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MAJOR CHANGE FORM - - REQUIREMENTS

(Submit original signed form and **TEN** copies to the Registrar's Office, zip 10359)  
See <https://www.ronet.wsu.edu/ROPubs/Apps/HomePage.ASP> for this form.

\*Submit an additional copy to the Faculty Senate Office, French Administration 338, zip 1038.

Department Name Pharmaceutical Sciences

1. CHECK PROPOSED CHANGES.

- \*  Change department/program name from \_\_\_\_\_ to \_\_\_\_\_
- \*  New degree or program in \_\_\_\_\_
- \*  Change name of degree from \_\_\_\_\_ to \_\_\_\_\_
- \*  Drop degree or program in \_\_\_\_\_
- a \*  Extend existing degree or program to WSU Spokane campus
- New Major in \_\_\_\_\_
- Change name of Major from \_\_\_\_\_ to \_\_\_\_\_
- Revise Major requirements in \_\_\_\_\_
- Drop Major in \_\_\_\_\_
- Revise certification requirements for the Major in \_\_\_\_\_
- New Option in \_\_\_\_\_
- Revise requirements for the Option in \_\_\_\_\_
- Drop Option in \_\_\_\_\_
- New Minor in \_\_\_\_\_
- Revise Minor requirements in \_\_\_\_\_
- Drop Minor in \_\_\_\_\_
- New Undergraduate Certificate in \_\_\_\_\_
- Revise Undergraduate Certificate requirements in \_\_\_\_\_
- Drop Undergraduate Certificate in \_\_\_\_\_

b  Other Close PhD PharmSci program in Pullman (move to Spokane)

Effective term/year Spring 2014

|                      |                     |                       |
|----------------------|---------------------|-----------------------|
| <u>Kathryn Meier</u> | <u>509-358-7631</u> | <u>kmeier@wsu.edu</u> |
| Contact Person       | Contact Phone No.   | Contact email         |

2. GIVE REASONS FOR EACH REQUEST MARKED ABOVE. (Attach additional paper if necessary; see reverse side.) please see attached.

4. SIGN AND DATE APPROVALS.

[Signature] 9/5/13      [Signature] 9/5/13      \_\_\_\_\_  
 Chair Signature/date      Dean Signature/date      General Education Com/date

\_\_\_\_\_  
 Catalog Subcom/date      Academic Affairs Com/date      Graduate Studies Com/date      Senate/Date



Current enrollment includes a mixture of in-state students, students from elsewhere in the US, and international students.

*(c) Delivery Model*

The curriculum will be delivered by didactic lectures in combination with seminars and in-class discussions, as was the case before the move to Spokane. Telecommunications was used for some courses in the last two years, but will only be necessary on rare occasions after Fall 2013 since all students will be in the same location. Research training (e.g., PHARMSCI 800) will involve individual training of students in research settings under the supervision of their mentors, as is typical of PhD programs in the biomedical sciences. In summary, the curriculum will be delivered entirely from Spokane beginning Spring 2014.

*(d) Rationale for extending the degree to this location or medium*

The College of Pharmacy was formerly split between the Pullman and Spokane campuses, with all graduate student training occurring on the Pullman campus. The college moved its professional programs entirely to Spokane, effective Fall 2013. There is a phased moving process for the faculty and students, with the research labs moving to Spokane by December 2013. The existing PhD students will not be able to complete their degree work unless they move to Spokane, since the facilities in Pullman are being vacated. Some graduate students have already relocated to Spokane to be near their mentors, and the remainder will move by December. A new research building, the Pharmaceutical and Biomedical Sciences Building, is being completed on the Riverpoint to house the offices and laboratories of the faculty members who participate as graduate faculty in the Pharmaceutical Sciences program. The ceremonial dedication and opening of the building will take place on December 6<sup>th</sup>. The new building was specifically designed to include abundant office space for graduate students, adjacent to and connected with their labs. Pharmacy will occupy two of the three research floors in the building. The Spokane campus offers many advantages, including state-of-the-art research facilities, new research equipment, and opportunities for research collaboration with other investigators working in the area of human health. The proximity of major hospitals is another advantage for those doing translational work or performing studies using human subjects or specimens. The PhD NEP program, managed by the College of Pharmacy, already exists in Spokane. The PhD NEP students have found many opportunities for community outreach in the greater Spokane area. Such outreach not only benefits the community, but also puts the students in an excellent position to apply for extramural fellowships (e.g., NSF). The Office of Graduate Education for the College of Pharmacy is housed in Spokane and offers advising and staff support to the students. Additional services (e.g., career workshops, outreach events) will be implemented once the students are consolidated on

the Riverpoint campus; the formal support of these services by the Office of Graduate Education is a new feature of the program. PharmSci PhD students have spearheaded the founding of a new student organization for graduate students on the Spokane campus. A very significant phase of new faculty hiring is well underway, with several new tenure-track faculty members already in place in Spokane, and more expected to arrive in early 2014. The ability of these individuals to serve as mentors for PhD students has been a key consideration in hiring. Our current students met with each of the faculty candidates and provided written feedback to the search committee. In summary, relocation of the PhD PharmSci to the Riverpoint campus is necessary because the College of Pharmacy has moved to Spokane.

(e) *Collaborative relationship, if any, with other educational partners.*

Graduate courses for the Pharmaceutical Sciences doctoral program will be offered by faculty within the college. The increase in the number of faculty members within Pharmaceutical Sciences provides sufficient coverage for teaching of the existing graduate courses; new graduate courses are under discussion. Faculty from other units (e.g., Medical Sciences, Nursing) may be invited to serve as guest lecturers, at the discretion of the instructor. Some of the courses offered within the curriculum are designed to appeal to graduate students from other disciplines on the Riverpoint campus (e.g., Medical Sciences, Nursing).

Note that the table below, as originally formatted, assumed that no students would be graduating from the new location in the first two years. However, some of the existing PhD PharmSci students transferred to the program after initially matriculating into the PhD NEP program, and some are moving from Pullman. Thus, there will be students graduating from Spokane in years 1 and 2. The information in the table for 2013-14 is current for Fall 2013; additional students will be moving to Spokane by Spring 2014.

## 2. PROJECTED NUMBER OF STUDENTS AND DEGREES

|                          | Site                 | Year 1<br>2013-14 | Year 2<br>2014-15 | Year 3<br>2015-16 | Year 4<br>2016-17 | Year 8<br>2020-21 |
|--------------------------|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Headcount<br>Enrollments | Pullman              | 11                | 0                 | 0                 | 0                 | 0                 |
|                          | Location 1 (Spokane) | 8                 | 23                | 30                | 35                | 70                |
|                          | Global Campus        | 0                 | 0                 | 0                 | 0                 | 0                 |
| FTE**<br>Enrolled        | Pullman              | 13.2              | 0                 | 0                 | 0                 | 0                 |
|                          | Location 1 (Spokane) | 10                | 27.6              | 36                | 42                | 84                |
|                          | Global Campus        | 0                 | 0                 | 0                 | 0                 | 0                 |
| Degrees<br>Awarded       | Pullman              | 2 (MS), 1         | 0                 | 0                 | 0                 | 0                 |
|                          | Location 1 (Spokane) | 1                 | 4                 | 6                 | 5                 | 10                |
|                          | Global Campus        | 0                 | 0                 | 0                 | 0                 | 0                 |

\* Year of full enrollment

\*\* ANNUAL AVERAGE FTE. For undergraduates, divide total annual credits by 2 to get annual average credits, then by 15 to get AAFTE. For graduates, divide total annual credits by 2 to get annual average credits, then by 10 to get AAFTE.

### 3. NEEDS ASSESSMENT – Explain the rationale for estimates of student demand for each location and/or the Global Campus, and the employment outlook for students with this degree.

The Year 1 estimate reflects the number of students currently enrolled in the program, as of Fall 2013. The subsequent years include estimated growth of the program commensurate with the increase in extramural funding that has occurred over the last year, and is anticipated to continue to increase as more new faculty are hired, and as existing faculty obtain additional extramural funding. At present, the PhD PharmSci is the only graduate program offering research training specifically in the human biomedical sciences in Eastern Washington or the Inland Northwest. We are already hosting numerous summer undergraduate research fellows who reside in the region, without active recruitment for such students. Although we have recruited outstanding local students, our long-term goal is to have a global student body while meeting the demand for biomedical training for local students. The employment outlook for students graduating with a PhD in Pharmaceutical Sciences has always been strong. These students are prepared to go on to do postdoctoral work in various fields in the basic biomedical sciences, eventually leading to academic or industrial employment, but also gain more applied experience that facilitates their immediate employment in the biotechnology and pharmaceutical industries. We also provide them with teaching experience that allows them to find rewarding jobs at all levels of academia.

**4. CURRICULUM** - *explain and provide rationale for any differences between locations or the Global Campus in:*

- (a) *how university and departmental requirements are satisfied at each location/Global Campus,*

The curriculum will only be offered in one location (Spokane), so there will be no differences between locations. The previous curriculum is moving to Spokane, where it can be offered much more efficiently and personally than it was in the past two years, when telecommunication was used for some courses.

- (b) *the content of required courses at each location/Global Campus.*

Since there will be only one location, there is no difference in course content between locations.

**5. STUDENT LEARNING OUTCOMES** – *Identify program learning outcomes, means of assessing outcomes, and process for using results to improve the program. (If the same as the existing program, insert those here.) Identify and justify any differences in learning outcomes or assessment between locations/Global Campus.*

The full statement of the existing learning outcomes is provided in Appendix III. An abbreviated version is provided below.

The program objectives, followed by outcomes for each program objective, are:

- A. To prepare graduates for careers as successful professionals in academia, industry, health care, and private institutions dedicated to the promotion of human health and wellness.
1. Achieve mastery of knowledge in the general field of Pharmaceutical Sciences or Nutrition and Exercise Physiology
  2. Develop the expertise to use appropriate methodologies to solve novel and emerging problems related to the fields of Pharmaceutical Sciences or Nutrition and Exercise Physiology
  3. Disseminate research findings to local, regional, national, and international audiences primarily through publication in peer-reviewed journals and presentations at conferences
  4. Participate in professional organizations, including becoming members, attending meetings, and taking leadership roles where appropriate
  5. Participate in teaching, internships, fellowships, workshops, credentialing and grant applications to enhance competitiveness for career opportunities as appropriate

- B. To prepare students to be effective and innovative researchers in the fields appropriate to either Pharmaceutical Sciences or Nutrition and Exercise Physiology
1. Train students in critical, integrative, and evaluative thinking at the highest levels of rigor
  2. Develop advanced written and oral communication skills
  3. Become independent, self-motivated researchers with the ability to identify specific problems in their field of expertise and to formulate solutions to these problems
  4. Develop a comprehensive knowledge of previous and current research in their field of expertise and be able to demonstrate that knowledge capability in a review of the literature at a level that is potentially publishable.
  5. Generate innovative questions within their field of expertise and pose hypotheses related to those questions
  6. Apply sound methodological approaches to test hypotheses related to specific research questions and describe the methods effectively.
  7. Perform statistical analyses of research data and present the results in a way that clearly describes the data.
- C. To enhance visibility of the College of Pharmacy doctoral programs nationally and internationally.
1. Attract and retain high-quality graduate students
  2. Provide effective mentoring that encourages students to graduate in a timely manner
  3. Attract, retain, and support nationally- and internationally-recognized research-active faculty who contribute to College of Pharmacy Graduate Programs

**6. DIVERSITY -- *Identify strategies for promoting diversity at each new location and/or Global Campus.***

Currently, approximately 20% of the PhD PharmSci students identify as members of under-represented groups. A goal of the PhD PharmSci program is to recruit students from around the nation and the world. The current students are from several different countries and ethnicities, which is not particularly unusual for a PhD program in the sciences. What is more unusual is that several of the students who are from the Inland Northwest (i.e., "local" students) are members of under-represented groups. The greater Spokane area is a rich source for these students. As part of our overall effort, we are currently considering submission of an NIH "Bridges to the Baccalaureate" grant proposal, which entails collaboration with local community colleges to offer undergraduate research experiences to under-represented students, so that they will consider undergraduate and graduate degrees in the sciences. One of the Spokane urban high schools has contacted us regarding a collaboration in which high school students would be able to gain exposure to research. In summary, our efforts at

promoting diversity have been multi-faceted, and are facilitated by location of the program in Spokane.

**7. RESOURCE ASSESSMENT** – *Identify basic resources needed to deliver program at each new location and/or Global Campus.*

(a) **Faculty and Staff** – *In order to extend this program, what is your faculty hiring plan at each location/Global Campus - both transitionally and long-term - for tenure-track, clinical and adjunct faculty, TAs, and staff?*

As mentioned above, the college is in the process of recruiting additional tenure-track faculty members. This is not being done in order “extend” the program, since the entire program is moving to Spokane. Instead, it is being done to replace faculty members who have left or retired, and to build new research strength within the college. These new hires, most of which are investigators who already have extramural funding, will greatly augment the existing graduate program. In addition to several key tenure-track faculty hires made within the last year (including Mike Gibson, Philip Lazarus [Chair of Pharmaceutical Sciences], David Liu, and Mary Paine), several new College of Pharmacy tenure-track faculty will be arriving at WSU/Spokane in the Winter/Spring, 2014, including:

Carla Gallagher, PhD (Penn State University) – Research focus on pharmacogenetics of cancer agents, drug metabolism and molecular epidemiology.

Jiyue Zhu, PhD (Penn State University) – Research focus on drug discovery and the regulation of the telomerase pathway.

Staff positions are likewise moving to Spokane, with replacement of staff members who did not choose to relocate. There is growth in the number of staff members to meet the needs of the growing faculty. Additional clinical and research track faculty have also joined the college, and some of these are included on the list of graduate faculty based on their research expertise. This includes the key hiring of Andrea Lazarus, PhD, who serves as the Associate Dean for Research for the College of Pharmacy as well as the Assistant Vice-President for Clinical Research for the university.

PhD students will be offered teaching assistantships for the first two years of their graduate program. This is anticipated to provide sufficient TA help for the professional and undergraduate courses offered by the college.



**(b) Curriculum** – *What resources will be available to develop and maintain the necessary courses at each location/Global Campus?*

Since the entire college is moving to Spokane, and since all of the graduate courses (except two) were previously taught by members of the Pharmacy faculty, additional resources are not needed to maintain the courses. The current curriculum is provided as Appendix IV. This approved list does not reflect pending proposals for new courses. Faculty members from outside Pharmacy previously taught two courses on the “required elective” list; faculty members in the college will teach these courses in the future. The PharmSci PhD curriculum was substantially revised in the last few years, in part as a response to the reduction in graded coursework suggested by the Graduate School and approved by the Faculty Senate, and in part due to the addition of new courses as new faculty members were added. Therefore the curriculum is in a good position to “stand alone” in Spokane. With the hiring of a new department Chair and other new faculty in Spokane, additional new courses are being planned.

Changes already submitted:

1. Cross-listing of NEP 510 with PharmSci, titled “Foundations in Cellular Regulation”; new course numbers are requested. This is intended to provide an additional option for a “required elective” in the curriculum.
2. Restoration of a course formerly numbered P/T 543, titled “Scientific Writing”; a new course prefix and number are requested. This is intended to provide an additional option for a “required elective” in the curriculum.

Courses in the planning stages:

1. Human Genetics and Advanced Biochemistry. Dr. Mike Gibson has taught a similar course at other institutions, and is planning to submit a proposal for a new course at WSU Spokane in the 2013-14 academic year.

**8. FUNDING** -- *Describe the funding model for extending program to the proposed new location(s) and/or Global Campus.*

**(a) Describe and justify the budget requirements.**

No new funds will be required to move the PharmSci PhD program to Spokane. The College of Pharmacy already manages one PhD program, the PhD NEP, at this site. The Associate Dean for Graduate Education, who administers the PhD PharmSci, is already located in Spokane along with the Graduate Education staff (see attached organizational chart). Graduate stipends are provided by the Dean of the College of Pharmacy, as was the case previously. At present, TA stipends are guaranteed for PhD students for the first two years of their graduate career. Funding for these stipends comes from the College of Pharmacy, with the intention that most of the funding will derive from the recaptured salary of faculty members who have effort assigned to extramurally funded grants. As of Fall 2013, four of the PhD PharmSci students are supported directly by grants awarded to their mentors, two are supported by individual predoctoral fellowships

(NSF [student transfer from NEP to PharmSci is pending], AHA), and one is supported by a Biotechnology training grant (NIH).

Only one new PhD student (with one transfer student) was accepted into the program in Fall 2013. This was done intentionally in order to ease the transition period in which faculty, students, staff, and laboratories were moving to Spokane. Recruitment is now resuming with the goal of recruiting 6-10 students for Fall 2014.

*(b) Will the program be state-supported or self-supported (fee-based)?*

The program will be state-supported through tuition.

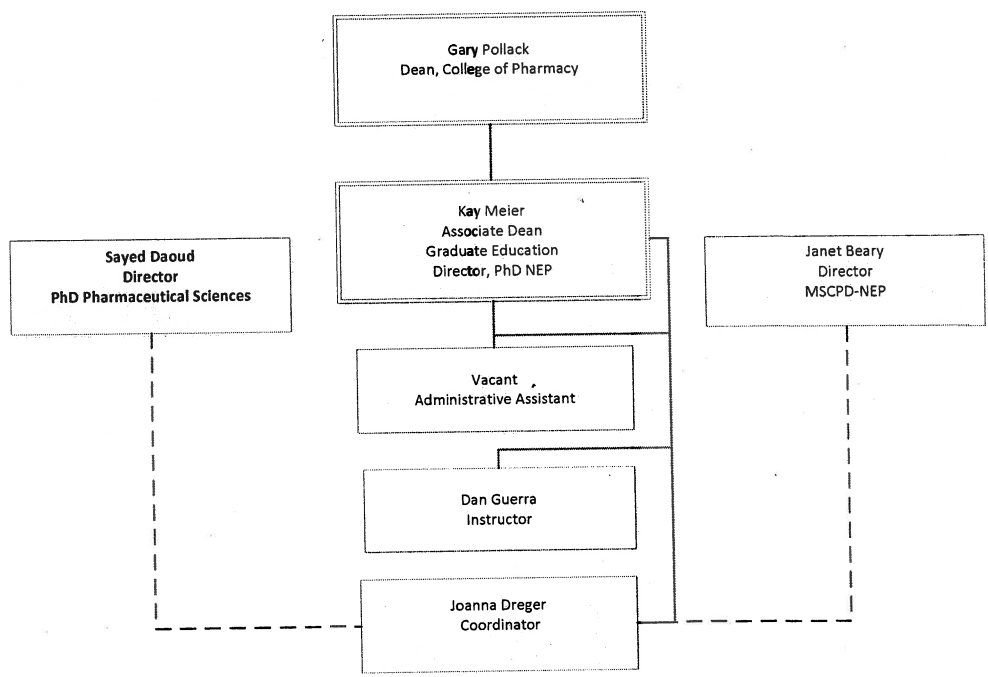
*(c) What tuition will be charged?*

Standard graduate student tuition will be charged.

# Appendix I. Organizational Chart for Pharmacy Graduate Education



## College of Pharmacy Graduate Program



## **Appendix II. List of Graduate Faculty Participants, Pharmaceutical Sciences.**

**(updated by K. Meier and submitted to the Graduate School, August 2013)**

### **A. List of Pharmaceutical Sciences Graduate Faculty participants entitled to full rights and responsibilities of active Graduate Faculty membership:**

#### *Tenure-track faculty:*

Melissa Ahern, PhD  
Sayed Daoud, PhD  
William Fassett, PhD  
Carla Gallagher, PhD (new faculty)  
Mark Garrison, PharmD  
Mike Gibson, PhD (new faculty)  
E. Carolyn Johnson, PhD  
Philip Lazarus, PhD (new faculty)  
David Liu, PhD (new faculty)  
Susan Marsh, PhD  
Gary Meadows, PhD  
Kathryn Meier, PhD  
Josh Neumiller, PharmD  
Mary Paine, PhD (new faculty)  
Gary Pollack, PhD  
Gregory Poon, PhD  
Raymond Quock, PhD  
Grant Trobridge, PhD  
Zhengia Wang, PhD (new faculty)  
John White, PA-C, PharmD  
Jiyue Zhu, PhD (new faculty)

#### *Non-tenure-track faculty:*

Janet Beary, PhD  
Gang Chen, PhD  
Laura Frank, MPH, PhD  
Judy Knuth, MS (co-chair, only)  
Susan Kynast-Gales, PhD  
Andrea Lazarus, PhD (new faculty)  
Jeannie Padowski, PhD  
Connie Remsberg, PharmD, PhD (new faculty)  
Sergei Tolmachev, PhD  
Lisa Woodard, PharmD, MPH  
Carol Wysham, MD  
Hui Zhang, PhD

**B.** The College of Pharmacy Associate Dean for Graduate Education is responsible for submitting an updated list of active College of Pharmacy Graduate Programs faculty participants to the Dean of the Graduate School for approval annually.

## Appendix III. PhD Pharmaceutical Sciences Curriculum

### DOCTOR OF PHILOSOPHY (PH.D.) PHARMACEUTICAL SCIENCES CURRICULUM

*Amended September 2013 to reflect courses available in or from Spokane.*

Consult the *Graduate School Policies & Procedures Manual* for general requirements for the Ph.D. degree

(<http://www.gradschool.wsu.edu/currentstudents/PoliciesAndProcedures/>)

**Total required graded credits: 15**

#### REQUIRED CORE COURSES

|              |  |                 |
|--------------|--|-----------------|
| PharmSci 577 | Introduction to Research                               | 3 credits       |
| PharmSci 578 | Biomedical Statistics                                  | 3 credits       |
| PharmSci 597 | Pharmaceutical Sciences/NEP Seminar<br>(each semester) | 1 credit (S/F)  |
| PharmSci 600 | Special Projects or Independent Research               | Variable credit |
| PharmSci 800 | Doctoral Research, Dissertation,                       | Variable credit |

#### REQUIRED ELECTIVES (A MINIMUM OF 6 CREDITS FROM THE FOLLOWING):

|              |   |           |
|--------------|---|-----------|
| HPA 519      | Biostatistics & Epidemiology for the Health Sciences      | 3 credits |
| PharmSci 511 | Topics in Toxicology                                      | 3 credits |
| PharmSci 512 | Topics in Pharmacology                                    | 3 credits |
| PharmSci 555 | General and Cellular Physiology                           | 4 credits |
| PharmSci 572 | Fundamentals of Oncology                                  | 3 credits |
| PharmSci 573 | Principles of Pharmacokinetics and Toxicokinetics         | 3 credits |
| PharmSci 574 | Advanced Pharmacokinetics and Pharmacodynamics            | 3 credits |
| PharmSci 575 | Receptor-ligand Interactions                              | 3 credits |
| PharmSci 576 | Biophysical methods                                       | 3 credits |
| PharmSci 579 | Advances in Pharmaceutical Sciences                       | 3 credits |
| PharmSci 581 | Stem Cell Biology, Therapeutics and Regenerative Medicine | 3 credits |

|              |  |           |
|--------------|--|-----------|
| PharmSci xxx | Foundations of Cellular Regulation (currently NEP 510; request for cross-listing and new course number has been submitted) | 3 credits |
| PharmSci xxx | Scientific Writing (formerly P/T 543; request for restoration, additional credit, and new course number is in preparation) | 2 credits |
| PharmSci xxx | Human Genetics and Advanced Biochemistry (request for new course is in preparation)  | 3 credits |

**APPROVED OTHER SUGGESTED ELECTIVES:**

|                  |  |                 |
|------------------|--|-----------------|
| MBioS 503        | Molecular Biology 1 (online)   | 3 credits       |
| MBioS 504        | Molecular Biology 2 (online)   | 3 credits       |
| MBioS 513        | General Biochemistry (online)  | 3 credits       |
| MBioS 514        | General Biochemistry 2 (online)  | 3 credits       |
| MBioS 574        | Protein Biotechnology (online)   | 3 credits       |
| MBioS 578        | Bioinformatics (online)  | 3 credits       |
| Neuro 520        | Fundamentals of Neuroscience (Spokane)   | 4 credits       |
| Phil 530         | Bioethics (Spokane)  | 2 credits       |
| Transfer Courses | Course transferred from another institution must be approved by the students advisor, Associate Dean for Graduate Education and the Graduate School. | Variable credit |

*Please note that courses from either the “required elective” or “other elective” list can be taken to reach the minimum number of 15 graded credits. Only 3 additional graded credits of elective are needed, since there are 12 graded credits required from the “core courses” and “required elective” lists.*

## Appendix IV. Learning Outcomes and Assessment

### List of Sections

- Section I: Outcomes and Assessment Plan – Pharmaceutical Sciences Graduate Program
- Section II: Evaluation Rubric, Preliminary Exam
- Section III: Evaluation Rubric, Dissertation and Final Defense
- Section IV: PHARS/NEP 597 Presentation Rubric and Participation Rubric
- Section V: PHARS/NEP 597 Participation Rubric
- Section VI: Research Rotation Review Form



## SECTION I

### COLLEGE OF PHARMACY GRADUATE PROGRAMS ASSESSMENT PLAN

**PROGRAM TITLE** Graduate Program in Pharmaceutical Sciences

#### **GRADUATE PROGRAMS OBJECTIVES AND OUTCOMES**

The Objectives of the College of Pharmacy Graduate Programs are:

- A. To prepare graduates for careers as successful professionals in academia, industry, health care, and private institutions dedicated to the promotion of human health and wellness.
- B. To prepare students to be effective and innovative researchers in the fields appropriate to either Pharmaceutical Sciences or Nutrition and Exercise Physiology.
- C. To enhance visibility of the College of Pharmacy doctoral programs nationally and internationally.

The outcomes for each of the stated program objectives are:

- A. To prepare graduates for careers as successful professionals in academia, industry, health care, and private institutions dedicated to the promotion of human health and wellness.
  - 1. Achieve mastery of knowledge in the general field of Pharmaceutical Sciences or Nutrition and Exercise Physiology
  - 2. Develop the expertise to use appropriate methodologies to solve novel and emerging problems related to the fields of Pharmaceutical Sciences or Nutrition and Exercise Physiology
  - 3. Disseminate research findings to local, regional, national, and international audiences primarily through publication in peer-reviewed journals and presentations at conferences
  - 4. Participate in professional organizations, including becoming members, attending meetings, and taking leadership roles where appropriate
  - 5. Participate in teaching, internships, fellowships, workshops, credentialing and grant applications to enhance competitiveness for career opportunities as appropriate
- B. To prepare students to be effective and innovative researchers in the fields appropriate to either Pharmaceutical Sciences or Nutrition and Exercise Physiology

1. Train students in critical, integrative, and evaluative thinking at the highest levels of rigor
  2. Develop advanced written and oral communication skills
  3. Become independent, self-motivated researchers with the ability to identify specific problems in their field of expertise and to formulate solutions to these problems
  4. Develop a comprehensive knowledge of previous and current research in their field of expertise and be able to demonstrate that knowledge capability in a review of the literature at a level that is potentially publishable.
  5. Generate innovative questions within their field of expertise and pose hypotheses related to those questions
  6. Apply sound methodological approaches to test hypotheses related to specific research questions and describe the methods effectively.
  7. Perform statistical analyses of research data and present the results in a way that clearly describes the data.
- C. To enhance visibility of the College of Pharmacy doctoral programs nationally and internationally.
1. Attract and retain high-quality graduate students
  2. Provide effective mentoring that encourages students to graduate in a timely manner
  3. Attract, retain, and support nationally- and internationally-recognized research-active faculty who contribute to College of Pharmacy Graduate Programs

## OUTCOMES ASSESSMENT MAP

**Objective A:** To prepare graduates for careers as successful professionals in academia, industry, health care, and private institutions dedicated to the promotion of human health and wellness.

| OUTCOME  | DATA  | SOURCE   | WHEN COLLECTED   |
|--|---|--|--|
| A-1. Achieve mastery of knowledge in the general field of Pharmaceutical Sciences or Nutrition and Exercise Physiology   | Rubric to be filled out at student's Preliminary Exam and Final Exam  | Faculty members on student's Advisory Committee  | Timing of exams depends on student's course of study and progress                      |
| A-2. Develop the expertise to use appropriate methodologies to solve novel and emerging problems related to the fields of Pharmaceutical Sciences or Nutrition and Exercise Physiology | Rubric to be filled out at student's Preliminary Exam and Final Exam; Annual Review (Data gathered from submitted Curriculum Vitae) | Student's Advisor, Faculty members on student's Advisory Committee, and other Graduate Program Faculty | Timing of exams depends on student's course of study and progress; CV updated annually |
| A-3. Disseminate research findings to local, regional, national, and international audiences primarily through publication in peer-reviewed journals and presentations at conferences  | Annual Review (Data gathered from submitted Curriculum Vitae)   | Submitted by Students  | Annually   |
| A-4. Participate in professional organizations, including becoming members, attending meetings, and taking leadership roles where appropriate  | Annual Review (Data gathered from submitted Curriculum Vitae)   | Submitted by Students  | Annually   |
| A-5. Participate in teaching, internships, fellowships, workshops, credentialing and grant applications to enhance competitiveness for career opportunities as appropriate             | Annual Review (Data gathered from submitted Curriculum Vitae)   | Submitted by Students  | Annually   |

**Objective B:** To prepare students to be effective and innovative researchers in the fields appropriate to either Pharmaceutical Sciences or Nutrition and Exercise Physiology.

| OUTCOME   | DATA  | SOURCE  | WHEN COLLECTED  |
|---|---|---|---|
| B-1. Train students in critical, integrative, and evaluative thinking at the highest levels of rigor  | Rubric to be filled out at student's Preliminary Exam and Final Exam; PharmSci/NEP 597 Seminar  | Faculty members on student's Advisory Committee | Timing of exams depends on student's course of study and progress   |
| B-2. Develop advanced written and oral communication skills   | Rubric to be filled out at student's Preliminary Exam and Final Exam; PharmSci/NEP 597 Seminar  | Faculty members on student's Advisory Committee | Timing of exams depends on student's course of study and progress   |
| B-3. Become independent, self-motivated researchers with the ability to identify specific problems in their field of expertise and to formulate solutions to these problems   | Rubric to be filled out at student's Preliminary Exam and Final Exam; Annual Review (Data gathered from CV submitted for the Annual Review) | Student's Advisor, Graduate Program Director    | Annually  |
| B-4. Develop a comprehensive knowledge of previous and current research in their field of expertise and be able to demonstrate that knowledge capability in a review of the literature at a level that is potentially publishable | Rubric to be filled out at student's Preliminary Exam and Final Exam; Annual Review (Data gathered from CV submitted for the Annual Review) | Student's Advisor, Graduate Program Director    | Annually  |
| B-5. Generate innovative questions within their field of expertise and pose hypotheses related to those questions   | Rubric to be filled out at student's Preliminary Exam and Final Exam; Annual Review (Data gathered from CV submitted for the Annual Review) | Faculty members on student's Advisory Committee | Timing of exams depends on student's course of study and progress; one seminar presentation each semester |

|   |   |  |   |
|---|---|--|---|
| B-6. Apply sound methodological approaches to test hypotheses related to specific research questions and describe the methods effectively | Rubric to be filled out at student's Preliminary Exam and Final Exam; PharmSci/NEP 597 Seminar                                    | Faculty members on student's Advisory Committee; Course instructor | Timing of exams depends on student's course of study and progress; one seminar presentation each semester |
| B-7. Perform statistical analyses of research data and present the results in a way that clearly describes the data                       | Rubric to be filled out at student's Preliminary Exam and Final Exam; Successful Completion of Statistics Course PharmSci/NEP 578 | Faculty members on student's Advisory Committee; Course instructor | Timing of exams depends on student's course of study and progress   |

**Objective C:** To enhance visibility of the College of Pharmacy doctoral programs nationally and internationally.

| OUTCOME  | DATA  | SOURCE   | WHEN COLLECTED                            |
|--|---|--|---|
| C-1. Attract and retain high-quality graduate students   | Highest GPA/GRE scores; lab experience; letters of recommendations; students' acceptance rate; Retention- number of fellowships and grants received | Submitted by applicants  | Submitted through the application process |
| C-2. Provide effective mentoring that encourages students to graduate in a timely manner   | Annual Review; Continuous evaluation of progress; number of committee meetings  | Faculty, Advisory Committee, Graduate Program Director   | Annually; ongoing                         |
| C-3. Attract, retain, and support nationally- and internationally-recognized research-active faculty who contribute to College of Pharmacy Graduate Programs | Faculty Activity reports (research grants, publications); Annual Review; number of matriculated graduate students                                   | Submitted by faculty, reviewed by Director of Graduate Program and Associate Dean for Graduate Education and Scholarship | Annually                                  |

### **Summary: Data to be collected**

- Rubric to be filled out at student's Preliminary Exam
- Rubric to be filled out at student's Final Exam
- Student Curriculum Vitae to be updated every year and submitted for the Annual Review including items related to professional development such as:
  - Membership in Scientific organizations, professional and scholarly societies;
  - Certificates and Licensure;
  - Awards, fellowships, scholarships and honors;
  - Leadership and outreach activities;
  - Participation in special trainings and workshops;
  - Conferences attended;
  - Oral presentations, Posters and abstracts;
  - Publications
- Presentation and Participation Rubrics to be filled out by the instructor of PharmSci/NEP 597 seminar
- Rubric to be filled out by the instructor of PharmSci/NEP 578 Statistics course
- Application statistics (number of applicants, percentage of applicants accepted, percentage of accepted candidates matriculating)
- GRE scores and GPAs of admitted students; laboratory experience listed; letters of recommendations
- Number of fellowships and grants received
- Annual Review documents (measures progress towards degree)
- Exit interview data.

### **Summary: When data are to be collected**

#### Data to be collected individually for each student when available:

- Rubric to be filled out by each committee member at student's preliminary exam
- Rubric to be filled out by each committee member at student's final exam
- Rubric to be filled out by the instructor of PharmSci/NEP 578 Biomedical Statistics course (to be created)
- Rubric to be filled out by each committee member at student's committee meeting (to be created)

#### Data to be collected each semester

- Presentation and Participation Rubrics to be filled out by the instructor(s) of PharmSci/NEP 597 seminar

#### Data to be collected annually

##### Student Progression

- Student Curriculum Vitae to be updated every year and submitted for the Annual Review including items related to professional development such as: Membership in Scientific, professional and scholarly societies; Certificates and Licensure; Awards, fellowships, scholarships and honors; Leadership and outreach activities; Participation in special trainings and workshops; Conferences

attended; Oral presentations, posters and abstracts; Publications; Number of fellowships and grants received

#### Programmatic

- Application statistics (number of applicants, percentage of applicants accepted, percentage of accepted candidates matriculating)
- GRE scores and GPAs of admitted students; Laboratory experience listed; letters of recommendations
- Faculty Activity Reports (research, grants, publications)
- Faculty Annual Review documents
- Number of matriculated graduate students

### **ADMISSIONS PROCESS & STATISTICS – C1**

Admissions Criteria to the Ph.D. program in Pharmaceutical Sciences include:

- Bachelors degree in related discipline
- Cumulative GPA > 3.0
- GRE scores
- Completion of an organ physiology/mammalian physiology course (300-level or higher)
- Completion of an undergraduate course in biochemistry is preferred
- Research experience is preferred but not essential
- Three letters of recommendation indicating the applicants' capacity for critical thinking, research or academic experience and the potential for success in graduate studies

These basic criteria are used in the initial screening of applicants, who are then scored on a scale from 1-5 with 5 being the best regarding experience, reference letters, goal statement, GPA, and GRE. The score is used to determine if applicants will be further pursued.

Metrics to be measured:

Quality of Applicants to the Pharmaceutical Sciences Graduate Program  
Gender Ratios of Graduate students

Metrics to be measured:

Recruitment and retention of minority graduate students

### **MENTORSHIP OF THE GRADUATE STUDENTS – OUTCOME C2**

PharmSci graduate students are required to take PHARMSCI/NEP 597 Pharmaceutical Sciences/NEP Seminar and present a seminar once a year. The seminar emphasizes critical thinking and oral communication skills, and requires students to communicate science at a level that is appropriate to the audience, which has a diverse background. NEP students participate in the same seminar with the PharmSci students. Professional presentation skills are also emphasized. Evaluation of these skills is

achieved by a rubric included; this rubric will be implemented into the program for 2012-2013 academic year.

Both written and oral communication skills are developed and assessed through required coursework in addition to the preliminary and final exams; the rubrics for the exams are included.

## **EVALUATION OF STUDENT PROGRESS – OUTCOME C2**

All students enrolled in the PharmSci Graduate Program must complete a written review in conjunction with their major Research Advisor/Mentor and also submit a current CV at the conclusion of the academic year. The written review includes the student's cumulative GPA, a statement reflecting on their research progress, a plan for the next academic year, the advisor's assessment of the student's progress and recommendations for improvement, if necessary, and a self-reflection on TA performance where applicable. Faculty that have supervised TAs in their classes also submit a separate written evaluation of the student's performance.

## **QUALITY OF GRADUATES – OUTCOMES A & B**

All students graduating from the Pharmaceutical Sciences Graduate Program must complete dissertation and final defence as well as submit a Curriculum Vitae.

Data gathered from student's Curriculum Vitae will include:

- Membership in Scientific organizations, professional and scholarly societies;
- Certificates and Licensure;
- Awards, fellowships, scholarships and honors;
- Leadership and outreach activities;
- Participation in special trainings and workshops;
- Conferences attended;
- Oral presentations, Posters and abstracts;
- Number of fellowships and grants received
- Publications



## SECTION II

### COLLEGE OF PHARMACY GRADUATE PROGRAM Evaluation Rubric: Preliminary Exam

Doctoral candidate: \_\_\_\_\_

Date: \_\_\_\_\_

Committee member: \_\_\_\_\_

|  | Weak | Needs Improvement | Competent | Excellent |
|--|------|-------------------|-----------|-----------|
| Demonstrates mastery of knowledge in the field of study  |      |                   |           |           |
| States the research problem in such a way that it clearly fits within the context of the literature in an area of study  |      |                   |           |           |
| Demonstrates the potential value of the solution to the research problem in advancing knowledge within the area of study   |      |                   |           |           |
| Provides a sound plan for applying appropriate research methods/tools to solving research problem and shows a good understanding of how to use methods/tools effectively |      |                   |           |           |
| Provides a sound plan for analyzing and interpreting research data   |      |                   |           |           |
| Communicates research proposal clearly and professionally in both written and oral forms   |      |                   |           |           |
| Demonstrates capability for independent research in the area of study and the ability to make an original contribution to the field                                      |      |                   |           |           |

Comments: \_\_\_\_\_

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**SECTION III**

**COLLEGE OF PHARMACY GRADUATE PROGRAM**

**Evaluation Rubric: Dissertation and Final Defense**

**Doctoral candidate:** \_\_\_\_\_

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

**Committee member:** \_\_\_\_\_

|  | Weak | Competent | Excellent |
|--|------|-----------|-----------|
| Demonstrates mastery of knowledge and a high level of expertise in the field of study  |      |           |           |
| Reviews the literature in a way that demonstrates comprehensive knowledge of previous and current research in the field of study |      |           |           |
| States the research problem in such a way that it clearly fits within the context of the literature in an area of study          |      |           |           |
| Demonstrates the potential value of the solution to the research problem in advancing knowledge within the area of study         |      |           |           |
| Applies sound and appropriate research methods/tools to problems in an area of study and describes the methods/tools effectively |      |           |           |
| Performs appropriate statistical analyses of research data and presents the results in a way that makes clear sense of the data  |      |           |           |
| Communicates research clearly and professionally in both written and oral forms  |      |           |           |
| Has demonstrated capability for independent research in the area of study and is making an original contribution to the field    |      |           |           |

**Comments:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### SECTION IV: PHARMDSCI 597 Presentation Rubric

|                                       |   |   |   |  |
|---------------------------------------|---|---|---|--|
| <b>Subject knowledge<br/>(45 pts)</b> | Excellent summary of literature and main points; demonstrates comprehension of subject area; evidence of additional reading.<br>(41-45 pts) | Good summary of literature and main points; demonstrates good grasp of subject area; some evidence of additional reading.<br>(36-40 pts)      | Adequate summary of literature and main points; demonstrates some knowledge; limited evidence of additional reading.<br>(31-35 pts)                 | Poor summary of literature and main points; demonstrates little or no knowledge; no evidence of additional reading.<br>(≤ 30 pts)                                |
| <b>Critical analysis<br/>(30 pts)</b> | Excellent critical analysis; evidence of reflection and insight; conclusions supported by evidence.<br>(27-30 pts)                          | Good critical analysis; some evidence of reflection and insight; most conclusions supported by evidence.<br>(24-26 pts)                       | Adequate critical analysis; little evidence of reflection and insight; not all conclusions supported by evidence.<br>(21-23 pts)                    | No critical analysis; no evidence of reflection and insight; no conclusions.<br>(≤ 20 pts)   |
| <b>Organization<br/>(10 pts)</b>      | Information clearly and logically presented; remains focused. Makes full, effective use of time.<br>(9-10 pts)                              | Information clearly and mostly logically presented; remains mostly focused. Meets set time parameters.<br>(8-8.5 pts)                         | Information not clearly presented; lacks logical sequence; occasional lack of focus. Falls slightly outside set time parameters.<br>(7-7.5 pts)     | Little or no structure present; confusing discussion; no logical sequence of ideas; frequently off topic. Falls well outside set time parameters.<br>(≤ 6.5 pts) |
| <b>Communication<br/>(10 pts)</b>     | Effectively communicates information. Content and/or style are appropriate and targeted to audience and context.<br>(9-10 pts)              | Mostly effective in communicating information. Content and/or style are appropriate to the audience, and/or context.<br>(8-8.5 pts)           | Somewhat effective in communicating information. Content and/or style are occasionally inappropriate to the audience and/or context.<br>(7-7.5 pts) | Unable to communicate information. Content and/or style are frequently inappropriate to the audience and/or context.<br>(≤ 6.5 pts)                              |
| <b>Visual aids<br/>(5 pts)</b>        | Slides clearly and logically designed; important information clearly visible in text and/or graphic format.<br>(5 pts)                      | Slides clearly and somewhat logically designed; most of the important information clearly visible in text and/or graphic format.<br>(4.5 pts) | Slides adequately designed; important information somewhat difficult to identify; inappropriate use of text and/or graphics.<br>(4 pts)             | Slides poorly designed and difficult to read; important information difficult to identify; very poor use of text and/or graphics.<br>(≤3.5 pts)                  |

**Total (out of 100 points): \_\_\_\_\_**

## SECTION V

### PHARS/NEP 597 Participation Rubric

|   | <b>A</b>  | <b>B</b>   | <b>C</b>  | <b>D-F</b>   |
|---|---|--|---|--|
| <b>Attendance/<br/>promptness</b>           | Student is always prompt and regularly attends classes.                     | Student regularly attends classes but is occasionally late.                | Student regularly attends classes but is often late.                        | Student has poor attendance and is usually late.                           |
| <b>Level of<br/>engagement<br/>in class</b> | Student always contributes to class by offering ideas and asking questions. | Student often contributes to class by offering ideas and asking questions. | Student rarely contributes to class by offering ideas and asking questions. | Student never contributes to class by offering ideas and asking questions. |
| <b>Preparation</b>                          | Student is always prepared for class.                                       | Student is usually prepared for class.                                     | Student is rarely prepared for class.                                       | Student is never prepared for class.                                       |

## SECTION VI

### Graduate Student Research Rotation Review Form

**Graduate Students:** Please complete sections A and B, and then give this form to your Rotation Advisor to complete Section C. Once your Rotation Advisor has completed Section C., make sure the form is signed and dated by both you and your Rotation Advisor. This form must be returned to the Graduate Programs Coordinator within **two weeks** of completing the Rotation.

#### Section A

**Graduate Student:** \_\_\_\_\_ **Student ID#:** \_\_\_\_\_  
\_\_\_\_\_  
(Student Name) (WSU SID#)

**Rotation Advisor:** \_\_\_\_\_ **Rotation #:**  First  
Rotation  
(Advisor Name)  Second Rotation  
 Third Rotation

#### Section B

**Please describe your Research Rotation experience, and share this reflection with your Rotation Advisor before s/he begins Section C. Common items to comment on are attendance in research meetings, literature readings, techniques learned, hours devoted to the research rotation, and results obtained and their significance (or lack thereof). You may use the space below, and/or attach a separate, signed, document.**

**Rotation Advisors:** Please complete Section C, and then return this signed and dated form to the Graduate Student. This form must be returned to the Graduate Programs Coordinator within **two weeks** of completing the Rotation.

**Section C**

**1. Graduate Student Research Rotation Evaluation:**

|  |   |
|--|---|
| <b>Passing</b>                             | <b>Failing</b>                          |
| <input type="checkbox"/> Excellent         | <input type="checkbox"/> Unsatisfactory |
| <input type="checkbox"/> Satisfactory      |   |
| <input type="checkbox"/> Needs Improvement |   |

**2. Please comment on the Graduate Student's research potential, demonstrated responsibility, initiative to learn, dedication to his/her research, and your written assessment of their performance overall. If applicable, please provide an evaluation of the Graduate Student's research presentation. Please use the space below, and/or attach an additional signed and dated document.**

**By signing, the Graduate Student and Rotation Advisor each agree that they have read and discussed the contents of this Graduate Student Research Rotation Review Form with each other.**

**Graduate Student Signature: \_\_\_\_\_ Date:**

**Rotation Advisor Signature: \_\_\_\_\_ Date:**

## Schmidtlein, Barb

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**From:** Wack, Mary  
**Sent:** Wednesday, September 18, 2013 12:55 PM  
**To:** Lambeth, Suzanne Terese  
**Cc:** Pomerenk, Julia Anne; Schmidtlein, Barb  
**Subject:** RE: Can you please clarify?

Suzanne,

Pharm Sci has been approved by the Provost's Office, and is ready to proceed to the Senate. We have not yet seen the NEP proposal, and will check with the Graduate School.

Best,  
Mary

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**From:** Lambeth, Suzanne Terese  
**Sent:** Wednesday, September 18, 2013 10:28 AM  
**To:** Wack, Mary  
**Cc:** Pomerenk, Julia Anne; Schmidtlein, Barb  
**Subject:** Can you please clarify?

Mary,

The Catalog Subcommittee has received proposals from Pharm Sci to close the Ph.D program in Pullman and extend the program to Spokane; and from Nutrition and Exercise Physiology to close the Ph.D program in Pullman and retain in Spokane.

It was my understanding that changes made to programs from Urban Campuses need to go through the Provost's office first. Maybe these have, or maybe it was before the protocol was put in place? Can you please let me know if it is o.k. to proceed with these proposals? And, in the future if I receive this type of proposal that is not accompanied by a memo from the Provost office, what should be our protocol?

Thank you so much for your help.

*Suzanne*

Suzanne Lambeth, Assistant Registrar  
Graduations, Curriculum, & Scheduling  
Washington State University  
Registrar's Office  
PO Box 641035  
Pullman WA 99164-1035  
509-335-7905  
[slambeth@wsu.edu](mailto:slambeth@wsu.edu)