critical thinking and problem solvent relevant to the capability to conduct independent research in the area of study			
10. <b>Broader Impact:</b> Demonstrates awareness of broader implications of the proposed research. Broader implications may include social, economic, technical, ethical, business, etc. aspects.			
11. <b>Ethical Aspects:</b> Demonstrates awareness of ethical aspects of the proposed research and tenets of responsible conduct of research in general			
12. <b>Subject Area Mastery:</b> Demonstrates mastery of the subject areas encompassed by one of the sub-disciplines of pharmaceutical sciences, i.e., pharmacology, medicinal chemistry or pharmaceuticals			

**Overall Assessment:** based on the evidence provided in items 1 – 12 above.

CRITERIA	PERFORMANCE RATINGS for PRELIMINARY EXAM		
	<i>Does NOT PASS Exam</i>	<i>PASSES Exam</i>	
OVERALL, My rating of this preliminary exam is:	Does not meet expectations	Meets expectations	Exemplary performance

*Examiner/Major Advisor: Please use the reverse side of this form for written commentary, providing an explanation for any items scored as “does not meet expectations” or detailed comments if the student does not pass. Please provide a copy of this completed evaluation form to the student; return the original SIGNED version to Debra Peters, 115 Pharmacy.*

**Ph.D. PRELIMINARY EXAM in Pharmaceutical Sciences Student Evaluation: written comments on performance**

Candidate Name: \_\_\_\_\_ Date: \_\_\_\_\_

Name of the Examining Committee Member/Major Advisor: \_\_\_\_\_

Signature of the Examining Committee Member/Major Advisor: \_\_\_\_\_

**M.S. THESIS DEFENSE EXAM in *Pharmaceutical Sciences*: student evaluation and scoring guide**

Candidate Name: \_\_\_\_\_ Date: \_\_\_\_\_

Evaluation/Guidance	Does not meet Expectations	Meets Expectations	Exemplary Performance
1. <b>Problem Definition:</b> States the research hypothesis clearly			
2. <b>Background:</b> Demonstrates sound knowledge of the literature and of prior work on the specific research problem			
3. <b>Impact of Proposed Research:</b> Explains the significance of the research and its value in advancing knowledge within the area of study and significance to improving health			
4. <b>Approach:</b> Used appropriate research methods/tools to test the hypothesis, and can explain the principles behind the methods and limitations			
5. <b>Results:</b> Data was appropriately analyzed and interpreted. Figures were clear, complete and indicated appropriate statistical analysis			
6. <b>Discussion:</b> The results were connected with prior research in the field in a detailed and scholarly manner			
7. <b>Quality of Written Communication:</b> The thesis was written clearly and professionally with minimal technical errors			
8. <b>Quality of Oral Communication:</b> The oral presentation of the thesis was clear and professional, including the quality of any supporting media such as powerpoint slides			
9. <b>Critical Thinking:</b> Responded thoughtfully, fully and clearly to public questions			
10. <b>Ethical Aspects:</b> Student provides assurance that all aspects of the thesis research were conducted ethically and demonstrates awareness of the implication of that assurance			

**Overall Assessment:** based on the evidence provided in items 1 – 10 above.

CRITERIA	PERFORMANCE RATINGS for M.S. THESIS DEFENSE EXAM		
	<i>Does NOT PASS Exam</i>	<i>PASSES Exam</i>	
OVERALL, My rating of this M.S. thesis defense exam is:	Does not meet expectations	Meets expectations	Exemplary performance

**Examiner/Major Advisor:** Please use the reverse side of this form for written commentary, providing an explanation for any items scored as “does not meet expectations” or detailed comments if the student does not pass. Please provide a copy of this completed evaluation form to the student; return the original SIGNED version to Debra Peters, 115 Pharmacy.

**M.S. THESIS DEFENSE EXAM in *Pharmaceutical Sciences* Student Evaluation: written comments on performance**

Candidate Name: \_\_\_\_\_ Date: \_\_\_\_\_

Name of the Examining Committee Member/Major Advisor: \_\_\_\_\_

Signature of the Examining Committee Member/Major Advisor: \_\_\_\_\_

**Ph.D. THESIS DEFENSE EXAM in *Pharmaceutical Sciences*: student evaluation and scoring guide**

Candidate Name: \_\_\_\_\_ Date: \_\_\_\_\_

Evaluation/Guidance	Does not meet Expectations	Meets Expectations	Exemplary Performance
1. <b>Problem Definition:</b> States the research hypothesis clearly and understands the gap in the knowledge.			
2. <b>Background:</b> Demonstrates sound knowledge of the literature and of prior work on the specific research problem			
3. <b>Impact of Proposed Research:</b> Explains the significance of the research and its value in advancing knowledge within the area of study and significance to improving health			
4. <b>Approach:</b> Used appropriate and state of- the-art research methods/tools to test the hypothesis, and can explain the principles behind the methods and limitations			
5. <b>Results:</b> Data was appropriately analyzed and interpreted. Figures were clear, complete and indicated appropriate statistical analysis			
6. <b>Discussion:</b> The results were connected with prior research in the field in a detailed and scholarly manner			
7. <b>Quality of Written Communication:</b> The thesis was written clearly and professionally with minimal technical errors			
8. <b>Quality of Oral Communication:</b> The oral presentation of the thesis was clear and professional, including the quality of any supporting media such as powerpoint slides			
9. <b>Critical Thinking:</b> Responded thoughtfully, fully and clearly to public questions			
10. <b>Ethical Aspects:</b> Student provides assurance that all aspects of the thesis research were conducted ethically and demonstrates awareness of the implication of that assurance			
11. <b>Publications:</b> At least one peer-reviewed journal article or book chapter has been published or submitted based on this research			

**Overall Assessment:** based on the evidence provided in items 1 – 11 above.

CRITERIA	PERFORMANCE RATINGS for Ph.D. THESIS DEFENSE EXAM		
	<i>Does NOT PASS Exam</i>	<i>PASSES Exam</i>	
OVERALL, My rating of this Ph.D. thesis defense exam is:	Does not meet expectations	Meets expectations	Exemplary performance

**Examiner/Major Advisor:** Please use the reverse side of this form for written commentary, providing an explanation for any items scored as “does not meet expectations” or detailed comments if the student does not pass. Please provide a copy of this completed evaluation form to the student; return the original SIGNED version to Debra Peters, 115 Pharmacy.

**Ph.D. THESIS DEFENSE EXAM in Pharmaceutical Sciences Student Evaluation: written comments on performance**

Candidate Name: \_\_\_\_\_ Date: \_\_\_\_\_

Name of the Examining Committee Member/Major Advisor: \_\_\_\_\_

Signature of the Examining Committee Member/Major Advisor: \_\_\_\_\_

## Graduate Student Summary Report OSU Pharmaceutical Sciences

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Student Name:

Student ID Number:

Major Professor:

Degree Obtained:

Date of Graduation:

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Papers published (full citation):

Papers submitted:

Manuscripts in preparation:

Regional and national meetings attended and source of funding:

Honors/fellowships/awards received:

Post-graduation employment plans:

Other comments/suggestions you would like to share with us:

Please return this form to your advisor and as email attachment to Dr. Kerry McPhail ([kerry.mcphail@oregonstate.edu](mailto:kerry.mcphail@oregonstate.edu)).

**Pharmaceutical Sciences Graduate Student Final Check List**  
**(TO BE COMPLETED BEFORE SEEKING SIGNATURES)**

**STUDENT INFORMATION**

Student Name:

Student ID Number:

Thesis Advisor:

Degree Obtained:

Date of Graduation:

**ACTIVITIES AND FORMS TO BE COMPLETED / SUBMITTED to the Grad Program Director or Dept Chair**

Thesis Defense Exam Evaluation Form

Submitted on \_\_\_\_\_ to \_\_\_\_\_  
Date Name Signature

Graduate Student Final Summary Report

Submitted on \_\_\_\_\_ to \_\_\_\_\_  
Date Name Signature

Exit interview with Director of Pharmacy Graduate Programs (or Department Chair)

on \_\_\_\_\_  
Date Signature

**NOTES**

Please submit this form to the Graduate Program Director or Department Chair when you ask for their signature.

The professor you meet with for an exit interview can receive forms and sign all of the above sections.

**Graduate Student Travel Grant Application Form  
OSU College of Pharmacy**

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**Date of Application:**

**Student Name:**

**Student ID Number:**

**Year in the Pharm. Sci. Graduate Program:**

**Major Professor:**

**Event or Conference Name:**

**Depart Date:**

**Return Date:**

**Destination:**

**Is this your first regional or national meeting after enrolling in the PS Graduate Program?**

YES / NO

**Title of paper** (please indicate whether it is a podium or a poster presentation):

**Estimated Expenses for Trip:**

(Please provide a detailed estimated budget. If partial funding is to be provided by the PI or a third party, please specify)

**Major Professor's Signature** \_\_\_\_\_

**Date** \_\_\_\_\_

Please return this form as email attachment to Dr. Kerry McPhail

([kerry.mcphail@oregonstate.edu](mailto:kerry.mcphail@oregonstate.edu)).

## **Curtis and Isabella Holt Graduate Student Scholarships**

The *Curtis and Isabella Holt Work Scholarship* will be used to award outstanding graduate students in the College of Pharmacy through one-time awards and fellowships. The College of Pharmacy Graduate Studies Committee will select the recipients of the Holt Graduate Research Achievement Award and the Holt Graduate Fellowship.

### **Holt Graduate Research Achievement Awards:**

Awarded to the outstanding students selected on the basis of exceptional research achievement and participation in the College, University and professional communities.

Two awards are available at \$2,500 each.

Eligibility: Must be a graduate student in good standing, have successfully completed their preliminary examination, and be conducting their PhD thesis work under the direction of a College of Pharmacy faculty member. Recipients may be domestic or international students.

Application materials to be reviewed include: (1) a personal statement describing the graduate student's current research, notable achievements or recognition of the research, activity in College, University and professional communities, and their long-term professional goals; (2) a current curriculum vitae; and (3) a letter of support from their major professor (Principal Investigator).

Applications must be submitted by September 25<sup>th</sup> 2019. Awards will be announced in October 2019.

### **Holt Graduate Fellowship:**

The award (\$10,000) will be used to partially support the stipend and tuition for a graduate research assistant. The intent of the award is to recognize outstanding students (in research and community participation), and relieve funding support concerns.

Candidates for the award must be currently enrolled students in the program and will be nominated by their major professor. Incoming students may also be nominated by the director of Graduate Programs.

Application materials to be reviewed include: (1) a personal statement describing the graduate student's current research, notable achievements or recognition of the research, activity in College, University and professional communities, and their long-term professional goals; (2) a current curriculum vitae; and (3) a letter of justification/need from their major professor (Principal Investigator).

Eligibility: Must be a current student in good standing conducting their PhD thesis work under the direction of a College of Pharmacy faculty member. Incoming graduate students with exceptional academic merit or experiential qualifications may also receive the fellowship. Recipients may be domestic or international students.

Applications must be submitted by September 25<sup>th</sup> 2019. The award will be announced in October 2019.