

# PHARMACOLOGICAL CHEMISTRY (CH35)

## Major Requirements for the PHARMACOLOGICAL CHEMISTRY B.S. Degree Starting Fall 2022 and After

The Pharmacological Chemistry major is intended primarily to prepare students for pharmacy school (Pharm.D.). Students fulfilling their elective requirements with appropriate courses are prepared to obtain a Ph.D. in pharmacology, biochemistry, or other areas of science. Degree recipients are also prepared for most jobs in the biotechnology and chemical industries. Pharmacological chemistry students are strongly encouraged to complete a full year of general chemistry and a full year of lower-division biology.

### The following courses must be taken for a letter grade:

#### Lower Division Requirements:

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| <ul style="list-style-type: none"><li><input type="checkbox"/> <b>General Chemistry</b> (CHEM 6A, 6B &amp; 6C or 6AH, 6BH &amp; 6CH)</li><li><input type="checkbox"/> <b>General Chemistry Lab</b> (CHEM 7L or 7LM)</li><li><input type="checkbox"/> <b>Physics</b> (PHYS 1A, 1B &amp; 1C <b>OR</b> PHYS 2A, 2B &amp; 2C or 2D)</li><li><input type="checkbox"/> <b>Physics Lab</b> (PHYS 1AL, 1BL &amp; 1CL <b>OR</b> PHYS 2BL or 2CL or 2DL)</li></ul> | <ul style="list-style-type: none"><li><input type="checkbox"/> <b>Calculus</b> (MATH 10A, 10B, 10C &amp; 11 <b>OR</b> MATH 20A, 20B, 20C &amp; 20D)</li><li><input type="checkbox"/> <b>Organic Chemistry</b> (CHEM 41A, 41B &amp; 41C)</li><li><input type="checkbox"/> <b>Organic Chemistry Lab</b> (CHEM 43A)</li><li><input type="checkbox"/> <b>General Cell Biology</b> (BILD 1 &amp; 2)</li></ul> |
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#### Upper Division Requirements:

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| <ul style="list-style-type: none"><li><input type="checkbox"/> <b>1. Physical Chemistry</b> (CHEM 126A &amp; 126B)</li><li><input type="checkbox"/> <b>2. Biochemistry</b> (CHEM 114A, 114B, 114C)</li><li><input type="checkbox"/> <b>3. Required Laboratory Courses:</b><ul style="list-style-type: none"><li>a. Analytical Chemistry Lab (CHEM 100A)</li><li>b. Organic Chemistry Lab (CHEM 143B)</li><li>c. Choose One:<ul style="list-style-type: none"><li>i. Protein Biochemistry Lab (CHEM 108)</li><li>ii. Recombinant DNA Lab (CHEM 109)</li><li>iii. Advanced Organic Chemistry Lab (CHEM 143C)</li></ul></li></ul></li><li><input type="checkbox"/> <b>4. PHARM Restricted Elective:</b> (choose one)<ul style="list-style-type: none"><li>a. Pharmacology and Toxicology (CHEM 118)</li><li>b. Medicinal Chemistry (CHEM 167)</li><li>c. Drug Synthesis and Design (CHEM 168)</li></ul></li></ul> | <ul style="list-style-type: none"><li><input type="checkbox"/> <b>5. Two Restricted Electives:</b><ul style="list-style-type: none"><li>a. Pharmacology and Toxicology (CHEM 118)*</li><li>b. Medicinal Chemistry (CHEM 167)*</li><li>c. Drug Synthesis and Design (CHEM 168)*</li><li>d. Human Physiology I (BIPN 100)</li><li>e. Human Physiology II (BIPN 102)</li><li>f. Microbiology (BIMM 120)</li><li>g. Microbiology Lab (BIMM 121)</li></ul></li><li>*If not taken to fulfill PHARM restricted elective</li><li><input type="checkbox"/> <b>6. Open elective:</b><ul style="list-style-type: none"><li>a. Four-unit (minimum) upper division course, not being used to fulfill another requirement.</li><li>b. CHEM 199 may be petitioned.</li></ul></li></ul> |
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#### For ACS Certification (optional):

Replace the open elective listed above with the following 3 courses:

- Inorganic Chemistry I (CHEM 120A)
- Physical Chemistry Lab (CHEM 105A)
- Select 1 of the following labs:
  - a. Instrumental Chemistry Lab (CHEM 100B)
  - b. Advanced Physical Chemistry Lab (CHEM 105B)
  - c. Advanced Inorganic Chemistry Lab (CHEM 123)
  - d. Molecular Design and Synthesis (CHEM 143D)
  - e. Protein Biochemistry Lab (CHEM 108), Recombinant DNA Lab (CHEM 109), or Advanced Organic Chemistry Lab (CHEM 143C) (if not already taken as the Biochemistry Laboratory).

## Sample 4-year Academic Plan for Pharmacological Chemistry B.S.

FALL	WINTER	SPRING
<b>FIRST YEAR</b>		
CHEM 6A	CHEM 6B	CHEM 6C
MATH 10A	MATH 10B	MATH 10C
BILD 1	BILD 2	<b>CHEM 7LM or 7L</b>
<b>SECOND YEAR</b>		
CHEM 41A	CHEM 41B	CHEM 41C
PHYS 1A	PHYS 1B	PHYS 1C
<b>PHYS 1AL</b>	<b>PHYS 1BL</b>	<b>PHYS 1CL</b>
MATH 11	<b>CHEM 43A</b>	
<b>THIRD YEAR</b>		
CHEM 114A	CHEM 114B	CHEM 114C
<b>CHEM 100A</b>	<b>CHEM 143B</b>	PHARM Restricted Elective
<b>FOURTH YEAR</b>		
<b>CHEM 108, 109 or 143C</b>	CHEM 126B	Restricted Elective
CHEM 126A	Restricted Elective	Open Elective

### IMPORTANT NOTES:

- The plans above do not include GE/University requirements or courses required for ASC Certification.
- Lab courses are **bolded**. We do not recommend taking a lab your first quarter at UCSD or taking more than one lab/quarter, with the exception of Physics labs.
- No more than one "D" grade is allowed in upper-division coursework.
- Most California pharmacy schools require additional coursework *that is not part of the Pharmacological Chemistry B.S.* for admission to pharmacy school. Students planning to apply to pharmacy school should meet with a pre-pharm advisor for advice on how to fit these courses into their plan.
- The plan above is meant to be a recommendation and guiding tool; this is not the only path to graduation in four years. Please reach out to the Advising Team if you ever have any questions or concerns.