PHARMACOLOGICAL CHEMISTRY (CH35)

Major Requirements for the PHARMACOLOGICAL CHEMISTRY B.S. Degree
Starting Fall 2017 and After

The Pharmacological Chemistry major provides a strong background in chemistry and includes most courses required by California pharmacy schools. The major is intended primarily to prepare students for pharmacy school (Pharm.D.). Students fulfilling their elective requirements with appropriate courses would be prepared for graduate school to obtain a Ph.D. in pharmacology, biochemistry or other areas of science. Degree recipients would also be 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. As with some medical programs, some pharmacy programs may require a full year of these courses and may not accept tests such as the Advanced Placement exam to satisfy these requirements.

The following courses must be taken for a letter grade:

Lower-Division Requirements
1. General Chemistry, including laboratory: 6A, 6B & 6C or 6AH, 6BH & 6CH AND 7L or CHEM 7LM
2. Physics, including laboratory: 2A, 2B & 2C or 2D AND 2BL, 2CL or 2DL
3. Calculus: 20A, 20B, 20C & 20D, or equivalent
4. Organic Chemistry, including laboratory: 40A, 40B & 40C or 40AH, 40BH & 40CH AND 43A or 43AM
5. Biology: BILD 1 & 2

Upper-Division Requirements
1. Physical Chemistry (CHEM 126A & 126B Recommended, CHEM130-132 Acceptable)
2. Biochemistry (CHEM 114A, 114B, 114C)
3. Pharmacology and Toxicology (CHEM 118)
4. Medicinal Chemistry (CHEM 167)
5. Drug Synthesis and Design (CHEM 168)
6. Required Laboratory Courses: Analytical Chemistry Laboratory (CHEM 100A), Organic Chemistry Laboratory (CHEM 143B), Choose One: Protein Biochemistry Lab (CHEM 108), Recombinant DNA Laboratory (CHEM 109), or Advanced Organic Chemistry Laboratory (CHEM 143C)
7. Elective: This elective is defined as a four-unit (minimum) upper division course offered by the Department of Chemistry and Biochemistry and taken for a letter grade. Four units of a non-letter graded courses such as CHEM 195 and CHEM 199, may be petitioned to fulfill this elective.

For ACS Certification

Replace the elective listed above (#7) with the following 3 courses:
1. Inorganic Chemistry I (CHEM 120A)
2. Physical Chemistry Laboratory (CHEM 105A)
3. Select 1 of the following labs:
   a. Instrumental Chemistry Laboratory CHEM 100B
   b. Advanced Physical Chemistry Laboratory CHEM 105B
   c. Advanced Inorganic Chemistry Laboratory CHEM 123
   d. Protein Biochemistry Lab (CHEM 108), Recombinant DNA Laboratory (CHEM 109), or Advanced Organic Chemistry Laboratory (CHEM 143C) (if not already taken as the Biochemistry Laboratory)
**Suggested Program for Pharmacological Chemistry B.S. Major**

**Began at UCSD Fall 2017**

- Talk to your college for planning general education courses
- ACS Certification requires additional courses not included below
- Most California pharmacy schools require a course in public speaking for admission to the school. Students planning to apply to these programs should take Introduction to Speech, Theatre TDGE 25, or an appropriate course at a community college.
- Best time to study abroad is Fall quarter of Sophomore or Junior year. Education Abroad Program deadlines for upcoming year vary by country. See EAP website. See the Chemistry & Biochemistry Undergraduate Advisor for assistance in planning to study abroad.

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Notes:
1. Many courses have enforced prerequisites or are offered once per year. It is your responsibility to know which prerequisites are needed for each course. [https://www.ucsd.edu/catalog/courses/CHEM.html](https://www.ucsd.edu/catalog/courses/CHEM.html)
2. Both CHEM 167 and CHEM 168 are required. These courses are typically offered in Winter or Spring quarter.
3. CHEM 118 may be offered in Winter of Spring quarter.
4. Chem elective chosen from among all of the upper-division and graduate courses offered by the Department of Chemistry and Biochemistry (except non-letter graded courses). Units may vary by elective chosen.
5. If ACS certification is desired, CHEM 120A, plus two additional laboratory courses (CHEM 105A and any one other division chemistry lab), are required. Any of these courses will satisfy the one upper division chemistry elective requirement.
6. *CHEM 108, 109, are 6 units each. CHEM 143C is 5 units.

For more detailed information, please see our website: [https://chemistry.ucsd.edu/undergraduate/index.html](https://chemistry.ucsd.edu/undergraduate/index.html)