PHCL 4780 — Internship in Pharmacology/Toxicology * 2015*
-Fall 2015/Spring 2016: See program director for appropriate deadlines-

Course Description

This course/experience is an integral component of the BSPS program within the College of Pharmacy and Pharmaceutical Sciences. Students will acquire practical knowledge and hands-on experience in the areas of Pharmacology/Toxicology by working in an academic, private, or government laboratory or professional site. The experience will provide the student with an opportunity to work with leaders and leading institutions in research facilities, biotechnology companies, forensics, the chemical industry, hospital laboratories, and pharmaceutical companies in order to gain a contemporary perspective of the principles and concepts described and studied through classroom instruction. The student will complete a 400 hour work experience at a host institution that will include developing, implementing and reporting on a project that is of importance to the institution and consistent with the student's program of study.

Syllabus

Students will gain hands-on experience in pharmacology or toxicology areas in a working environment. While each internship will be unique for each student, common as well as experience-specific objectives will be achieved. Projects will involve working with a primary preceptor at the host institution or company and will encompass the development, implementation, analysis and presentation of a research, practice or business problem pertaining to the mission of the given laboratory environment. All projects will promote learning competencies through a structured process of research and inquiry.

► Objective: Problem definition through literature search, review and analysis
  □ Method: Literature and information searching, precedent identification, results analysis

► Objective: Experimental design and implementation
  □ Method: Record work flow path(s) and project execution

► Objective: Record Keeping
  □ Method: Maintain laboratory or project notebook detailing aspects of work carried out. Details to be recorded include: date of work; contacts made; materials and methods used; data collected, and raw outcomes assessments. The students will also maintain a journal containing reflections of their experiences in terms of personal and professional development

► Objective: Professional communication
  □ Method: Presentation of electronically assisted paper at the internship site reflective of the project's background/origin, planning and execution, and results/outcomes. In addition, the students will submit a brief abstract/summary of the project for local, regional, or national meeting venues as appropriate.
**Internship Site**

The internship experience will be conducted in a pharmacological or toxicological research/laboratory, business, industry, or educational environment. The broad base upon which these disciplines are constructed allows for an internship experience in academia, government or industrial organizations. Sites may also include organizations involved in the areas of drug policy and regulation, environmental, gene therapies, and all fields of biomedicine.

**Performance Evaluation**

Students will be evaluated using the “grade only” option. Grades will be determined using on-site preceptor reports, evaluation of the project abstract, presentation and written reports and the project notebooks. The program advisor, with input from the Director of the Internship Experience and/or Chair of the Pharmacology/Toxicology Department, will assign the grade.

**Details**

► Instructor(s)
Dr. Ming-Cheh Liu

► Tentative Schedule

Report to Internship site: May 18-22 (suggested time period)

Complete Internship rotation and submit paper: **August 7**

**Note:** Beginning and ending time periods are suggested times only; students must, however, complete 400 work hours for the internship
Pharmacology/Toxicology
INTERNSHIP EXPERIENCE

Your report must be typed; double-spaced and submitted to Dr. Ming-Cheh Liu (HEB 284C) by August 7; emailed papers preferred but delivery of hard copy to office or by U.S. Mail accepted.

* Please notify Dr. Liu by email if you are dropping off or sending him a copy of your paper.

Late submissions will not be accepted.

Dr. Ming-Cheh Liu, Professor of Pharmacology
The University of Toledo / College of Pharmacy and Pharmaceutical Sciences
Health Science Campus / 3000 Arlington Ave., MS 1015
Frederic & Mary Wolfe Center / HEB 284C
Toledo, OH 43614-2598
Email: ming.liu@utoledo.edu  Phone: 419.383.1918

Student name: ___________________________________________________________

Internship site: __________________________________________________________

Internship supervisor: ____________________________________________________

Dates of internship experience: ____________________________________________

Specific report contents:

● A 100 word Abstract should be on the cover page of your report

The body of the report must contain the following items:

● Description of project(s)/problem(s) assigned during the internship

● Methodology/methodologies employed

● Results of project(s)/problem(s)

● Discussion of results/findings

● Summary of conclusions

● Career skills acquired

● Impact of this internship experience on your career goals

● Rate this internship experience on a scale of 1-5 (1=poor; 5 = excellent)

● Would you consider employment at this site? (yes or no – please explain.)