SCHOOL OF PHARMACY PROFESSIONAL ELECTIVES
SPRING TERM 2274

DISCLAIMER: THIS LIST REPRESENTS THE COURSES WITHIN THE SCHOOL OF PHARMACY THAT ARE SCHEDULED IN THE SPRING 2027 SEMESTER. PLEASE SEARCH FOR CLASS AVAILABILITY IN PEOPLESOFT.

PHARM 1098 Pharma 101: Introduction Pharmaceutical Industry **Credits:** 1
CLASS NUMBER: 25672 **Coordinator:** Dr. Bowman
Enrollment Cap: 40

The course provides undergraduates and PharmD students with knowledge of pharmaceutical industry including functions and responsibilities of key divisions and their individual contributions and interactions in the drug design and development process. **Restrictions: Enrollment preference will be given to P3 students.**

PHARM 2001 Pharmaceutical Analysis **Credits:** 4
CLASS NUMBER: 14409 **Coordinators:** Drs. Kim/Ma
Enrollment Cap: 10

Current methods utilized in pharmaceutical research for the analysis and isolation of drugs and their metabolites. Theories of extraction, solvent partition and forms of chromatography (adsorption, partition, gas, liquid, counter current, ion exchange, gel-filtration and electrophoresis) are discussed.

PHARM 2003 Pharmacoepidemiology **Credits:** 2
CLASS NUMBER: 27821 **Coordinator:** Dr. Suh
Enrollment Cap: 5

Introduction to the field of pharmacoepidemiology which uses epidemiologic methods to examine the benefits or risks of medications in the population. **Restrictions: Co-enrollment in third professional year pharmacy school courses and in good academic standing.**

PHARM 3072 Topics in Pharmacokinetics & Pharmacodynamics Journal Club **Credits:** 1
CLASS NUMBER: 26692 **Coordinator:** Dr. Shaik
Enrollment Cap: 10

Course involves a discussion of current topics of interest in pharmacokinetics and pharmacodynamics.

PHARM 3073 Applied Multivariate Statistics in Pharmaceutical Sciences **Credits:** 3
CLASS NUMBER: 32478 **Coordinator:** Dr. Kirisci
Enrollment Cap: 10

This course is designed to teach graduate students multivariate statistical methods. Where appropriate and consistent with the students' educational background, theoretical foundations for multivariate statistical methods will be discussed. Students will obtain skills necessary to analyze complex data sets and to identify and apply multivariate statistical methods appropriate for analyzing complex data sets and statistical problems presented during class sessions, in homework assignments, and in an exam. At the end of this course, they will have skills to construct and test and analyze complex statistical models. Furthermore, they will be able to understand multivariate statistical methods used in research articles and critique the methods selected. The major topics covered in this course will be (1) matrix and vector algebra, (2) measures of central tendency, dispersion, and association, (3) graphical display of multivariate data, (4) multivariate normal distribution, (5) inference for means, (6) multivariate regression, (9) multivariate analysis of variance, (10) canonical correlation coefficient, (11) repeated measures analysis, (12) principal component analysis, (13) factor analysis, (14) cluster analysis, (15) discriminant analysis, classification and pattern recognition. Students will be required to apply statistical software packages, such as STATA, SPSS, SAS, R or other appropriate programs.

PHARM 3074 Intro to Regulatory Aspects Drug Dev **Credits:** 1
CLASS NUMBER: 23970 **Coordinator:** Dr. S. Patel
Enrollment Cap: 35

This course is designed to orient graduate students and students of PharmD program with foundational knowledge on regulatory aspects of drug development process including drug and biologic products. This course will introduce students with various regulatory agencies worldwide with emphasis on regulations by the US Food and Drug Administration (FDA). Through this introductory course, graduate students of School of Pharmacy will gain basic knowledge about regulatory pathways for drug and biologic products. This course will also expose the students to various career opportunities in regulatory affairs.

PHARM 3312 Communicating Data **Credits:** 1
CLASS NUMBER: 25758 **Coordinator:** Dr. L. Wang
Enrollment Cap: 35

This course will offer a survey of methods for communicating the results of data analyses in healthcare. Best practices for different modes of presenting (oral and written) data will be introduced and applied. As data visualization has grown in importance, students will learn which figures and plots are most effective in specific cases. These methods will be reviewed, applied to various scenarios, and assessed in this course. Knowledge of data manipulation in some platform (STATA, SAS, Python, R, Tableau); descriptive statistics course and project data or familiarity with utilizing open data sets are preferred prior to course enrollment.

PHARM 5813 Acute Care Pharmacotherapy Simulation **Credits:** 3
CLASS NUMBER: 14611 **Coordinators**: Drs. Clarkson/Smithburger
Enrollment Cap: 24 students

Course is designed to allow students to apply clinical knowledge, skills and attitudes gained in previous courses to care for patients with advanced cardiovascular diseases and those that are critically ill. Students will expand on the concepts gained throughout the pharmacotherapy of cardiovascular disease course. Course utilizes simulation based learning to enhance clinical decision-making processes. A major component of the course is self-study requiring an adult learning approach to education. The adult learning concept will require students to be responsible for and highly interactive in achieving the objectives of the course. The learning environment will foster clinical decision making and reinforce concepts learned throughout the school's curriculum. Also, it will provide an excellent source for objective assessment of student knowledge and performance. **Restrictions: Co-enrollment in third professional year pharmacy school courses and in good academic standing. Enrollment preference will be given to Pharmacotherapy Scholars.**

PHARM 5830 Discovering Scientific Inquiry (DSI) **Credits:** 2
CLASS NUMBER: 18849 **Coordinators:** Drs. Coons/Iasella
Enrollment Cap: 16 students

The primary purpose of the course is to adequately prepare learners to execute an outcomes research-based project during the P4 curriculum. As a required component of the pharmacotherapy scholars program, this course will enable P3 students in the spring semester to design a study, submit the required Institutional Review Board documents, and strengthen their data analysis skills. **Restrictions: Co-enrollment in third professional year pharmacy school courses and in good academic standing. Enrollment preference will be given to Pharmacotherapy Scholars.**

PHARM 5840 Palliative Care Pharmacotherapy **Credits:** 2 (lecture only), 3 (clinical)
CLASS NUMBERS: 25517 **(2cr.) /** 25518 **(3 cr.)** **Coordinator:** Dr. Lowry
Enrollment Cap: 35, (4) students

This semester long elective course is designed to provide the student with a fundamental understanding of palliative and hospice care principles, the pharmacotherapeutic management of pain and non-pain symptoms occurring in patients with advanced illness, and the process of deprescribing. In addition to the lecture portion, selected students will have the opportunity to gain valuable practice-based skills to develop mastery of the pharmaceutical care process for patients with serious illness in patient-care settings. **Restrictions: Co-enrollment in third professional year pharmacy school courses and in good academic standing. Enrollment preference will be given to Geriatrics & Palliative Care ARCO. Coordinator's permission is required for students interested in the clinical portion (3 credits). Please e-mail Dr. Maria Lowry, LOWRYMF@UPMC.EDU, for permission to enroll in the class.**

PHARM 5842 Pharmacy in the World of Tomorrow **Credits:** 1
CLASS NUMBER: 25684 **Coordinator:** Dr. Grieve
Enrollment Cap: 10

This class would be a means of educating students on what to expect in the coming years, the health impacts of climate change, and how they can be greater global citizens moving forward. The structure of the class would be split into two parts. The first half of the class would act as a kind of journal club to give the students the space and opportunity to learn about the socio-political and systemic impact of rising global temperature. The second half of the class will be focused more on discussing what can be done and how pharmacy could look in the future. Topics will range from climate apartheid, disaster preparedness, and the crumbling of infrastructure.

PHARM 5848 Graduate Executive Boardroom **Credits:** 3
CLASS NUMBER: 32359 **Coordinator:** Dr. Regan
Enrollment Cap: 15 students

This interactive elective course incorporates top pharmaceutical and health care executives and builds on the business and management concepts and principles learned in earlier courses. Students are engaged in a structured understanding of the "businesses of medicines in health care" and related fields that impact the profession in an executive boardroom format. This elective course follows the dollar from patient to product/service. **Enrollment preference will be given to Pharmacy Business Administration ARCO students. Instructor's permission is required. Please submit a one paragraph e-mail to Dr. Regan, BRIDGET.REGAN@PITT.EDU, to explain your interest and why you want to enroll in the class.**

Independent/Directed Study Options:

PHARM 1097 Mentored Research **Credits:** 1-3
CLASS NUMBER: 26591 **Coordinator:** Dr. K. Empey
Time: As arranged with faculty **Enrollment Cap**: 20

The course provides undergraduates and PharmD students the opportunity to participate in systematic, hypothesis-driven research bridging bench to bedside in pharmaceutical or pharmacy-focused research. Students are guided through the research process under direct mentorship from an expert in development of problem-solving and other skills in research. **Coordinator's permission is required. Please e-mail Dr. Kerry Empey, KME33@PITT.EDU, for permission to enroll in the class.**

PHARM 5861 – 5868 Mentored Inquiry in Pharm Pract 1 – 8 **Credits:** 1 - 3
CLASS NUMBERS: TBD **Coordinator:** Dr. Johnson
Time: As arranged with faculty **Enrollment Cap:** Varies

Mentored Inquiry elective courses promote student opportunities to personalize education by engaging in mentored experiences in a particular area of pharmaceutical science, pharmacy practice, or pharmacy education through individual or small group work under the direction of a faculty member. Mentored Inquiry activities take the form of immersion in a project with science, professional or patient care focus as a longitudinal experience co-designed by student and faculty mentor. Mentored Inquiry academic credit hours are determined by time devoted to the activity each week and is dependent upon the nature of the experience, expected commitment of the student, and stated outcomes of the project.