

CSBL 5007
Methods in Cell Biology

Fall, 2017

CLASS DAYS and TIME: Tuesday and Thursday: 2PM-4PM

CLASSROOM: GCCRI 4.100; LAR

COURSE FACULTY: Manjeet Rao, Ph.D.

OFFICE LOCATION and HOURS: GCCRI 4.100.01, please call or email for appointment

EMAIL: raom@uthscsa.edu; HackerS@uthscsa.edu; Onyeaguocha@uthscsa.edu; Subbarayalu@uthscsa.edu

TELEPHONE: Rao:562-9119; Subbarayalu: 562-9140; Onyeaguocha:562-9121; Hacker:

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

COURSE DESCRIPTION AND OBJECTIVES

This course is a hands-on course that covers techniques that are used in the molecular biology laboratories including RNA isolation (including non-coding RNA), Real-time PCR analysis, Cloning, microarray, deep sequencing (data analysis), protein purification, microscopy, FACS, Immunological methods and approaches used in epigenetic research. In addition, we extensively cover animal handling techniques (mice and rats), blood collection, different types of injection, surgeries etc. We also cover basics on how to analyze microarray and deep-sequencing data set.

Pre-requisites – No prerequisite

Semester credit hours – 1 credit hour

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

- Know the basic concept of the molecular biology techniques .
- Independently perform experiments that require these techniques.
- Troubleshoot and find solutions for techniques that didn't work.

COURSE ORGANIZATION

The main teaching modalities used in this course include:

- 1) Hands-on laboratory-based training
- 2) Didactic

Materials – Standardized protocols

Computer Access – Computer with capabilities to handle large data set.

Reading Assignments – Not applicable

ATTENDANCE

It is expected that students will attend all classes.

TEXTBOOKS

Required: Not applicable

Recommended: Not applicable

GRADING POLICIES AND EXAMINATION PROCEDURES

Students will be graded based on their participation, initiative and their ability to perform research techniques.

Grading System

Include a grading scale used to determine final grades, see example below

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/eeo/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

Students can directly email instructors for any questions about the class.

USE OF RECORDING DEVICES

N/A

ELECTRONIC DEVICES

Students are allowed to use computers for taking notes and going over class materials.

At the end of the syllabus include a detailed class schedule (see example below), which includes class dates, topic or title of lessons, reading or assignment due dates, test dates, and other important events such as holidays, etc. It is a good idea to clearly identify the class schedule as TENTATIVE, depending upon the progress of the class.

TENTATIVE CLASS SCHEDULE

CSBL5007

Methods in Cell Biology

Fall, 2017

WEEK	DATE	TOPIC	Assignment	Instructor and Modality
Week 1	07/06/17	Tour of the Vivarium; Basic Animal (mice/Rat) handling procedures; Animal Identification methods: male vs female (young/new born), ear clipping		Dr. Sandy Hacker; HackerS@uthscsa.edu
Week 2	07/11/17	Animal sedation (using anesthesia); Blood collection; Injection techniques (subcutaneous, tail vein, intra peritoneal)		Dr. Sandy Hacker; HackerS@uthscsa.edu
	07/13/17	Injection techniques, Surgery		Dr. Sandy Hacker; HackerS@uthscsa.edu
Week 3	07/18/17	Transfection/Hands-on		Dr. Panneerdoss Subbarayallu; Subbarayalu@uthscsa.edu Dr. Manjeet Rao, raom@uthscsa.edu
	07/20/17	RNA isolation (using Trizol kit) RNA quantification & quality check using Nanodrop		Dr. Panneerdoss Subbarayallu; Subbarayalu@uthscsa.edu Dr. Manjeet Rao, raom@uthscsa.edu
	07/21/17	PCR (primer design)/real-time PCR (principle primer design)Real-time PCR (Hands on)		Dr. Panneerdoss Subbarayallu; Subbarayalu@uthscsa.edu Dr. Manjeet Rao, raom@uthscsa.edu
Week 4	07/25/17	Real-time PCR data analysis		Dr. Panneerdoss Subbarayallu; Subbarayalu@uthscsa.edu Dr. Manjeet Rao, raom@uthscsa.edu
	07/27/17	Cloning (hands-on)		Dr. Benjamin Onyeagucha Dr. Manjeet Rao, raom@uthscsa.edu
	07/28/17	Cloning (hands-on)		Dr. Benjamin Onyeagucha Dr. Manjeet Rao, raom@uthscsa.edu
Week 5	08/01/17	Methods used for studying epigenetics		Dr. Manjeet Rao, raom@uthscsa.edu
	08/03/17	Methods used for studying epigenetics		Dr. Manjeet Rao, raom@uthscsa.edu
Week 6	08/08/17	Cell preparation for FACS analysis		Nourhan Abdelfattah, Dr. Panneerdoss Subbarayallu; Subbarayalu@uthscsa.edu Dr. Manjeet Rao, raom@uthscsa.edu
	08/10/17	FACS & Data analysis		Dr. Daniel, Benjamin J/ Karla Moncada danielb@uthscsa.edu / moncadak@uthscsa.edu
Week 7	08/15/17	Immunohistochemistry/ Immunofluorescence		Dr. Panneerdoss Subbarayallu; Subbarayalu@uthscsa.edu Dr. Manjeet Rao, raom@uthscsa.edu
	08/17/17	Immunohistochemistry/ Immunofluorescence		Dr. Panneerdoss Subbarayallu; Subbarayalu@uthscsa.edu Dr. Manjeet Rao, raom@uthscsa.edu
	08/22/17	Deep Sequencing core facility tour and experimental set up		Dr. Zhao Lai/Ms. Dawn Garcia laiZ@uthscsa.edu / garcia1@uthscsa.edu

Week 8	08/24/17	Deep sequencing Data Analysis		Dr. Yidong Chen; Chen8@uthscsa.edu
Week 9				
Week 10				
Week 11				
Week 12				
Week 13				
Week 14				
Week 15				
Week 16				
Week 17				