

# DOCTOR OF PHILOSOPHY (PH.D.)

\*IMPORTANT Note About the Doctor of Philosophy in Pharmacology Degree\*

***This program is no longer accepting students at this time as this field of study is now a discipline within the new Integrated Biomedical Sciences (IBMS) ([http://gsbs.uthscsa.edu/graduate\\_programs/integrated-biomedical-sciences](http://gsbs.uthscsa.edu/graduate_programs/integrated-biomedical-sciences)) Program. All information in this section of the Catalog is for the current Pharmacology students only.***

The discipline of pharmacology explores the mechanisms by which drugs cause biological effects. In the broadest sense, pharmacology is the study of how chemical agents, both natural and synthetic (i.e., drugs) affect biological systems. Research of the member of the Pharmacology track (currently 40 investigators) focuses in the areas of Neuropharmacology, Aging and Neurodegeneration, Autonomic and Endocrine Homeostasis, Pain Disorders, and Cancer Biology. All these areas are explored with an orientation towards drug development. A wide array of state-of-the-art methodologies including molecular, electrophysiological, neurochemical, genetics, imaging and behavioral techniques are employed. Pharmacology is often described as a bridge science because it incorporates knowledge and skills from a number of basic science disciplines, including physiology, biochemistry and cell and molecular biology. The interdisciplinary nature of the field offers pharmacologists a variety of research opportunities not found in other fields of scientific inquiry. It is this flexibility as well as the potential for the practical application of research (“translational research”) that attracts people into becoming pharmacologists.

Graduate studies in Pharmacology are currently administered through the Physiology and Pharmacology Discipline of the Integrated Biomedical Sciences Program of the Graduate School of Biomedical Sciences. The Physiology and Pharmacology Discipline is jointly administered by the Pharmacology department and the Cellular & Integrative Physiology department.

## Pharmacology Degree Requirements

A minimum of 72 credit hours and a minimum overall GPA of 3.0 is required for the Ph.D. degree. In addition, all doctoral candidates must register for the IBMS 7099 Dissertation for at least two semesters in order to graduate; only one of the terms may be a summer session. The student is required to demonstrate intellectual command of the subject area of the graduate program and capability to carry out independent and original investigation in the area. The student must successfully defend a dissertation and be recommended by their program COGS for approval of their degree to the Dean of the Graduate School of Biomedical Sciences.

## Sample 5-year plan of study for Ph.D. (Neuroscience Track) <sup>1</sup>

### First Year

Fall		Credit Hours
IBMS 5000	Fundamentals Of Biomedical Sciences	8
IBMS 5008	Lab Rotations	2

TSCI 5070	Responsible Conduct Of Patient-Oriented Clinical Research	2
Total Credit Hours:		12.0

### First Year

Spring		Credit Hours
INTD 5040 or PHYL 5041	Fundamentals Of Neuroscience1: Molecular, Cellular, & Developmental Neuroscience	1-2
IBMS 6090	Seminar	1.5
CSBL 5095	Experimental Design And Data Analysis	3
IBMS 7010	Student Journal Club & Research Presentation	1
IBMS 6097	Research	0.5-12
Total Credit Hours:		7.0-19.5

### Second Year

Fall		Credit Hours
INTD 5043	Fundamentals Of Neuroscience 2: Systems Neuroscience	3
INTD 5047	Neuroanatomy	2
IBMS 6090	Seminar	1.5
IBMS 7010	Student Journal Club & Research Presentation	1
PHAR 5020	Basics Of Research Design	2
PHAR 5092	Special Problems In Pharmacology: Research Practicum	1-9
IBMS 6097	Research	0.5-12
Total Credit Hours:		11.0-30.5

### Second Year

Spring		Credit Hours
Electives		5
IBMS 6090	Seminar	1.5
IBMS 6097	Research	0.5-12
IBMS 7001	Qualifying Exam	1
IBMS 7010	Student Journal Club & Research Presentation	1
INTD 6045	Clinical Practicum In Neuroscience	1
Total Credit Hours:		10.0-21.5

### Third Year

Fall		Credit Hours
IBMS 6090	Seminar	1.5
IBMS 7010	Student Journal Club & Research Presentation	1-2
IBMS 6097	Research	0.5-12
Total Credit Hours:		3.0-15.5

### Third Year

Spring		Credit Hours
IBMS 6090	Seminar	1.5
IBMS 7010	Student Journal Club & Research Presentation	1-2

IBMS 6097	Research	0.5-12
Total Credit Hours:		3.0-15.5

**Fourth Year**

<b>Fall</b>		<b>Credit Hours</b>
IBMS 6090	Seminar	1.5
IBMS 7010	Student Journal Club & Research Presentation	1-2
IBMS 6097	Research	0.5-12
Total Credit Hours:		3.0-15.5

**Fourth Year**

<b>Spring</b>		<b>Credit Hours</b>
IBMS 6090	Seminar	1.5
IBMS 7010	Student Journal Club & Research Presentation	1-2
IBMS 6097	Research	0.5-12
Total Credit Hours:		3.0-15.5

**Fifth Year**

<b>Fall</b>		<b>Credit Hours</b>
IBMS 6090	Seminar	1.5
IBMS 7010	Student Journal Club & Research Presentation	1-2
IBMS 6097	Research	0.5-12
Total Credit Hours:		3.0-15.5

**Fifth Year**

<b>Spring</b>		<b>Credit Hours</b>
IBMS 6090	Seminar	1.5
IBMS 6097	Research	0.5-12
IBMS 7010	Student Journal Club & Research Presentation	1-2
Total Credit Hours:		3.0-15.5

<sup>1</sup> The student's last two semesters they should register for PHAR 7099 Dissertation in place of PHAR 6097 Research

## Sample 5-year plan of study for Ph.D. (Pharmacology Track) <sup>1</sup>

**First Year**

<b>Fall</b>		<b>Credit Hours</b>
IBMS 5000	Fundamentals Of Biomedical Sciences	8
IBMS 5008	Lab Rotations	2
Total Credit Hours:		10.0

**First Year**

<b>Spring</b>		<b>Credit Hours</b>
PHAR 5014	Integrative Physiology & Therapeutics	4.5
PHAR 5013	Principles Of Pharmacology & Physiology 1	3
IBMS 6090	Seminar	1.5

IBMS 5008	Lab Rotations	2
Total Credit Hours:		11.0

**Second Year**

<b>Fall</b>		<b>Credit Hours</b>
CSBL 5095	Experimental Design And Data Analysis	3
IBMS 6090	Seminar	1.5
IBMS 6097	Research	0.5-12
PHAR Electives <sup>2</sup>		
Total Credit Hours:		5.0-16.5

**Second Year**

<b>Spring</b>		<b>Credit Hours</b>
TSCI 5070	Responsible Conduct Of Patient-Oriented Clinical Research	2
IBMS 6090	Seminar	1.5
IBMS 6097	Research	0.5-12
PHAR Electives <sup>2</sup>		
Qualifying Exam		
Total Credit Hours:		4.0-15.5

**Third Year**

<b>Fall</b>		<b>Credit Hours</b>
IBMS 6090	Seminar	1.5
IBMS 6097	Research	0.5-12
Total Credit Hours:		2.0-13.5

**Third Year**

<b>Spring</b>		<b>Credit Hours</b>
IBMS 6090	Seminar	1.5
IBMS 6097	Research	0.5-12
Total Credit Hours:		2.0-13.5

**Fourth Year**

<b>Fall</b>		<b>Credit Hours</b>
IBMS 6090	Seminar	1.5
IBMS 6097	Research	0.5-12
Total Credit Hours:		2.0-13.5

**Fourth Year**

<b>Spring</b>		<b>Credit Hours</b>
IBMS 6090	Seminar	1.5
IBMS 6097	Research	0.5-12
Total Credit Hours:		2.0-13.5

**Fifth Year**

<b>Fall</b>		<b>Credit Hours</b>
IBMS 7099	Dissertation	1-12

IBMS 6097	Research	0.5-12
Total Credit Hours:		1.5-24.0

**Fifth Year**

<b>Spring</b>		<b>Credit Hours</b>
IBMS 7099	Dissertation	1-12
IBMS 6097	Research	0.5-12
Total Credit Hours:		1.5-24.0

<sup>1</sup> The student's last two semesters they should register for IBMS 7099 Dissertation in place of IBMS 6097 Research

<sup>2</sup> A total of 4 credit hours of Electives/Micro-electives are required. These credits should be obtained by the end of the second year. Please see department.

## Pharmacology Objectives/Program Outcomes

- The student will demonstrate proficiency in core coursework.
- The student will be able to conduct independent research.
- The student will be able to critically evaluate current scientific literature.
- The student will be able to communicate effectively in writing.
- The student will be able to communicate effectively in an oral format.