

Version 1  
8/21/2024

## FUNDAMENTALS OF PHARMACOLOGY 623 2024

Time: Monday, Wednesday, and Thursday, **8:30–9:30 A.M.**  
(Occasional classes on Tuesdays and Fridays)  
Location: 10-146 Smilow

In the event that a remote link is needed, please use the below Zoom link -

<https://us06web.zoom.us/j/85447068723?pwd=TWdmRlVxT0VZWUJHTk00WHd4OUtTdz09>

lectures will be posted on Mediasite /—All 2024 recorded lectures are there

[University of Pennsylvania School of Medicine - Biomedical Graduate Studies \(upenn.edu\)](https://mediasite.upenn.edu/BiomedicalGraduateStudies)

Canvas site: [PHRM 6230-401 202430 Fundamentals Of Pharmacology \(upenn.edu\)](https://canvas.upenn.edu/courses/6230-401-202430)

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Grading/Exams: Grades are based on the average of the 3 exams. Some professors grade problem sets, but they will contribute to no more than 10% of the final grade

| Day   | Date  | Lecture   | Lecturer          |
|-------|-------|---|-------------------|
| Wed   | 8/28  | Introduction & History (Frazer)                               | Field/Song/Frazer |
| Thurs | 8/29  | ligand receptor interactions 1                                | Ali               |
| Mon   | 9/2   | No class Labor Day  | xxxxx             |
| Wed   | 9/4   | ligand receptor interactions 2                                | Ali               |
| Thurs | 9/5   | Pharmacology of GPCRs   | Ali               |
| Mon   | 9/9   | Receptor tyrosine kinases: Oncogenes/Signaling pathways       | Field             |
| Wed   | 9/11  | Receptor tyrosine kinases: Cytoskeleton and apoptosis         | Field             |
| Thurs | 9/12  | Receptor tyrosine kinases: Technologies                       | Field             |
| Mon   | 9/16  | Protein Structure and its role in drug design                 | Moiseenkova-Bell  |
| Tues  | 9/17  | Ion channels 1  | Moiseenkova-Bell  |
| Wed   | 9/18  | Receptor Structure readings                                   | Moiseenkova-Bell  |
| Thurs | 9/19  | <b>No class SPATT retreat/Penn Museum</b>                     |                   |
| Mon   | 9/23  | AI for Antibiotic discovery                                   | de la Fuentes     |
| Mon   | 9/23  | 5 PM VIA ZOOM: Structure based drug design                    | Katrich           |
| Wed   | 9/25  | Receptor tyrosine kinases: Translation                        | Field             |
| Thurs | 9/26  | Selected reading(s)   | Field             |
| Mon   | 9/30  | Receptor tyrosine kinases: Problem set due                    | Field             |
| Tues  | 10/1  | Lipid signaling: Arachidonic acid metabolites                 | Ricciotti         |
| Wed   | 10/2  | Lipid signaling: Arachidonic acid metabolites                 | Ricciotti         |
| Thurs | 10/3  | Lipid signaling: Selected reading (s) & review                | Ricciotti         |
| Mon   | 10/7  | Review: <i>7-TM receptors, RTKs lipid mediators, channels</i> | lectures to date  |
| Wed   | 10/9  | <b>no class</b>   |                   |
| Thurs | 10/11 | <b>EXAM: (8:30 am-11:30 am)</b>                               |                   |

|       |       |  |                 |
|-------|-------|--|-----------------|
| Mon   | 10/14 | Drug Metabolism: Phase 1 and Cytochrome P450s                  | Song            |
| Tues  | 10/15 | Drug Metabolism: Phase II                                      | Song            |
| Wed   | 10/16 | Drug Metabolism: Selected reading(s)                           | Song            |
| Thurs | 10/17 | Introduction to kinetics                                       | Field           |
| Mon   | 10/21 | Enzymes: Michaelis-Menton kinetics                             | Penning         |
| Wed   | 10/23 | Enzymes: Reversible enzyme inhibitors                          | Penning         |
| Thurs | 10/24 | Bisubstrate reactions  | Penning         |
| Mon   | 10/28 | Transition state analogs                                       | Penning         |
| Tues  | 10/29 | Irreversible enzyme inhibitors                                 | Penning         |
| Wed   | 10/30 | Suicide substrates   | Penning         |
| Mon   | 11/4  | Nuclear Hormone receptors as drug targets                      | Penning         |
| Tues  | 11/5  | Problem Set in Class   | Penning         |
| Wed   | 11/6  | Non-traditional therapeutic modalities of in drug development  | Amatullah       |
| Thurs | 11/7  | Cellular Therapies   | June            |
| Mon   | 11/11 | Pharmacogenetics and Pharmacoeugenetics                        | Amatullah       |
| Tues  | 11/12 | Review: <i>enzymes and metabolism</i>                          | Song/Penning    |
| Wed   | 11/13 | no class   |                 |
| Thurs | 11/14 | <b>EXAM: (8:30 am-11:30 am)</b>                                | Penning/Song    |
| Mon   | 11/18 | Pharmacokinetics: Volume of Distribution, Clearance, Half-life | Robinson        |
| Wed   | 11/20 | Pharmacokinetics: Absorption, Bioavailability                  | Robinson        |
| Thurs | 11/21 | Pharmacokinetics: Clinical Pharmacokinetics and Variability    | Robinson        |
| Mon   | 11/25 | Pharmacokinetics: computational pharmacokinetics               | Stefanovski     |
| Tues  | 11/26 | Pharmacokinetics: problem session                              | Robinson        |
| Wed   | 11/27 | <b>No class Thanksgiving</b>                                   |                 |
| Thurs | 11/28 | <b>No class Thanksgiving</b>                                   |                 |
| Mon   | 12/2  | Immune systems   | Song            |
| Tues  | 12/3  | Immune Checkpoints   | Posey           |
| Wed   | 12/4  | Pk/PD of biologic drugs  | Wherry          |
| Thurs | 12/5  | Drug Development   | Santiago-Walker |
| Mon   | 12/9  | Biotherapeutics and targeted drug delivery                     | Muzikantov      |
| Tues  | 12/10 | Intracellular delivery   | Muzikantov      |
| Wed   | 12/11 | Gene Therapy   | Chung           |
| Thurs | 12/12 | <b>EXAM: (8:30 am-11:30 am)</b>                                |                 |