THE OHIO STATE UNIVERSITY
COLLEGE OF PHARMACY

Drug Discovery Development Pathway
Required Courses

Pharmacy 1100 – Pharmaceutical Sciences Survey – 1 credit hour

- Autumn semester only, 1st session
- Required for new first-year students and new transfer students
- Introduction to the University, strategies for student success, academic programs, opportunities in the pharmaceutical sciences and practice, and contemporary issues.

PHR 2100 – Careers in Pharmaceutical Sciences – 0.5 credit hour

- Autumn semester only, 2nd session course
- Overviews clinical and research-based biomedical careers. Introduces roles and responsibilities, educational preparation, emerging trends, and opportunities in diverse career tracks (including clinical professions, pharmaceutical industry, academia, and regulatory affairs). BSPS enrollment or permission of instructor required.

PHR 2101 – Career Development in Pharmaceutical Sciences II – 0.5 credit hour

- Spring semester only, 1st session course
- Prerequisite: PHR 2100, Junior standing, and BSPS enrollment or permission of instructor
- Introduces students to diverse careers in the field of pharmaceutical and health sciences. Students will be taken through multiple professional development initiatives and will work closely with their instructor and peers to gain knowledge on various career paths. Through this class, students will engage with guest speakers and will come away with a plan of how to pursue their future goals.

PHR 2500 – Drug Discovery, Development, and Delivery – 3 credit hours

- This course provides a comprehensive overview of the drug discovery, development, and delivery process within the U.S. healthcare system, exploring the roles of vested stakeholders (e.g. patients, pharmaceutical industry, providers, insurers, society, etc.) during a drug's "bench to bedside" development. Additionally, the course discusses post-approval issues with respect to access, social impact, and safety.

PHR 3100 – Human Physiology and Disease – 4 credit hours

- Prerequisite: Completion of one course in Biology and one course in Chemistry, BSPS enrollment
- This course examines principles of human physiology and provides an overview of the most common pathophysiological diseases.
- Students may also take EEOB 2520 or Physiology 3200 (*preferred course for medical school*).

PHR 3200 – Biochemistry for the Pharmaceutical Sciences – 5 credit hours

- Autumn semester only
- Prerequisite: CHEM 2520/2590H, BSPS enrollment or permission of instructor

- ❖ Fundamentals of biological chemistry for the study of the pharmaceutical sciences including molecular basis of structure, metabolism, genetic replication, transcription, and translation in humans. Ties to the drug processes will be highlighted.

PHR 3500 – Pharmacoethics: Dilemmas and Decision-Making – 2 credit hours

- ❖ Prerequisite: Enrollment in BSPS program or permission of instructor
- ❖ This course will develop core competencies in dealing with ethical issues in healthcare and research settings amidst a biologically, socially, and culturally diverse patient population. This will include a discussion of the ethical responsibilities and professional conduct of the pharmaceutical industry, including clinical drug trials and studies, research, and marketing and promotion. This course will also provide a discussion of basic principles of business ethics and proper ethical conduct in other healthcare industries.

PHR 4000 – Molecules to Medicines: An Integrated Approach to the Pharmaceutical Sciences I – 5 credit hours

- ❖ Spring semester only
- ❖ Prerequisite: PHR 3200 **and** PHR 3100*, EEOB 2520* or PHYSIO 3200*
- ❖ The first course in a two-course series covering principles governing the design, synthesis, delivery, action, and use of drugs in disease treatment. Model disease pathophysiology and treatment will be investigated, discussing how biological differences can be targeted for therapeutic gain.

PHR 4010 – Molecules to Medicines: An Integrated Approach to the Pharmaceutical Sciences II – 5 credit hours

- ❖ Autumn semester only
- ❖ Prerequisite: PHR 4000
- ❖ The second course in a two-course series covering principles governing the design, synthesis, delivery, action, and use of drugs in disease treatment. Model disease pathophysiology and treatment will be investigated, discussing how biological differences can be targeted for therapeutic gain.

PHR 4600 – Pharmaceutical Sciences Laboratory – 2 credit hours

- ❖ Prerequisite: CHEM 2520/2920H, CHEM 2540, PHR 3200*, BSPS enrollment or permission of instructor
- ❖ Laboratory experience in isolation, synthesis, and evaluation of pharmaceutically relevant compounds.

PHR 4610 – Experimental Techniques in Drug Discovery – 3 credit hours

- ❖ Autumn semester only
- ❖ Required course under the *Drug Discovery and Development Pathway*
- ❖ Prerequisite: PHR 3200,PHR 4000 and PHR 4600 and enrollment in BSPS or instructor permission
- ❖ Examination of the laboratory instrumentation and methods used in the drug discovery process.