

Modern Methods in Molecular Analysis

MMED 5015

FALL 2017

CLASS DAYS and TIME: TUESDAYS, AUGUST 22, 2016 –DECEMBER 12, 2017, 9:30 AM – 12:30 PM

CLASSROOM: TBD

COURSE FACULTY: Course Director: P. Renee Yew, Ph.D.

OFFICE LOCATION and HOURS: STRF 261.2 – 10:00 AM – 4:00 PM (By Appointment)

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READ THIS DOCUMENT CAREFULLY - YOU ARE RESPONSIBLE FOR ITS CONTENTS.

COURSE DESCRIPTION AND OBJECTIVES

Modern Methods in Molecular Analysis, (MMED 5015), Fall Semester - This course is designed to introduce students to the basic experimental techniques used in the study of cell biology, biochemistry, molecular biology, protein analysis, genomics, and personalized molecular medicine. This course will include didactic lectures as well as some interactive laboratory demonstrations and group learning activities.

Pre-requisites – None

Semester credit hours – 3.0

By the end of this course, each student should be able to:

- Explain the methods and their principles for studying cell biology, biochemistry, molecular biology, protein chemistry, genomics, and personalized molecular medicine.
- Compare and contrast methods for studying DNA, RNA, and proteins.
- Compare and contrast different animal models for studying molecular medicine.
- Explain the current methods used in personalized molecular medicine.
- Present a short instructional seminar on a specialized method used in molecular medicine.
- Participate in hands on demonstrations of techniques used in personalized molecular medicine.

COURSE ORGANIZATION

The main teaching modalities used in this course include:

- 1) Didactic lectures on specific method topics with the purpose of conveying important concepts.
- 2) Team based learning with students researching, presenting, and leading discussions on new methods for personalized molecular medicine.
- 3) Hands on demonstrations of techniques used in personalized molecular medicine.

Materials – Laptop for presentations and viewing the lecture notes.

Reading Assignments – Course materials will be distributed to students via e-mail prior to class periods.

ATTENDANCE

Attendance and participation are mandatory. One large component of the grading is class participation so if a student misses a class due to sickness, the student needs to inform the instructors and course directors as soon as possible since this may result in an incomplete for the student. Any scheduled absences must be approved by the course director prior to the absence.

TEXTBOOKS

No required textbooks.

GRADING POLICIES AND EXAMINATION PROCEDURES

Grades will be based on attendance, class participation, presentations, and one closed book examination. Exam questions will be in the form of short answer and/or essay questions. Each faculty lecturer will be asked to provide 1-2 questions with all questions totaling 100 points. The final grade will be based on the score of the examinations as well as on class participation and attendance.

Grading System

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

REQUESTS FOR ACCOMODATIONS FOR DISABILITIES

In accordance with policy 4.2.3, **Request for Accommodation Under the ADA and the ADA Amendments Act of 2008 (ADAAA)**, any student requesting accommodation must submit the appropriate request for accommodation under the American with Disabilities Act (ADA, form 100). to his/her appropriate Associate Dean of their School and a copy to the ADA Coordinator. Additional information may be obtained at <http://uthscsa.edu/eo/request.asp>.

ACADEMIC INTEGRITY AND PROFESSIONALISM

Any student who commits an act of academic dishonesty is subject to discipline as prescribed by the UT System Rules and Regulations of the Board of Regents. Academic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an exam for another person, signing attendance sheets for another student, and any act designed to give unfair advantage to a student or the attempt to commit such an act. Additional information may be obtained at <http://catalog.uthscsa.edu/generalinformation/generalacademicpolicies/academicdishonestypolicy/>

TITLE IX AT UTHSCSA

Title IX Defined:

Title of the Education Amendments of 1972 is a federal law that prohibits sex discrimination in education. It reads "no person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance."

University of Texas Health Science Center San Antonio's Commitment:

University of Texas Health Science Center San Antonio (UTHSCSA) is committed to maintaining a learning environment that is free from discriminatory conduct based on gender. As required by Title IX, UTHSCSA does not discriminate on the basis of sex in its education programs and activities, and it encourages any student, faculty, or staff member who thinks that he or she has been subjected to sex discrimination, sexual harassment (including sexual violence) or sexual misconduct to immediately report the incident to the Title IX Director.

In an emergency, victims of sexual abuse should call 911. For non-emergencies, they may contact UPD at 210-567-2800. Additional information may be obtained at <http://students.uthscsa.edu/titleix/>

EMAIL POLICY

Course information and instructions will be e-mailed to students. Additionally, students should communicate with the course director via e-mail.

USE OF RECORDING DEVICES

Recording devices during the lectures are allowed with the permission of each instructor.

ELECTRONIC DEVICES

Electronic devices such as cell phones, computers, tablets, etc. are permitted in class, but we ask that you silence your cell phones during class.

Fall 2017 Schedule (tentative)

DATE	TOPIC	INSTRUCTOR
August 22	Methods Orientation	P. Renee Yew
August 29	Nucleic Acid Techniques	Yanfen Hu
September 5	Protein Techniques I	Thomas Boyer
September 12	Protein Techniques II	Hai Rao
September 19	DNA Protein Interactions	Shoulei Jiang
September 26	Bioinformatics	Victor Jin
October 3	Single Cell Analysis	Chun-Liang Chen
October 10	Yeast Genetics	Sang Eun Lee
October 17	Cell Biology Techniques	P. Renee Yew
October 24	Antibody Production/Characterization	Kexin Xu
October 31	Transgenic Animals	E. Paul Hasty
November 7	Spectroscopy	Pawel Osmulski
November 14	Microscopy/Imaging	Maria Gaczynska
November 21	Special Topic Presentations	Students
November 28	Multiplex systems to analyze cytokine and chemokines from animals and humans	Jay Larry Morris
December 5	Synthetic Biology-tentative	Katsumi Kitagawa
December 12	Final Examination (on all course content)	Term ends Dec 15