

PHARMACY SCIENCES (PHSI)

Pharmaceutical Sciences Undergraduate Courses

PHSI 1010 INTRODUCTION TO FOUNDATIONS AND CAREER PATHS IN PHARMACEUTICAL SCIENCES (1 credit)

This course provides an overview to the field of pharmaceutical sciences. It will discuss the roles of a pharmaceutical scientist and the career options one can pursue in pharmaceutical sciences. A description will be given for how a Bachelor of Science in Pharmaceutical Sciences (BSPS) degree prepares one for these options. Lectures will be given by UNMC/ UNO faculty and practitioners in these fields. This course will introduce professional development related to pharmaceutical sciences, including concepts for application preparation for professional and graduate careers.

PHSI 3110 CURRENT RESEARCH TOPICS IN PHARMACEUTICAL SCIENCES (1 credit)

Lectures will be given by faculty members in the UNMC Departments of Pharmaceutical Sciences and Pharmacy Practice, UNO Department of Chemistry or special guests from industry and academia. The goal of this elective course is to provide the student with examples of how pharmaceutical science research is being applied to solve drug therapy challenges in patients. The basic approach for each lecture will be: 1) this is the disease state, 2) this is the current therapy, 3) these are the problems with this therapy and, 4) this is what we are researching to solve the problem. This course will also explain how modern scientific methods such as, atomic force microscopy, microcalorimetry, confocal microscopy, LCMS, and bioimaging are used to better understand disease states and identify new drugs and drug therapies. Offered in Fall and Spring semesters.
Prerequisite(s): PHSI 1010, concurrent enrollment in PHSI 1010 or permission of instructor.

PHSI 3210 FOUNDATIONS OF MOLECULES TO MEDICINE (3 credits)

The first of a two courses sequence about the processes of drug discovery and how molecules become medicines. Emphasis will be placed on natural products and synthesized drugs, and the aspects involved in bringing drugs to the market (including target identification, validation, lead optimization, ADME phases and studies, IND options, and clinical trials). Offered Fall semesters.

Prerequisite(s): "C" grade or higher in CHEM 2260 & CHEM 2274, and PHSI 1010. Also required: Concurrent enrollment in CHEM 4650 and 4654 or prior completion with minimum "C" grade; OR departmental permission.

PHSI 4010 INTRODUCTION TO PHARMACEUTICAL SCIENCE (4 credits)

Introduction to pharmaceutical terminology, drug discovery and development process, concepts and principles of pharmaceutical formulation and delivery, functional group chemistry, acid/base chemistry of drug molecules, chemical basis of drug action, receptor concepts, basic pharmaceutical calculations, principles of chemical kinetics and stability. Offered in Fall semesters.

Prerequisite(s): MATH 1940 or MATH 1950; and CHEM 4650, CHEM 4654; or permission of instructor. Not open to non-degree graduate students.

PHSI 4410 PHARMACEUTICAL SCIENCES RESEARCH EXPERIENCE (1 credit)

Practical research experience for students in the bachelor of science program in Pharmaceutical Sciences. Students will work with faculty in UNO Chemistry or UNMC Pharmaceutical Sciences or Pharmacy Practice to select a research laboratory where they will carry out an independent investigation for one semester.

Prerequisite(s): PHSI 3110, concurrent enrollment in PHSI 3110, or permission of instructor.