

**THE UNIVERSITY OF TEXAS RIO GRANDE VALLEY**

**BMED 4250-01: Advanced Cell Biology**

**SYLLABUS – SPRING 2017**

**INSTRUCTOR & OFFICE HOURS:**

Dr. Erich Wittmer  
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OFFICE HOURS:  
M: 10 am- 12 pm  
T: 10 am -12 pm  
Th: 12 pm – 2 pm

**MEETING TIMES AND LOCATION:**

Class 11:50 am - 1:30 pm M SABAL HALL 2.110

**TEXTBOOK AND/OR RESOURCE MATERIAL:**

CELL BIOLOGY 3<sup>RD</sup> EDITION, Thomas Pollard William Earnshaw Jennifer Lippincott-Schwartz Graham Johnson.  
Hardcover ISBN: 9780323341264  
eBook ISBN: 9780323400022

**COURSE DESCRIPTION:**

Biology of cells of higher organisms: Structure, function, and biosynthesis of cellular membranes and organelles; cell growth and oncogenic transformation; transport, receptors, and cell signaling; the cytoskeleton, the extracellular matrix, and cell movements; chromatin structure and RNA synthesis.

**PRE-REQUISITES/ CO-REQUISITES:**

BMED 3101, BMED 3102, BMED 3103, BMED 3104, BMED 3105, BMED 3106, BMED 3107, BMED 3108, and BMED 3109 all with a grade of 'C' or better.

**UTRGV Policy Statements:**

**STUDENTS WITH DISABILITIES:**

If you have a documented disability (physical, psychological, learning, or other disability which affects your academic performance) and would like to receive academic accommodations, please inform your instructor and contact Student Accessibility Services to schedule an appointment to initiate services. It is recommended that you schedule an appointment with Student Accessibility Services before classes start. However, accommodations can be provided at any time. **Brownsville Campus:** Student Accessibility Services is located in Cortez Hall Room 129 and can be contacted by phone at (956) 882-7374 (Voice) or via email at [accessibility@utrgv.edu](mailto:accessibility@utrgv.edu). **Edinburg Campus:** Student Accessibility Services is located in 108 University Center and can be contacted by phone at (956) 665-7005 (Voice), (956) 665-3840 (Fax), or via email at [accessibility@utrgv.edu](mailto:accessibility@utrgv.edu).

**MANDATORY COURSE EVALUATION PERIOD:**

Students are required to complete an ONLINE evaluation of this course, accessed through your UTRGV account (<http://my.utrgv.edu>); you will be contacted through email with further instructions. Online evaluations will be available at a later date (TBA), Students who complete their evaluations will have priority access to their grades.

#### ATTENDANCE:

Students are expected to attend all scheduled classes and may be dropped from the course for excessive absences. UTRGV's attendance policy excuses students from attending class if they are participating in officially sponsored university activities, such as athletics; for observance of religious holy days; or for military service. Students should contact the instructor in advance of the excused absence and arrange to make up missed work or examinations.

#### SCHOLASTIC INTEGRITY:

As members of a community dedicated to Honesty, Integrity and Respect, students are reminded that those who engage in scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and expulsion from the University. Scholastic dishonesty includes but is not limited to: cheating, plagiarism, and collusion; submission for credit of any work or materials that are attributable in whole or in part to another person; taking an examination for another person; any act designed to give unfair advantage to a student; or the attempt to commit such acts. Since scholastic dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced (Board of Regents Rules and Regulations and UTRGV Academic Integrity Guidelines). All scholastic dishonesty incidents will be reported to the Dean of Students.

#### SEXUAL HARASSMENT, DISCRIMINATION, and VIOLENCE:

In accordance with UT System regulations, your instructor is a "responsible employee" for reporting purposes under Title IX regulations and so must report any instance, occurring during a student's time in college, of sexual assault, stalking, dating violence, domestic violence, or sexual harassment about which she/he becomes aware during this course through writing, discussion, or personal disclosure. More information can be found at [www.utrgv.edu/equity](http://www.utrgv.edu/equity), including confidential resources available on campus. The faculty and staff of UTRGV actively strive to provide a learning, working, and living environment that promotes personal integrity, civility, and mutual respect in an environment free from sexual misconduct and discrimination.

#### COURSE DROPS:

According to UTRGV policy, students may drop any class without penalty earning a grade of DR until the official drop date. Following that date, students must be assigned a letter grade and can no longer drop the class. Students considering dropping the class should be aware of the "3-peat rule" and the "6-drop" rule so they can recognize how dropped classes may affect their academic success. The 6-drop rule refers to Texas law that dictates that undergraduate students may not drop more than six courses during their undergraduate career. Courses dropped at other Texas public higher education institutions will count toward the six-course drop limit. The 3-peat rule refers to additional fees charged to students who take the same class for the third time.

#### Policy for Portable Electronic Devices:

The use of any portable electronic devices, including cell phones, pagers, MP3 players, iPods, etc., during class is not allowed for any reason unless prior approval has been given to a student from the instructor or unless required for the course. If you are planning to have any of these devices in class, they must be turned off and stowed away for the duration of the class period. If you use a portable electronic device during a test, quiz, or other assessment, you are eligible to receive a failing grade on that assignment.

#### **GRADING POLICIES: (PASSING GRADE FOR THIS COURSE IS C)**

Homework, Quizzes, and Attendance	10%
Exam 1	25%
Exam 2	25%
Exam 3	40%

Score Range	Grade
90-100	A
80-89	B
70-79	C
60-69	D

## COURSE IMPORTANT DATES:

Jan. 16 (Mon.)	Martin Luther King Jr. Holiday. No classes.
Jan. 17 (Tues.)	Spring classes begin. Official First Class Day.
Jan. 17 – Jan. 23 (Tues. – Mon.)	Period to withdraw (drop all classes) for an 80% refund
Jan. 30 (Mon.)	Last day to add a class or register for Spring classes
Jan. 24 – Jan. 30 (Tues. – Mon.)	Period to withdraw (drop all classes) for a 70% refund
Jan. 31 – Feb. 6 (Tues. – Mon.)	Period to withdraw (drop all classes) for a 50% refund
Feb. 1 (Wed.)	Census Date ( <i>Last day to drop without it appearing on the transcript</i> )
Feb. 7 – Feb. 13 (Tues. – Mon.)	Period to withdraw (drop all classes) for a 25% refund
Mar. 13 – Mar. 18 (Mon. – Sat.)	Spring Break. No classes.
April 13 (Thurs.)	Last day to drop a class ( <i>grade of DR</i> ) or withdraw ( <i>grade of W</i> )
April 14 – April 15 (Fri. – Sat.)	Easter Holiday. No classes.
May 4 (Thurs.)	Study Day. No classes.
May 5 – 11 (Fri. – Thurs.)	Final Exams

## CALENDAR OF ACTIVITIES:

### MONDAYS

#### CLASS 1

**01/23/2017**

*Introduction to cells*

- Universal principles of living cells
- Prokaryotic cells
- Eukaryotic cells
- Overview of Eukaryotic cellular organization and function

#### CLASS 2

**01/30/2017**

*Molecules, Structure and Dynamics*

- Macromolecules
- Amino acids
- Proteins
- Enzymes and biological energy
- Carbohydrates

#### CLASS 3

**02/06/2017**

*Chromatin, Chromosomes, and the Cell Nucleus*

- Chromosome organization
- DNA packaging in chromatin and chromosomes
- Nuclear structure and dynamics

#### CLASS 4

**02/13/2017**

**EXAM 1**

#### CLASS 5

**02/20/2017**

*Membrane structure and function*

- Membrane structure and dynamics
- Membrane Pumps
- Membrane Carriers
- Membrane Channels
- Membrane Physiology

**CLASS 6****02/27/2017***Cellular organelles and Membrane Trafficking*

- Posttranslational Targeting of Proteins
- Mitochondria, Chloroplasts, and Peroxisomes
- Endoplasmic Reticulum
- Secretory Membrane System, and Golgi Apparatus
- Endocytosis and the Endosomal Membrane System
- Processing and Degradation of Cellular Components

**CLASS 7****03/06/2017***Signaling Mechanisms*

- Plasma Membrane Receptors
- Protein Hardware for Signaling
- Second Messengers
- Integration of Signals

**CLASS 8****03/13/2017***SPRING BREAK***03/20/2017****EXAM 2****CLASS 9****03/27/2017***Cellular Adhesion and the Extracellular Matrix - Start*

- Cells of the Extracellular Matrix and the Immune System
- Extracellular Matrix Molecules
- Cellular Adhesions
- Intercellular Junctions
- Connective tissues

**CLASS 10****04/03/2017***Cellular Adhesion and the Extracellular Matrix - Finish*

- Cells of the Extracellular Matrix and the Immune System
- Extracellular Matrix Molecules
- Cellular Adhesions
- Intercellular Junctions
- Connective tissues

*Cytoskeleton and Cellular Motility - Start*

- Actin and Actin-binding Proteins
- Microtubules and Centrosomes
- Intermediate Filaments
- Motor Proteins
- Intracellular Motility
- Cellular Motility
- Muscles

**CLASS 11****04/10/2017***Cytoskeleton and Cellular Motility - Finish*

- Actin and Actin-binding Proteins
- Microtubules and Centrosomes
- Intermediate Filaments
- Motor Proteins
- Intracellular Motility
- Cellular Motility
- Muscles

**CLASS 12****04/17/2017***Cell Cycle - Start*

- Introduction to the Cell Cycle
- G<sub>1</sub> Phase and Regulation of Cell Proliferation
- S Phase and DNA Replication
- G<sub>2</sub> Phase, Responses to DNA Damage, and Control of Entry Into Mitosis
- Mitosis and Cytokinesis
- Meiosis
- Programmed Cell Death

**CLASS 13****04/24/2017***Cell Cycle - Finish*

- Introduction to the Cell Cycle
- G<sub>1</sub> Phase and Regulation of Cell Proliferation
- S Phase and DNA Replication
- G<sub>2</sub> Phase, Responses to DNA Damage, and Control of Entry Into Mitosis
- Mitosis and Cytokinesis
- Meiosis
- Programmed Cell Death

**CLASS 14****05/01/2017*****REVIEW FOR FINAL*****CLASS 15****05/08/2017*****EXAM 3 – FINAL***