

**INTD 5007 (Module 1: INTD 6009; Module 2: INTD 6007)  
Advanced Molecular & Cell Biology (4 credits)**

**Spring 2018**

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**CLASS DAYS and TIME:** Tuesdays & Thursdays, 9:00-10:50 am, between Jan. 9, 2018 and May 10, 2018

**CLASSROOM:** Module 1: STRF 1.102 Boardroom; Module 2: MED 2.212C

**COURSE FACULTY:** LuZhe Sun, Ph.D., Course Director

**OFFICE LOCATION and HOURS:** MED 2.058V, by appointment

**EMAIL:** [SunL@UTHSCSA.EDU](mailto:SunL@UTHSCSA.EDU)

**TELEPHONE:** 210-567-5746

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

**COURSE DESCRIPTION AND OBJECTIVES**

This is a core course of Cell Biology, Genetics & Molecular Medicine Discipline of the IBMS Graduate Program. It is divided into two modules: Advanced Molecular Biology (INTD 6009, 1/9/18-3/6/18, directed by Dr. P. Renee Yew, Ph.D.) and Advanced Cell Biology (INTD 6007, 3/8/18-5/10/18, directed by Dr. LuZhe Sun, Ph.D.). The two modules may be taken separately as an individual course or together as one course under INTD 5007. The topics of Advanced Molecular Biology module include the nucleus; DNA structure, replication, damage, repair, recombination, and rearrangements; the nucleolus and RNA processing; microRNAs; transcription, chromatin and epigenetics; protein synthesis and modifications; and proteolysis. The topics of Advanced Cell Biology module include Protein Processing, Cell Membrane and Ion Movement, Cell Signaling, Adhesion, and Communication, Cell Growth, and Cell Death. This advanced course provides a unique learning experience that instructs students on the fundamentals of modern molecular and cell biology as well as prepares the students to evaluate and design new research in the cutting-edge areas of modern molecular and cell biology. The entire course comprises a small-group format in which students interact closely with a group of faculty members who have active research programs. For each topic, faculty will provide students with an overview of the research area. Students and faculty will then jointly discuss key publications that serve to bridge the gap between the student's prior understanding of the field and the state of the art in that research area. The students will then present his/her own "next step" research proposal containing hypothesis, specific aims, rationale, and approaches. For more detailed information, please refer to the syllabus of the two module courses.

**Pre-requisites – None**

**Semester credit hours – 4 SCH**

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

- Explain the fundamental principles and regulation of molecular and cellular biological processes in the covered topics.
- Comprehend and explain how a cell functions as a living unit.
- Apply gained knowledge to the dissection of molecular and cellular mechanisms contributing to various physiological and pathological states.
- Read assigned papers and propose/present "next step" research proposal relevant to the covered topics and assigned reading materials.

## **COURSE ORGANIZATION**

**The main teaching modalities used in this course include:**

- 1) Didactic lectures by instructors
- 2) Journal article discussion by instructors and students. Students are expected to read all the assigned reading materials independently and to be prepared to participate in discussion at the first class for each instructor.
- 3) Powerpoint presentation of “next step” research proposal by students and group discussion. If the class size is over 10 students, students will be divided into 2 groups (Group 1 and 2), which will alternate to either present a Powerpoint of the “next step” research or write a “One-Page” proposal of their “next step” for submission to their instructor for each class topic. The Powerpoint presentation or one-page proposal should include background information, your hypothesis, a clear rationale for your hypothesis, specific aims, experimental procedures, and expected results. Each needs to be sufficiently detailed to understand your ideas, but concise enough to be presented in a ~7-min presentation or to fit within a one-page document. Students must submit either a Powerpoint file or a one-page proposal on the day of the presentation by emailing them to the instructor.

**Materials** – Course materials will be either emailed to or shared with students in an online site.

**Computer Access** – Please bring a laptop computer for PowerPoint presentation

**Reading Assignments** – They will be emailed to the students from Course Director or Instructor, or shared with the students in an online site, approximately one week prior to the scheduled class. Please refer to the two individual module course for more details.

## **ATTENDANCE**

Because one large component of the grading is class participation, attendance for every class session is mandatory. If a student misses a class, the student needs to inform the instructors and course director 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**

**Required:** None

**Recommended:** None

## **GRADING POLICIES AND EXAMINATION PROCEDURES**

Grades will be based on student’s participation, powerpoint presentations and quality of slides, or one-page research proposal from each instructor. There are no exams in this course. A final grade will be assigned by the course director based on the average of the final grade or grade points earned by the students in each module course.

## **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**

Emails will be the main communication venue between instructors/course director and students.

## **USE OF RECORDING DEVICES**

Use of audio recording devices is 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.

## **Course schedule**

Please refer to the two individual module course schedules.