

# PHARMACOLOGICAL CHEMISTRY (CH35)

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

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 and Physics Lab</b> (PHYS 1A, 1B &amp; 1C AND 1AL, 1BL and 1CL)*</li><li><input type="checkbox"/> <b>Calculus</b> (MATH 10A, 10B, 10C)**</li></ul> | <ul style="list-style-type: none"><li><input type="checkbox"/> <b>Probability and Statistics</b> (MATH 11)**</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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\***Physics 2 series** (PHYS 2A, 2B and 2C) and Lab (2BL or 2CL or 2DL) are also accepted

\*\***MATH 20 series** (MATH 20A, 20B, 20C, 20D) accepted

#### Upper Division Requirements:

- |  |   |
|--|---|
| <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><p>*If not taken to fulfill PHARM restricted elective</p></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 2-year Academic Plan for Pharmacological Chemistry B.S.

| This plan assumes completion of <b>Preparatory</b> course requirements prior to transferring to UCSD. | FALL  | WINTER              | SPRING              |
|---|---|---------------------|---------------------|
|   | THIRD YEAR – 1 <sup>ST</sup> YEAR TRANSFER  |                     |                     |
|   | CHEM 114A                                   | CHEM 114B           | CHEM 114C           |
|   | MATH 10C*                                   | <b>CHEM 100A</b>    | <b>CHEM 143B</b>    |
|   | PHYS 1C*                                    | MATH 11             | BILD 2              |
|   | PHYS 1CL*                                   | BILD 1              |                     |
|   | FOURTH YEAR – 2 <sup>ND</sup> YEAR TRANSFER |                     |                     |
|   | CHEM 126A                                   | CHEM 126B           | PHARM Elective      |
|   | <b>CHEM 108, 109, or 143C</b>               | Restricted Elective | Restricted Elective |
|   | Open Elective                               |                     |                     |

| This plan assumes completion of <b>ALL</b> lower division requirements prior to transferring to UCSD. | FALL  | WINTER              | SPRING              |
|---|---|---------------------|---------------------|
|   | THIRD YEAR – 1 <sup>ST</sup> YEAR TRANSFER  |                     |                     |
|   | CHEM 114A                                   | CHEM 114B           | CHEM 114C           |
|   | Open Elective                               | <b>CHEM 100A</b>    | <b>CHEM 143B</b>    |
|   | FOURTH YEAR – 2 <sup>ND</sup> YEAR TRANSFER |                     |                     |
|   | CHEM 126A                                   | CHEM 126B           | PHARM Elective      |
|   | <b>CHEM 108, 109, or 143C</b>               | Restricted Elective | Restricted Elective |
|   |   |                     |                     |
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### IMPORTANT NOTES:

- We do not recommend taking a chemistry lab your first quarter at UCSD or taking more than one lab a quarter.
- The plans above do not include GE/University requirements or courses required for ACS Certification.
- A minimum 2.0 major GPA is required for graduation.
- **No more than one "D" grade** is allowed in **upper-division** coursework.
- Many courses have enforced prerequisites or are only offered once per year. It is your responsibility to know which prerequisites are needed for each (course catalog).
- 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 from the Career Center's Health Beat advising ([healthbeat.ucsd.edu](http://healthbeat.ucsd.edu)) for advice on how to fit these courses into their plan.