

SYLLABUS
PHCY 805, SECTION 001
INDEPENDENT STUDY
SPRING 2013
UNC ESHELMAN SCHOOL OF PHARMACY

COURSE DIRECTOR

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CLASS MEETING TIMES AND LOCATIONS

- ✓ *All course work will be completed in Room 1022, Genetics Medicine Building, unless otherwise required.*
- ✓ *Students are expected to be present for between 8 to 10 hours per week in order to allow for successful forward progression of course requirements.*

TEXTBOOK(S) / REQUIRED LEARNING RESOURCES

- ✓ *All materials and equipment needed for completion of experimentation will be provided within the lab.*
- ✓ *No required texts. However, use of primary literature databases will be used in order to acquire and expand research topics, so students should be proficient in the use of PubMed.*
- ✓ *Should anything need be acquired for furthering course goals, students should inquire with the course coordinator in order to determine how to acquire these resources.*

COURSE DESCRIPTION AND PREREQUISITES

- ✓ *This is a 3-hour elective that will focus on the development of novel pharmacokinetic methodology and its validation/applications towards expanding upon a pharmacokinetic model.*
- ✓ *This is a survey course intended to introduce students to various practical experiences and processes for the development and research within a pharmacokinetics field, and their integration into traditional medicine. It will utilize active learning strategies to enhance student involvement. There is no prerequisite coursework required for this course. Students should be actively enrolled in the School of Pharmacy.*

DESIRED COURSE OUTCOMES

- ✓ *At the end of the course, students will be able to provide the following services:*
 - **Communicate and collaborate:** *Demonstrate effective communication and interpersonal skills resulting in effective information exchange and teamwork with professional associates.*
 - **Demonstrate professionalism:** *Demonstrate the attributes of a professional, including a commitment to and accountability for carrying out professional responsibilities; maintaining professional competence; and adhering to legal and ethical principles.*
 - **Demonstrate critical thinking and problem solving skills:** *Demonstrate reasoned and reflective consideration of evidence in a particular context to make a judgment and apply critical thinking skills, including investigation, application, analysis, creativity, synthesis and evaluation, to clinical or other professional problem-solving and decision making.*
- ✓ *Aim 1: Develop and validate a novel method of quantifying the amount of cytotoxic active adriamycin on DNA in vivo studies*
 - *Review of the literature to determine previously attempted methods*
 - *Determine characteristics of adducts that can be exploited*
 - *Develop methodology using synthetic adducts*
 - *Determine LLQ, repeatability, and limits of developed assay (validation of assay)*
- ✓ *Aim 2: Determine the relative difference in the intracellular PK of the cytotoxic active form for various nanoparticle delivery systems of doxorubicin*
 - *Perform PK on single-dose injected mice using our developed method for each of seven*

different nanoparticle systems

1. Doxorubicin (aka Adriamycin)
2. Doxil
3. DaunoXome (non-PEGylated liposomal daunorubicin)
4. Micelle formulation of doxorubicin
5. PEG-conjugated doxorubicin
6. PRINT doxorubicin (Particle Replication In Non-wetting Templates)
7. PVN doxorubicin (plant virus nano-particle)

DESCRIPTION OF TEACHING / LEARNING METHODS

- ✓ Independent work (research project) along with presentation and written papers on completed work.

EXPECTATIONS FOR CLASSROOM DECORUM

- ✓ **Attendance:** Students are expected to attend and participate in all class sessions. Please arrive on time and be respectful of your fellow lab inhabitants.
- ✓ **Preparation for class:** Students are expected to review topic objectives, complete reading assignments, and, if applicable, complete preparatory assignments prior to the class session. Student preparedness for class is a critical element for the active learning experience in this course. Students must come to class prepared to discuss problems consistent with learning objectives and reading.
- ✓ **Professionalism:** The faculty and staff consider the instructor-student relationship as collegial and respectful. As more experienced, professional colleagues, we view ourselves as mentors in your professional development. You should expect us to communicate expectations and instructions clearly and concisely. You should also expect us to provide you with relevant resources, activities, experiences and feedback to facilitate your success in the curriculum and in practice. We are fully committed to fulfilling this responsibility and we pledge to work diligently to ensure that each of you has the opportunity to be successful. In return, we expect you to behave in a professional, responsible, and ethical manner; demonstrate a positive attitude, enthusiasm for learning, and respect for yourself and others; be prepared for each session; be flexible; and, be accountable for your assigned responsibilities.
- ✓ **Laptops:** Use of a laptop in the classroom is acceptable to take notes and access course content. However, use of laptops and other mobile devices for activities unrelated to the ongoing class session discussion, including email and web browsing, is unacceptable.

ASSESSMENT AND GRADING

Paper #1 (Review of Method Validation)	100 points
Paper #2 (Summary of PK Data)	100 points
Presentation #1 (Validation of Methodology)	100 points
Presentation #2 (PK Data)	100 points
Participation/Active Laboratory Notebook	100 points
Total possible	500 points

Typical grading scale:

A	90-100
B	80-89
C	70-79
F	<69

**Numerical scale may vary at the discretion of the course director

Course Policies

- ✓ Students who have questions regarding their grade for a particular assignment or exam must contact the course director within two business days after the grade is posted.
- ✓ Students are expected to be present for presentations unless arrangements are made with the course director prior to the exam/presentation date. Make up exams/presentations are not permitted for unexcused absences and students who fail to attend an exam/presentation will be given a grade of zero for the exam/presentation. Only students providing a doctor's note stating they were sick on the day of the exam will be exempt from this rule. In this case, the grade of the missed exam will be made up by a make-up exam (not the original exam), and the grade of the presentation will be made up by

- an individual presentation to the case author.
- ✓ Students are also expected to complete all assignments on time unless arrangements are made with the course director and the topic discussion leader prior to due date. Make up assignments are not permitted for unexcused absences and students who fail to complete an assignment on time will be given a grade of zero.
- ✓ Students with final course grades below C will be offered the opportunity to improve their grade. These students will be assigned a temporary grade of IN. IN grades must be resolved before the first day of the next semester if students are to be allowed to progress to the next course in a sequence for which the current course is a prerequisite. All other IN grades must be resolved as specified to the student, in writing, by the course director, but in no circumstance later than the first day of class when the course is next offered.
- ✓ Students who receive a failing grade on a specific examination may be re-tested or re-assessed. Remedial work could include specific reading assignments, review of content slides, and review of course videotapes, topic discussions with content experts, and a re-evaluation of student competencies by written and/or verbal examination. Acceptable knowledge and/or skills must be demonstrated to the course director, consistent with progression guidelines, before a student will pass the class. Remediation will be conducted as soon as practicable, and should be accomplished prior to the end of the subsequent semester that a non-passing course grade is assigned. If a student fails a remediation program, this outcome will be referred to the Scholastic Achievement and Progression Committee for review and decision regarding the students continued progress through the Curriculum.

ASSIGNMENT GUIDELINES

- ✓ All assignments are to be individual work and completed per the Honor Code at UNC.
- ✓ Paper #1 (Review of Method Validation)
 - Due: February 14th, 2013
 - Submitted electronically to zamboni@email.unc.edu
 - Each student will write a descriptive summary and discussion explaining the development and validation of their novel methodology. Faculty will evaluate student's papers.
- ✓ Paper #2 (Summary of PK Data)
 - Due: April 18th, 2013
 - Submitted electronically to zamboni@email.unc.edu
 - Each student will write a descriptive summary and discussion explaining the pharmacokinetic data they obtained and the implications this data has within the field. Faculty will evaluate student's papers.
- ✓ Presentation #1 (Method Validation)
 - February 5th, 2013
 - Submitted electronically onto M Drive
 - Each student will participate in an evidenced based discussion based on the development of his or her methodology and relevant primary literature. Students will be evaluated on their presentations by both faculty and other lab professionals within the group.
- ✓ Presentation #2 (Summary of PK Data)
 - April 11th, 2013
 - Submitted electronically onto M drive
 - Each student will participate in a discussion based on the pharmacokinetic data obtained as well as any importance this data suggests to its relevant field. Students will be evaluated on their presentations by both faculty and other lab professionals within the group.

ACADEMIC INTEGRITY / HONOR CODE

- ✓ The principles of academic honesty, integrity, and responsible citizenship govern the performance of all academic work and student conduct at the University as they have during the long life of this institution. Your acceptance of enrollment in the University presupposes a commitment to the principles embodied in the Code of Student Conduct and a respect for this most significant Carolina tradition. Your participation in this course comes with the expectation that your work will be completed in full observance of the Honor Code. Academic dishonesty in any form is unacceptable. If a violation is suspected, it may be reported to the Student Attorney General's Office. If you have any questions about your responsibility or the responsibility of faculty members under the Honor Code, please visit the Office of Student Conduct web site (<http://studentconduct.unc.edu>), consult the Graduate and Professional Student Attorney General

gpsag@unc.edu), or contact a representative within the UNC Eshelman School of Pharmacy.

COURSE EVALUATIONS

- ✓ *Due to the nature of the course, feedback will not be asked of the student at the end of the given semester.*

SYLLABUS CHANGES STATEMENT

- ✓ *The course director reserves the right to make changes to the syllabus, including project due dates and test dates, when unforeseen circumstances occur. These changes will be announced as early as possible so that students can adjust their schedules.*

COURSE SCHEDULE

- ✓ *February 5th, 2013: Presentation #1 (Validation of Methodology)*
- ✓ *February 14th, 2013: Paper #1 (Review of Method Validation) Due*
- ✓ *April 11th, 2013: Presentation #2 (Summary of PK Data)*
- ✓ *April 18th, 2013: Paper #2 (Summary of PK Data) Due*