**Physiology and Pharmacology Discipline Curriculum**

**A. Required Courses**

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| IBMS | [5000](http://pharmacology.uthscsa.edu/INTD5000.asp) | Fundamentals of Biomedical Sciences (required for all GSBS students) |
| IBMS | [5008](http://pharmacology.uthscsa.edu/INTD5008.asp) | IMGP Laboratory Rotations |
| PHAR | [5013](http://pharmacology.uthscsa.edu/INTD5040.asp) | Principles of Pharmacology and Physiology |
| PHAR | 5014 | Integrative Physiology and Therapeutics |
| PHAR | [5020](http://pharmacology.uthscsa.edu/INTD5047.asp) | Basics of Research Design |
| TSCI | 5070 | Responsible Conduct of Research |
| CSBL | [5095](http://pharmacology.uthscsa.edu/CSBL5095.asp) | Experimental Design & Analysis (Statistics) |
| PHAR | [5092](http://pharmacology.uthscsa.edu/PHAR5092NEURO.asp) | Research Practicum |
| IBMS | 6090-8PP | Departmental Seminar (Physiology and/or Pharmacology departmental seminars) |
| IBMS | [7010-8PP](http://pharmacology.uthscsa.edu/PHAR5092NEURO.asp) | Student Journal Club and Research Presentations |
| IBMS | 7001-8PP | Qualifying Exam |

IBMS 6097-8PP Research

IBMS 7099-8PP Dissertation

**B. Electives (must take at least 4 hrs. and can include any courses offered at the UTHSCSA)**

**Frequent options include:**

|  |  |  |  |
| --- | --- | --- | --- |
| INTD | 5040 | Fundamentals of Neuroscience I: Molecular, Cellular, Developmental | 1.0 hrs |
| INTD | 5043 | Fundamentals of Neuroscience II: Systems | 2.0 hrs |
| INTD | 7074 | Topics in Translational Medical Product Development | 1.0 hrs |
| PHAR | 5091 | Micro electives (Seminar-style specialized courses) | 1.5 hrs |
|  | 5091-1 | Monoaminergic Neurotransmission and Transporters | 1.0 hrs |
|  | 5091-2 | Drug Discovery: Nuts & Bolts | 1.0 hrs |
|  | 5091-3 | Historical Perspectives of Receptor Theory |  |
|  | 5091-6 | Serotonin- Soup to Nuts |  |
|  | 5091-8 | Neural Substrates of Regulated Behaviors |  |
|  | 5091-10 | Appetite Control: Adiposity Hormones & Neuropeptides |  |
|  | 5091-11 | Fundamentals of Behavioral Pharmacology |  |
|  | 5091-18 | G protein-coupled receptor heteromers: pharmacological and physiological relevance |  |
| PHYL | 5041 | Excitable Membranes |  |
|  | 6091  6091-2 | Selected Topics  Calcium Signaling |  |
|  | 6091-3 | Cell Biology in Neural Science | 2.0 hrs |
|  | 6091-7 | Ion Channels in Disease |  |
| BIOC | 5091 | Special Topics in Biochemistry |  |
| BIOC | 6035 | Biochemistry of Multimolecular Complexes | 2.0 hrs |
| BIOC | 6010 | Gene Expression | 1.0 hrs |
| BIOC | 6043 | Structure and Function of Membrane Proteins | 2.0 hrs |
| BIOC | 6033 | Cellular Signaling Mechanisms | 2.0 hrs |
| CSBL | 6048 | Biology of Aging | 2.0 hrs |
| CSBL | 6021 | Animal Models | 2.0 hrs |
| CSBL | 6064 | Genetics | 3.0 hrs |
| CSBL | 6020 | Concepts in Vertebrate Development | 3.0 hrs |
| PHAR | 7003 | Electrophysiology in Neuroscience Research | 3.0 hrs |
| PHAR | 6027 | Fundamentals of Neuroethics | 3.0 hrs |
| PHAR | 7002 | Bridging the Gap from Bench to Bedside: Pharmacology Clinical Practicum | 1.5 hrs |
|  |  |  | 1.0 hrs |

**We will offer the following modules as electives for other disciplines:**

PHAR 5021 - Autonomic Control and Therapeutics (0.5 SCH)

PHAR 5018 - Cardiovascular, Renal and Respiratory Physiology and Therapeutics (2.0 SCH)

PHAR 5019 - Metabolism, Hormones, GI Physiology and Therapeutics (2.0 SCH)

**Physiology and Pharmacology Discipline Plan of Study**

**Year 1:**

**Fall semester**

IBMS 5000 - Fundamentals of Biomedical Sciences (required for all GSBS students) 8.0 SCH

TSCI 5070 - Responsible Conduct of Research 2.0 SCH

IBMS 5008 - Laboratory Rotations (3 rotations, 5 weeks each) 3.0 SCH

**TOTAL 13.0 SCH**

**Spring semester**

PHAR 5013 – Principles of Pharmacology and Physiology 3.0 SCH

CSBL 5095 – Experimental Design and Data Analysis (Statistics) 3.0 SCH

IBMS 7010-8PP – Student Journal Club and Research Presentations. 1.0 SCH

IBMS 6090-8PP – Pharmacology and/or Physiology Departmental Seminars 1.5 SCH

IBMS 6097-8PP – Research Variable \*ELECTIVE COURSES FROM PHYS/PHARM or OTHER DISCIPLINES Variable

**TOTAL 12.0 SCH**

**Year 2:**

**Fall semester**

PHAR 5020 – Basics of Research Design 2.0 SCH

PHAR 5014 – Integrated Physiology and Therapeutics 4.5 SCH

PHAR 5092 – Research Practicum 1.0 SCH

IBMS 7010-8PP – Student Journal Club and Research Presentations. 1.0 SCH

IBMS 6090-8PP – Pharmacology and/or Physiology Departmental Seminars 1.5 SCH

IBMS 6097-8PP – Research Variable

\*ELECTIVE COURSES FROM PHYS/PHARM or OTHER DISCIPLINES Variable

**TOTAL 12.0 SCH**

**Spring semester**

IBMS 7010-8PP – Student Journal Club and Research Presentations. 1.0 SCH

IBMS 6090-8PP – Pharmacology and/or Physiology Departmental Seminars 1.5 SCH

IBMS 7001-8PP - Qualifying Exam 1.0 SCH

IBMS 6097-8PP – Research Variable

\*ELECTIVE COURSES FROM PHYS/PHARM or OTHER DISCIPLINES Variable

**TOTAL 12.0 SCH**

**Years 3 through completion ~ each semester:**

IBMS 7010-8PP – Student Journal Club and Research Presentations. 1.0 SCH

IBMS 6090-8PP – Pharmacology and/or Physiology Departmental Seminars 1.5 SCH

IBMS 6097-8PP – Research Variable

\*\*IBMS 7099-8PP – Dissertation Variable

\*ELECTIVE COURSES FROM PHYS/PHARM or OTHER DISCIPLINES Variable

**TOTAL 12.0 SCH**

\*Since different electives vary in credit hours, research credit hours for a given semester should be adjusted in order to maintain a total of 12 credit hours for the semester.

\*\*A minimum of 2 semesters of IBMS 7099-8PP (Dissertation) is required for graduation. A student may begin enrolling in IBMS 7099-8PP once the Dissertation Research Proposal and the Dissertation Supervising Committee membership are approved by the GSBS Dean. Final hours (3.0 SCH) may be applicable for the final semester.