

## Concentration - Medicinal Chemistry

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### **B.S. in Pharmaceutical Sciences**

#### **Description**

The B.S.P.S. degree may be taken as a practice or a nonpractice track. The practice track is designed to prepare a student for entry into the Pharm.D. professional program. The nonpractice tracks are designed to prepare a student for a pharmacy-related career (e.g., research or marketing) or graduate school.

**Minimum Total Credit Hours: 142**

#### **Goals/Mission Statement**

On the baccalaureate level, the school shall foster an environment where students can learn and apply the principles and theories related to the pharmaceutical sciences and acquire the knowledge, skills, and attitudes in their chosen discipline such that each can enter and succeed in a professional career in the pharmaceutical sciences, or continue studies in areas including, but not limited to, the Doctor of Pharmacy program or graduate studies in the pharmaceutical sciences.

#### **General Education Requirements**

The general education/core requirements for the B.S.P.S. degree include Engl 101 and Engl 102/Liba 102; Bisc 160, 161, 162, 163; Chem 105, 115, 106, 116, 221, 225, 222, 226; Phys 213, 223, 214, 224; Math 261; Spch 102 or 105; Econ 202; Math 115; 6 hours of behavioral/social sciences; 9 hours of humanities and fine arts, with at least 3 hours from each area.

#### **Course Requirements**

The third year (P3, the first professional year) requirements include Phcl 341 and 342 (Human Physiology/Pathophysiology), Phcl 343 (Biochemical Foundations of Therapeutics); Phar 330 (Pharmaceutical Calculations), Phar 331 and 332 (Basic Pharmaceutics); Phad 391 and 392 (Pharmacy Administration); Prct 350 (Pharmacy Orientation); Medc 317 (Pharmacogenetics and Pharmacoinmunology); and Phil 326 (Pharmacy Ethics).

Students must then complete either the fourth year (P4) practice track or one of the P4 nonpractice tracks; course requirements for P4 are described on the track sections.

### **Track - Nonpractice Curricular Tracks**

#### **Description**

Completion of a B.S.P.S. nonpractice track (P4 year) may occur in the following areas of concentration-medicinal chemistry, pharmacology/toxicology, or drug discovery and development.

#### **Goals/Mission Statement**

The nonpractice track curricula are designed to provide sufficient background in a pharmaceutical science discipline to prepare the student for entry into a graduate degree program (M.S. or Ph.D.) in that respective discipline. They provide career preparation for students interested in pharmacy-related careers, but not desiring to become pharmacists.

#### **General Education Requirements**

General education course requirements are covered in the first two years of the B.S.P.S. degree program. Entry into each concentration consists of successful completion of the first three years of the B.S.P.S. degree program, followed by competitive admission.

#### **Course Requirements**

The nonpractice track curricula for concentrations in medicinal chemistry, pharmacology/toxicology, or drug discovery and development are identical to the practice track curriculum for the first three years, but differ dramatically in the fourth year. The required P4 courses are detailed under the specific concentrations.

### **Concentration - Medicinal Chemistry**

#### **Description**

A concentration with specialization in medicinal chemistry consists of the completion of the first three years of the B.S.P.S. curriculum followed by completion of the fourth-year curriculum as described below. The degree program emphasizes advanced medicinal chemistry, synthetic chemistry, laboratory skills, and elective areas that can include natural product chemistry, pharmacology, biochemistry, organic chemistry, analytical chemistry, or biology. The degree program provides an environment for the student to conduct basic and applied research and an opportunity to improve his or her science communication skills.

#### **Goals/Mission Statement**

A graduate of this track should possess the knowledge and skills necessary to compete for positions in the pharmaceutical, agrochemical, and specialty chemical industries. Also, this graduate should have the education and training required for admission into graduate programs in medicinal chemistry and related fields.

#### **General Education Requirements**

Refer to general education requirements for the B.S.P.S. degree.

#### **Course Requirements**

Requirements for this concentration are completion of the first professional year (P3) curriculum in the B.S.P.S. program followed by Medc 501 and 502 (Advanced Medicinal Chemistry); Medc 503 (Medicinal Chemistry Research Methodology); Medc 507 (Organic Chemistry of Drug Synthesis); Medc 541 and 542 (Problems in Medicinal Chemistry); Medc 543 and 544 (Seminar on Current Medicinal Chemistry Topics); Chem 524 (Intermediate Organic Chemistry) or approved elective; 6-8 hours of approved electives.



## Other Academic Requirements

Admission: Because medicinal chemistry is a laboratory-intensive course of study, the total number of students admitted to the medicinal chemistry track will be limited by the availability of quality laboratory space. Competitive admission to the program depends on: a) A 2.00 GPA or higher obtained on all courses completed during the P3 year of the B.S.P.S. curriculum. b) A minimum of a cumulative 2.50 GPA achieved in 20 credit hours of medicinal chemistry and chemistry courses consisting of General Chemistry I,II (8 hours); Organic Chemistry I, II (8 hours); or approval of the department. c) A C grade minimum on each of the medicinal chemistry and chemistry courses required above, or approval of the department. d) A letter of application indicating the reasons for selecting this track and how it fits into the applicant's future goals along with a completed application form and a successful departmental interview.

