The College of Pharmacy is proposing to change the name of its Master of Science in Pharmacology to Master of Science in Translational Pharmacology. In addition, they would like to create two specializations (transcriptable subplans) for two currently existing tracks in the online MS program, 1) Clinical Pharmacology and Clinical Trial Design, and 2) Toxicology and Safety Pharmacology.

The proposal was received by the Graduate School on 17 April 2019. It was reviewed by GS/CAA on 29 April 2019. No revisions were requested, and the proposal was recommended for approval by the Graduate Council. The proposal was approved by e vote of the Graduate Council on 10 May 2019. Subsequent to the e vote, an updated version of the proposal with additional letters of support and the request for the transition from existing tracks to transcriptable specializations was submitted on 17 June 2019, and accepted as a record-keeping change without further committee review by the Graduate School on 18 June 2019.
Proposal for a Degree Name Change

Submitted by:
Name        Marjorie Neidecker
Title       Director, MS Pharmacology program
Phone number 614-247-6181
E-mail      neidecker.1@osu.edu

College approval dates:
MS Pharmacology Graduate Studies Committees: November 7, 2018
College of Pharmacy Graduate and Research Committee: March 7, 2019

Previously approved degree name:
Master of Science in Pharmacology

Proposed new degree name:
Master of Science in Translational Pharmacology

Proposed implementation date:
Autumn semester 2019

Educator preparation programs:
Indicate whether the program that is being renamed leads to educator preparation licenses or endorsements.

Licensure       No
Endorsement    No

Rationale for the degree name change:
The MS Pharmacology program is a 100% online interdisciplinary program offered by the College of Medicine, Department of Biological Chemistry and Pharmacology in collaboration with the College of Pharmacy. Students may choose to focus their studies in one of two areas: 1) clinical pharmacology and clinical trial design, or 2) preclinical toxicology and safety pharmacology. The program trains students to conduct studies for drug development, not drug discovery, and therefore does not offer basic science research or laboratory training. The degree name change to Master of Science in Translational Pharmacology is requested to avoid confusion with laboratory-based graduate degree programs in pharmacology which are commonly called MS in Pharmacology. According to the American Society of Clinical Pharmacology and Therapeutics, translational medicine in the areas of clinical and preclinical pharmacology bridges across “the discovery, development, regulation and use of pharmacologic agents to improve clinical outcome, and inform optimal use of therapeutics in patients.”
(https://www.ascp.org/Resources/Knowledge-Center/What-is-Translational-Medicine) We feel the degree name MS in Translational Pharmacology more accurately describes the program we offer and will help eliminate confusion about the training that prospective students will receive.
Effect on students in the current program:
The new degree name will go into effect in the semester following final approval and will apply to currently enrolled students. Therefore, students currently enrolled in the MS Pharmacology program will earn the new degree name (MS in Translational Pharmacology) upon graduation. Students will not otherwise be affected by the degree name change.

Administrative, curricular, faculty or support service changes:
None.

Notification of appropriate accreditation agencies:
Not applicable.
March 14, 2019

Alicia L. Bertone, DVM, PhD
Vice Provost for Graduate Studies
Dean of the Graduate School
250 University Hall
230 North Oval Mall
Columbus, Ohio 43210-1366

Dear Dean Bertone:

The College of Medicine has reviewed and fully endorses the proposed change in name of the Master of Science in Pharmacology to Master of Science in Translational Pharmacology. As outlined in the proposal for degree title change, the proposed new name will more accurately reflect the content of the degree offering.

Please do not hesitate to contact me if you have any questions.

Sincerely,

[Signature]

Daniel M. Clinchot, MD
Vice Dean for Education
Associate Vice President for Health Sciences Education
Chair, Department of Biomedical Education and Anatomy
Harry C. and Mary Elizabeth Powelson Professor of Medicine

DMC:sI
March 20, 2019

Alicia L. Bertone, DVM, PhD  
Vice Provost for Graduate Studies  
250 University Hall  
230 North Oval Mall  
Columbus, OH 43210

Dear Dean Bertone:

The College of Pharmacy has reviewed and strongly endorses the proposed name change of the Master of Science in Pharmacology to the Master of Science in Translational Pharmacology. As outlined in detail in the proposal for the title change, the new program name will more appropriately reflect the content of the degree.

Please feel free to reach out to me if you have any questions.

Sincerely,

Cynthia Carnes, PharmD, PhD  
Senior Associate Dean for Research and Graduate Studies  
217A Parks Hall  
500 W 12th Avenue  
Columbus, OH 3210  
carnes.4@osu.edu  
(614) 292-1715
Program Overview

For more information, please visit: www.pharmacy.osu.edu/online-programs

Program Highlights:

100% ONLINE: The MS Translational Pharmacology program is offered 100% online in an asynchronous format by The Ohio State University College of Medicine, Dept. of Biological Chemistry and Pharmacology in collaboration with the OSU Colleges of Pharmacy and Nursing.

MULTIDISCIPLINARY CURRICULUM: Designed for recent graduates and professionals interested in a career in clinical and translational pharmacology, specializing in clinical trial design or preclinical toxicology and safety pharmacology studies. The program has a translational pharmacology focus – bridging across “the discovery, development, regulation and use of pharmacologic agents to improve clinical outcome, and inform optimal use of therapeutics in patients.” (ASCPT: What is Translational Medicine) (Please note the online MS Translational Pharmacology degree is not a lab-based program.)

SPECIALIZATIONS: Two interdisciplinary specializations are offered:
1. Clinical Pharmacology and Clinical Trial Design
2. Toxicology and Safety Pharmacology

WHO SHOULD APPLY? The MS Translational Pharmacology program is appropriate for healthcare practitioners as well as those having completed a B.S. or graduate degree in the pharmaceutical sciences or other bioscience-related field.

PREREQUISITES: Applicants not holding a bachelor’s degree or higher in a clinical, health science or bioscience field must have completed coursework in biology and chemistry; introductory courses in biochemistry and physiology are recommended but not required. Students who have not previously completed coursework in general pharmacology (graduate level) and pathophysiology (any level) will be required to complete these courses in the program.

CAREER OPPORTUNITIES: Graduates with this master’s degree may find rewarding clinical research career opportunities as clinical trials administrators, project managers, quality assurance specialists, and in pharmaceutical sales. In organizations conducting preclinical drug studies, graduates may find entry- and mid-level opportunities as study coordinators and directors, quality assurance specialists, laboratory animal resource managers, and project/program managers. Graduates already holding a doctorate degree may leverage this master’s degree to advance their careers as clinical investigators, research scientists, clinical pharmacologists, or medical affairs specialists in the pharmaceutical industry, contract research organizations, clinical research organizations, and academic medical centers.

Program of Study:
The MS Translational Pharmacology curriculum consists of 30-36 credits organized into three curricular areas:
1. Clinical and translational pharmacology and toxicology coursework
2. Conduct of clinical trials or preclinical studies coursework, including courses in biostatistics
3. Culminating project: development of clinical trial or preclinical study protocol and manuscript

As a final master’s degree assessment, all students must pass a final master’s comprehensive exam in their final semester. The MS Translational Pharmacology program does not require a thesis.

Contact:
For information please contact:
Nikki Herbert, MA, Manager of Online Graduate Programs, phone 614-688-3663; email herbert.1865@osu.edu
### Coursework Requirements:

#### Core Courses (9-15 credits required)
1. BIOPHRM 5600: Introduction to General Pharmacology*
2. Pharmacy 5005: Fundamentals of Pathophysiology (preferred) or HTHRHS 5500: Introduction to Pathophysiology**
3. Bioethics 6010: Biomedical Research Ethics
4. Pharmacy 7582: Organ System Toxicology
5. Pharmacy 7584: Applied Pharmacokinetics and Pharmacodynamics

#### Specialization Courses (additional 18 credits required)

<table>
<thead>
<tr>
<th>Clinical Pharmacology and Clinical Trial Design</th>
<th>Toxicology and Safety Pharmacology</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PUBHBIO 6210: Design and Analysis of Studies in Health Sciences I (biostatistics)</td>
<td>1. Pharmacy 7784: Data Analysis and Interpretation for Clinical and Preclinical Research (biostatistics)</td>
</tr>
<tr>
<td>2. PUBHBIO 6211: Design and Analysis of Studies in Health Sciences II (biostatistics)</td>
<td>2. Pharmacy 7562: Design and Management of Preclinical Studies</td>
</tr>
<tr>
<td>3. BIOPHRM/Nursing/Pharmacy 7560: Clinical Trials I: Design and Regulation</td>
<td>Toxicology Courses:</td>
</tr>
<tr>
<td>4. BIOPHRM/Nursing/Pharmacy 7561: Clinical Trials II: Management and Leadership</td>
<td>3. Pharmacy 7583: Advanced Organ System Toxicology and Risk Assessment</td>
</tr>
<tr>
<td>5. Pharmacy 5700: Introduction to Personalized Therapeutics and Pharmacogenomics</td>
<td>4. Pharmacy 7588: Toxic Substances Safety Pharmacology:</td>
</tr>
</tbody>
</table>

The following course may be substituted for a toxicology or safety pharmacology course above (3-6), with advisor permission:
- Pharmacy 5700: Introduction to Personalized Therapeutics and Pharmacogenomics

#### Culminating Project (3 credits required)
- BIOPRH 7598: Scientific Writing: Clinical Trial Protocol and Manuscript Development
- Pharmacy 7597: Scientific Writing: Preclinical Study Protocol and Manuscript Development

*General pharmacology may be waived for clinicians (MD, DO, PharmD, NP, PA, etc.) and other students who have completed a graduate-level general pharmacology course (grade B or better).

**Pathophysiology may be waived for clinicians and other students who have completed any college-level pathophysiology course (graduate or undergraduate, grade B or better).

Department abbreviations:
- BIOPHRM = Biological Chemistry and Pharmacology
- CBG = Cancer Biology and Genetics
- HTHRHS = Health and Rehabilitation Sciences
- PUBHBIO = Public Health Biostatistics
## MS Translational Pharmacology

### Student Plan of Study

**Clinical Pharmacology and Clinical Trial Specialization - Autumn Entry - Part Time**

<table>
<thead>
<tr>
<th>Last Name:</th>
<th>First Name:</th>
<th>name.#:</th>
<th>Sem. Enrolled:</th>
<th>Sem. GND:</th>
<th>Advisor:</th>
<th>Date Initial Advising Appt:</th>
<th>Date(s) Revised:</th>
</tr>
</thead>
</table>

### Courses transferred

(graduate non-degree and courses completed at another institution: 7 credits max.; provide institution, course number, semester taken, grade earned):

| Courses transferred | | |

### Courses waived

1, 2 (credits must be replaced; provide institution, course number, semester taken, grade earned):

| Courses waived | |

### Current Position and Employer:

3

### Career Goals:

| Career Goals | |

### Advising Notes:

| Advising Notes: | |

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### Advising notes:

1. Pharmacology may be waived for students who have completed a general pharmacology course at the 5000-level or higher (grade of B or better), including MDs, DOs, DDSs, ODs, PharmDs, RPhs, and NPs. Pharmacology is not waived for RNs and OSU BSPS students.

2. Pathophysiology may be waived for students who have completed any undergraduate or graduate level pathophysiology course, including MDs, DOs, DDSs, ODs, PharmDs, RPhs, NPs, and RNs.

3. OSU employees are limited to 10 credits/semester for tuition benefit, with limited exceptions.

**Advisors: Please create a pdf of this form and email to advisee. File both the Word and pdf files in student’s Box folder and notify program coordinator that POS has been completed.**

### Abbreviations:

- BIOPHRM = Biological Chemistry and Pharmacology
- CBG = Cancer Biology and Genetics
- GND = Graduate Non-degree
- HTHRHSC = Health and Rehabilitation Sciences
- NURS = Nursing
- PHR = Pharmacy
# MS Translational Pharmacology
## Student Plan of Study
### Clinical Pharmacology and Clinical Trial Specialization - Autumn Entry - Part Time

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisite</th>
<th>Terms Offered</th>
<th>Check if waived</th>
<th>Check if transferred</th>
<th>2019-20</th>
<th>2020-21</th>
<th>2021-22</th>
<th>2022-21</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOETHC 6010</td>
<td>Biomedical Research Ethics</td>
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<tr>
<td>BIOPH/NUR/PHR 7560</td>
<td>Clinical Trials I: Design and Regulation</td>
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<td>Au</td>
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<tr>
<td>BIOPH/NUR/PHR 7561</td>
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<td>3</td>
<td>BIO/NUR/PHR7560</td>
<td>Sp</td>
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<td>physiology rec.</td>
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<td>Pathophysiology (select one):</td>
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<td>PHR 5005</td>
<td>[X] Fundamentals of Pathophysiology (recommended)</td>
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<td>HTHRHC 5500</td>
<td>[ ] Introduction to Pathophysiology</td>
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<tr>
<td>PHR 7582</td>
<td>Organ System Toxicology</td>
<td>3</td>
<td>physiology rec.</td>
<td>Au Sp</td>
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<td>X</td>
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<tr>
<td>PUBHBIO 6210</td>
<td>Design &amp; Analysis of Studies in the Health Sciences I</td>
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<td>none</td>
<td>Au Sp Su</td>
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<tr>
<td>PUBHBIO 6211</td>
<td>Design and Analysis of Studies in Health Sciences II</td>
<td>3</td>
<td>PUBHBIO 6210 (grade B- or better)</td>
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<tr>
<td>CBG/PHR 5700</td>
<td>Intro. to Personalized Therapeutics &amp; Pharmacogenomics</td>
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<td>Pharm, PK &amp; biostats</td>
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<tr>
<td><strong>Culminating Project</strong></td>
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<tr>
<td>BIOPHRM 7598</td>
<td>Scientific Writing: Clinical Trial Protocol and Manuscript Development</td>
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<td>Final semester</td>
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<tr>
<td><strong>Other MS Translational Pharmacology Courses (may replace waived courses)</strong></td>
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<tr>
<td>PHR 7562</td>
<td>Design and Management of Preclinical Studies</td>
<td>3</td>
<td>None</td>
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<td>PHR 7580</td>
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<tr>
<td>PHR 7583</td>
<td>Advanced Organ System Toxicology &amp; Risk Assessment</td>
<td>3</td>
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<tr>
<td>PHR 7586</td>
<td>Integrative In Vivo Modeling for Drug Development</td>
<td>3</td>
<td>PHR 7582</td>
<td>Su</td>
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<tr>
<td>PHR 7588</td>
<td>Toxic Substances</td>
<td>3</td>
<td>PHR 7582 rec.</td>
<td>Su</td>
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</tbody>
</table>

**CREDIT HOUR TOTALS (min. 30)**

Total Credits: 30‐36

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*Students wishing to take PUBHBIO 6210 in the full 14-week semester may switch semesters with BIOPHRM 5600. Students who are hesitant to take the accelerated biostatistics course in summer term should PUBHBIO 6210 during the first autumn.*
# MS Translational Pharmacology
## Student Plan of Study
### Toxicology and Safety Pharmacology Specialization - Autumn Entry - Part Time

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Courses transferred (graduate non-degree and courses completed at another institution: 7 credits max.; provide institution, course number, semester taken, grade earned):

Courses waived 1,2,3 (credits must be replaced; provide institution, course number, semester taken, grade earned):

Current Position and Employer: 4
Career Goals:

Advising Notes:

---

**Advising notes:**

1. Pharmacology may be waived for students who have completed a general pharmacology course at the 5000-level or higher (grade of B or better), including MDs, DOs, DDSs, ODs, PharmDs, RPhs, and NPs. Pharmacology is not waived for RNs and OSU BSPS students.

2. Pathophysiology may be waived for students who have completed any undergraduate or graduate level pathophysiology course, including MDs, DOs, DDSs, ODs, PharmDs, RPhs, NPs, and RNs.

3. Biostatistics may be waived for students who have completed a prior graduate-level biostatistics course with a grade of B or better. PHR 7784 is preferred. However, students wishing to continue with further biostatistics study should enroll in PUBHBIO 6210.

4. OSU employees are limited to 10 credits/semester for tuition benefit, with limited exceptions.

**Advisors: Please create a pdf of this form and email to advisee. File both the Word and pdf files in student’s Box folder and notify program coordinator that POS has been completed.**

**Abbreviations:** BIOPHRM = Biological Chemistry and Pharmacology, CBG = Cancer Biology and Genetics, GND = Graduate Non-degree, HTHRSC = Health and Rehabilitation Sciences, NURS = Nursing, PHR = Pharmacy
# MS Translational Pharmacology
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<th>2021-22</th>
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</thead>
<tbody>
<tr>
<td>PHR 7562</td>
<td>Design and Management of Preclinical Studies</td>
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<td>None</td>
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<td>BIOETHC 6010</td>
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<td>3</td>
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<td>PUBHBIO 6210</td>
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<tr>
<td>PHR 7580</td>
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<td>Advanced Organ System Toxicology &amp; Risk Assessment</td>
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<td>PHR 7582</td>
<td>Sp</td>
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<td>PHR 7586</td>
<td>Integrative in Vivo Modeling for Drug Development</td>
<td>3</td>
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<td>Su</td>
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<tr>
<td>PHR 7588</td>
<td>Toxic Substances</td>
<td>3</td>
<td>PHR 7582 rec.</td>
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<tr>
<td>CBG/PHR 5700</td>
<td>Intro. to Personalized Therapeutics &amp; Pharmacogenomics</td>
<td>3</td>
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**CREDIT HOUR TOTALS (min. 30)**

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