



PH792. Research in Pharmacology and Toxicology

Course Description: Students perform research in the laboratory of a faculty member. Students are also required to make a 20-30 presentation concerning the rotation [including the general premise, experimental approach and results; the latter two may be actual or anticipated] to the general departmental faculty by the completion of the academic year.

Credit Hours: 1. Laboratory effort/time is to be commensurate with the number of credit hours earned.

Course Prerequisites: There are no course prerequisites. Prior permission of the faculty member and approval of the Graduate Director are required. A prior agreement of student effort and credit among these principals is also required.

Course Dates: Fall and Spring Term

Course Times: Specific times will be arranged between the student and the faculty mentor in whose laboratory the rotation occurs.

Course Location: Laboratory of the faculty member directing student training.

Instructor: General information about faculty in the Department of Pharmacology & Toxicology with whom students might do a laboratory rotation and their respective research interests can be obtained from the Graduate Director.

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Alternatively, information about prospective faculty can be obtained from the Pharmacology & Toxicology website <http://pharmacology.umc.edu/> under research. Students also inquire directly with individual faculty about a laboratory rotation.

Required Text and Other Learning Resources: Unless otherwise decided by the student and faculty involved, there will be no required text. Rather, learning resources will consist of reprints of papers published by the author as well as other articles in the scientific literature related to the topic of the research rotation.

Course Overview: The course provides the students with hands-on experience in a research laboratory, providing the opportunity for students to develop some practical skills required for performance of scientific research. In addition, intellectual skills essential to research design, data analysis and communication of scientific information are also practiced through direct student participation. It is expected that oversight of student activities within the laboratory will be exerted primarily through interaction with the faculty member, although some direction from others working in the lab, including more senior graduate students, might also occur.

Course Objectives: Upon completion of this course, students will be able to:

1. perform basic skills related to research conducted within the selected laboratory and explain the general theory behind specific methods or procedures.
2. state the hypothesis and identify one or more specific aims related to the research project in which they participated.
3. design and rationalize experiments to test that hypothesis and accomplish the stated aim or aims, even if those experiments aren't conducted.

Grading Policy and Assessment of Student Performance.

Students receive a numeric (percentage) grade for Research in Pharmacology and Toxicology. The grade will be determined by the student's performance in the laboratory

The grade for the laboratory component will be based on the extent to which a student meets the expectations agreed upon by the student and faculty at the start of the rotation and on the student's overall performance. The form entitled *Evaluation of Student Performance during a Research Rotation* details the criteria for such an evaluation and is completed by the faculty mentor.

Course Policies:

Policies concerning the extent to which students are expected to participate in laboratory activities will be determined during discussions with the individual faculty. The student and the individual faculty will agree upon the means through which they communicate, e.g. instructions, assignments, results, etc.

University Policies:

Students with disabilities (ADA) statement, Refer to UMC policy
Academic honesty statement, Refer to UMC policy

Evaluation of a Student's Laboratory Performance (Pharm792, 798 and 799)

Student _____

Date _____

Mentor _____ Signature _____

This evaluation is to be completed by the mentor who directs the training of the student. The objectives for the rotation are to be set between the student and the mentor at the beginning of the rotation. The student is to be evaluated in each of the five major categories on the basis of the indicated criteria using a scale of increasing quality from 1 to 5, with 1 being the lowest (failure, F) and 5 being the highest (excellent, A⁺). Indicate NA if a criterion is not applicable. The sum of the criterion scores, in turn, determines the score for the category. The 'Grade' for this portion of the student's assessment will be calculated as the percentage of points obtained to total possible points, with criteria/categories marked as NA excluded. If completing the form electronically, a drop-down menu is available within each box from which you can select the appropriate criterion or category score. You can use the TAB key to navigate between boxes as well as text fields in the 'Comments' section.

Performance/Effort

- Attitude
- Initiative, Motivation
- Commitment, Dependability
- Independence
- Quantity of work (in relation to initial goals)

Laboratory/Technical Skills

- Basic bench skills
- Ability to find relevant literature
- Ability to identify relevant methods and apply them to laboratory problem
- Ability to learn new methods
- Quality of laboratory work

Intellectual Skills

- Application of scientific method and pharmacological principles
- Problem-solving/Trouble-shooting
- Interpretation of relevant literature, scientific data
- Independent thought
- Intellectual development (knowledge of field gained during rotation)

Administrative/Personal Skills

- Time management
- Efficiency
- Record keeping
- Follow through
- Preparation, planning

Communication/Interpersonal Skills

- Communication with mentor
- Communication with other lab members
- Ability to work with other lab members
- Participation in (group) laboratory meetings
- Preparation for (group) laboratory meetings

Faculty Comments

Strengths:

Areas for Improvement:

Other Comments:

Student Comments

Signature: _____

Date _____