



## BIOL 3124: CELL BIOLOGY SPRING 2019

<b>Instructor:</b>	E. Gloria C. Regisford, PhD
<b>Section # and CRN:</b>	Lecture: P01- CRN: 26620; Laboratory: P61 – CRN: 26632
<b>Office Location:</b>	Room 430G, E.E. O’Banion Building
<b>Office Phone:</b>	936-261-3165      FAX: 936-261-3179
<b>Email Address:</b>	<a href="mailto:gcregisford@pvamu.edu">gcregisford@pvamu.edu</a>
<b>Office Hours:</b>	<b>TR: 3:00-4:00 p.m., F: 12:00 – 2:00 p.m., or by appointment</b>
<b>Mode of Instruction:</b>	<b>Face to Face</b>
<b>Course Location:</b>	<b>E. E. O’Banion Building: Room 103 (Lecture) and Room 406 (Lab)</b>
<b>Class Days &amp; Times:</b>	<b>Lecture: TR: 11:00am - 2:20 pm; Laboratory: W: 2:00pm – 4:50pm</b>
<b>Catalog Description:</b>	<b>Biol 3124. Cell Biology.</b> (3-3) Credit 4 semester hours. A study of the ultrastructure and macro-molecular organization of cells, with emphasis on eukaryotic cells. The convergence of structure and function in life phenomena will be highlighted.
<b>Prerequisites:</b>	BIOL 1015: General Biology I; CHEM 2043: Organic Chemistry I
<b>Co-requisites:</b>	None
<b>Required Texts:</b>	<b>Essential Cell Biology.</b> 4 <sup>th</sup> edition. Bruce Alberts, Dennis Bray, . Karen Hopkin, Alexander Johnson, Julian Lewis, Martin Raff, Keith Roberts and Peter Walter - Authors. Garland Science: Publisher, 2013. ISBN: 978-0-8153-4454-4
<b>Recommended Texts:</b>	<b>Molecular Cell Biology.</b> 2012 by Harvey Lodish Arnold Berk, Chris A. Kaiser, Monty Krieger, Anthony Bretscher, Hidde Ploegh, Angelika Amon, Matthew P. Scott, Authors. W. H.Freeman and Co.: Publishers.

### Student Learning Outcomes:

	Upon successful completion of this course, students will be able to:	Program Learning Outcome # Alignment	Core Curriculum Outcome Alignment
1	Develop a comprehensive understanding of the central concepts of Cell Biology	2	Critical Thinking
2	Relate concepts of Chemistry, Physics and Mathematics to Cell Biological systems	2	Critical Thinking
3	Analyze and interpret the data generated from Cell Biology research projects	2	Critical Thinking
4	Read, interpret and present scientific journal articles that are based on Cell Biology	1	Communication
5	Write in clear, correct, grammatical prose.	1	Communication
6	Collaboratively work on Cell Biology projects in small groups.	3	Teamwork
7	Cite research correctly according to APA format, both in the text and in the bibliography.	4	Personal Responsibility

**Major Course Requirements**

<b>Course Grade Requirement</b>	<b>Value (percentages)</b>	<b>Total</b>
1) <b>Lecture exams</b> Four (4) lecture exams	10 each	40 %
2) <b>Quizzes and Assignments</b> Ten (10) genomics journal article presented as a group	1 each	10 %
3) <b>Group Research Paper Components</b> Four (4) components for	5 each	20 %
4) <b>Group Research Project PowerPoint Presentation</b> One poster presentation as a group	15	15%
5) <b>Research Paper</b> One group paper based on Group Research Project	15	15 %
<b>Total:</b>		<b>100%</b>

**Method of Determining Final Course Grade**

**Grading Criteria and Conversion:**

- A = 90 – 100%
- B = 80 – 89%
- C = 70 – 79%
- D = 60 – 69%
- F = 50 – 59%

**Detailed Description of Major Assignments:**

**Assignment Title or Grade Requirement**

**Description**

**Lecture Exams**

Four major lecture exams will be given during the semester. Each of the exams will consist of essay and short answer questions. The final examination is always given at the end of each semester. The schedule for the final examination is set by the university administration. **An unexcused absence will result in a zero for a missed examination.**

**Quizzes and Assignments**

There will be unannounced quizzes given during lecture and laboratory periods. **An unexcused absence will result in a zero for a missed quiz.** Assignments will be given throughout the semester that will be given due dates.

**Group Research Paper Components**

**Groups of four students will be assigned a Cell Biology research project.** Each group will perform a literature search, using PubMed, to get information that is relevant to their research project. Each student in each group will develop a hypothesis and perform experimental procedures during the laboratory periods to test the hypothesis. Students will write the introduction, methods, results and discussion sections for a research paper.

**Group Research Project Poster Presentation**

On a given date, each group of students will prepare and present a poster on their research project at the end of the semester.

**Research Paper**

Each group of students is required to write a research article on their assigned research project. The research article/manuscript must be **written according to the guidelines of BIOS (<http://www.tri-beta.org/publish.html>)** (Note: Manuscripts with more than 2 references with websites as references will receive a reduction of a letter grade.) **The research articles/manuscripts are due on or before May 7<sup>th</sup>, 2019.**

**Course Procedures or Additional Instructor Policies**

Two 1 and 1/2 hour lectures and one 3 hour laboratory, will be held weekly. The lecture periods consist of discussions between students and instructor. The lecture and the laboratory work are intended to complement each other, with the laboratory exercises emphasizing problem-solving skills and the application of information covered in the lectures.

**Makeup Examinations**

**Students are strongly advised to take all exams at the scheduled time.** Plan and schedule your activities so that you can be present to take all exams at the scheduled time. Students may request a make-up exam for the one that was missed, however the instructor will schedule the time and the place of the make-up exam which will not interrupt the teaching of the class or delay the complete coverage of the course topics. Students that are scheduled for the make-up exam and miss it will not be provided a second opportunity to take an exam for the original exam missed.

**Laboratory Projects and Exercises**

Further specific instructions will be given during the first laboratory period. **There are no makeup laboratory sessions.** However if a student misses a laboratory period, the student will write a report on the laboratory procedure, but will receive only a maximum of 80% for the report.

**Taskstream**

Taskstream is a tool that Prairie View A&M University uses for assessment purposes. One of your assignments may be considered an "artifact," an item of coursework that serves as evidence that course objectives are met. More information will be provided during the semester, but for general information, you can visit Taskstream via the link in eCourses.

**References****Books:**

- 1) *Molecular Cell Biology*. 2013. By Harvey Lodish Arnold Berk, Chris A. Kaiser, Monty Krieger, Anthony Bretscher, Hidde Ploegh, Angelika Amon, Matthew P. Scott, Authors. W. H. Freeman and Co.: Publishers.
- 2) *Cell and Molecular Biology: Concepts and Experiments*. 2013. By Gerald Karp, Author. Wiley and Sons, Inc.

**Journals:**

- 1) Cell
- 2) The Journal of Cell Biology
- 3) Molecular and Cellular Biology
- 4) Molecular Cell Biology
- 5) Cell Death and Differentiation
- 6) BIOS

**World Wide Web Sites:**

- 1) The WWW Virtual Sciences - Biosciences [www.vlib.org/Science/Cell\\_Biology/general\\_cell\\_biology.shtml](http://www.vlib.org/Science/Cell_Biology/general_cell_biology.shtml)
- 2) The American Society for Cell Biology - [www.ascb.org](http://www.ascb.org)
- 3) Cell and Molecular Biology Online – [www.cellbio.com](http://www.cellbio.com)

**Units of Study /Laboratory Outline**

**I. The Cell: An Overview of Structure and Function**

1. Basic Laboratory Techniques/Microscopy
2. Retrieving Journal Articles from PubMed
3. Reading Journal Articles in Cell Biology

**II. Information Flow in Cells**

1. DNA and Protein Isolation
2. Quantifying DNA and Protein
3. PCR
4. Enzyme Linked Immunosorbant Assay (ELISA)
5. Western Blotting
6. Immunocytochemistry
7. Bioinformatics

**III. Communication of Research Findings**

8. Manuscript writing

**Tentative Schedule**

Week #	Activities and Assignment	
	Lecture	Laboratory
1 1/14-1/18	Chap. 1. Cells: The Fundamental Units of Life	Introduction Basic Laboratory Techniques; Microscopy
2 1/21- 1/25	Chap. 2. Chemical Components of Cells	Retrieving and Reading Journal Articles Group Project Assignments
3 1/28-2/01	Chap. 4. Protein Structure and Function	Cell Culture
4 2/04-2/08	Chap. 4. Protein Structure and Function ( <i>continued</i> ) <b>Lecture Exam 1 (Chaps. 1, 2, 4)</b>	Cell Culture <b>Literature Review of Manuscript due (1st draft)</b>
5 2/11-2/15	Chap. 5. DNA and Chromosomes	DNA, RNA and Protein Isolation
6 2/18-2/22	Chap. 6. DNA Replication, Repair and Recombination	PCR
7 2/25-3/01	Chap. 7. From DNA to Protein: How Cells Read the Genome	ELISA

<b>Week #</b>	<b>Activities and Assignment</b>	
	<b>Lecture</b>	<b>Laboratory</b>
<b>8</b> <b>3/04-3/08</b>	Chap. 7. From DNA to Protein: How Cells Read the Genome <i>(continued)</i> <b>Lecture Exam 2 (Chaps 5, 6, 7)</b>	Bradford Assay and Western Blotting <b><i>Literature Review of Manuscript due (2nd draft)</i></b> <b><i>Abstract and Methods of manuscript due (1st draft)</i></b>
<b>9</b> <b>3/11-3/15</b>	<b>Spring Break</b>	
10 3/18-3/22	Chap. 8. Control of Gene Expression	Western Blotting
11 3/25-3/29	Chap. 9. How Genes and Genomes Evolve	Immunocytochemistry <b><i>Literature Review of Manuscript (final draft)</i></b> <b><i>Abstract and Methods of manuscript due (2nd draft)</i></b>
12 4/01-4/05	Chap. 10. Manipulating Genes and Cells	Bioinformatics <b><i>Abstract and Methods of manuscript due (final draft)</i></b> <b><i>Results and Discussion of manuscript due</i></b>
<b>13</b> <b>4/08-4/12</b>	<b>Lecture Exam 3 (Chaps 8, 9, 10)</b> Chap. 18. Cell-Cycle Control and Cell Death	<b>PowerPoint and Manuscript Preparation</b>
14 4/15-4/19	Chap. 19. Sexual Reproduction and the Power of Genetics	<b>PowerPoint and Manuscript Preparation</b>
<b>15</b> <b>4/22-4/26</b>	Chap. 20. Cellular Communities: Tissues, Stem Cells, and Cancer	<b>PowerPoint and Manuscript Preparation</b>
16 4/29-4/30	<b>Course Review</b>	<b>PowerPoint Presentation</b>
<b>17</b> <b>5/01-5/07</b>	<b>Lecture Exam 4/ Final Exam (Chaps.18, 19, 20)</b>	<b>Final Research Article/Journal Manuscript due.</b>

## **Student Support and Success**

### **John B. Coleman Library**

The library and its partners have as their mission "to provide resources and instructional material in support of the evolving curriculum, as a partner in Prairie View A&M University's mission of teaching, research, and service" and to support the University's core values of "access and quality, diversity, leadership, relevance, and social responsibility" through emphasis on ten key areas of service. It maintains library collections and access both on campus, online, and through local agreements to further the educational goals of students and faculty.

### **Center for Academic Support**

The Center for Academic Support (CAS) offers Tutoring via peer tutoring. The services include workshops (i.e., Save My Semester, Recalculate Your Route), seminars (i.e., Tools You Can Use: TI-84), group review sessions (i.e., College Algebra Topic Reviews, GRE Preparation), group study opportunities (i.e., TSIA, HESI, Study Break, Exam Cram), and test-taking strategies (How to take Notes, Study Buddy, 5 Day Study Guide). The Tutoring Center is a nationally certified tutoring program through the National Tutoring Association. The peer tutors are trained and certified by the coordinator each semester. Location: J.B. Coleman Library

### **COMPASS**

The Center for the Oversight and Management of Personalized Academic Student Success (COMPASS) is designed to help Prairie View students in their second year and beyond navigate towards graduation by providing the following services: Academic Advisement, Targeted Tutorials for Personalized Learning, Campus-Wide Referrals, and Academic & Social Workshops. Location: J.B. Coleman Library

### **Writing Center**

The Writing Center provides student consultants on all aspects of the writing process and a variety of writing assignments. Writing Center consultations assist students in such areas as prewriting, brainstorming, audience awareness, organization, research, and citation. Location: Hilliard Hall 121

## University Rules and Procedures

### **Disability statement (See Student Handbook):**

Students with disabilities, including learning disabilities, who wish to request accommodations in class should register with the Services for Students with Disabilities (SSD) early in the semester so that appropriate arrangements may be made. In accordance with federal laws, a student requesting special accommodations must provide documentation of their disability to the SSD coordinator.

### **Academic misconduct (See Student Handbook):**

You are expected to practice academic honesty in every aspect of this course and all other courses. Make sure you are familiar with your Student Handbook, especially the section on academic misconduct. Students who engage in academic misconduct are subject to university disciplinary procedures.

### **Forms of academic dishonesty:**

1. Cheating: deception in which a student misrepresents that he/she has mastered information on an academic exercise that he/she has not mastered; giving or receiving aid unauthorized by the instructor on assignments or examinations.
2. Academic misconduct: tampering with grades or taking part in obtaining or distributing any part of a scheduled test.
3. Fabrication: use of invented information or falsified research.
4. Plagiarism: unacknowledged quotation and/or paraphrase of someone else's words, ideas, or data as one's own in work submitted for credit. Failure to identify information or essays from the Internet and submitting them as one's own work also constitutes plagiarism.

### **Nonacademic misconduct (See Student Handbook)**

The university respects the rights of instructors to teach and students to learn. Maintenance of these rights requires campus conditions that do not impede their exercise. Campus behavior that interferes with either (1) the instructor's ability to conduct the class, (2) the inability of other students to profit from the instructional program, or (3) campus behavior that interferes with the rights of others will not be tolerated. An individual engaging in such disruptive behavior may be subject to disciplinary action. Such incidents will be adjudicated by the Dean of Students under nonacademic procedures.

### **Sexual misconduct (See Student Handbook):**

Sexual harassment of students and employers at Prairie View A&M University is unacceptable and will not be tolerated. Any member of the university community violating this policy will be subject to disciplinary action.

### **Attendance Policy**

Prairie View A&M University requires regular class attendance. Excessive absences will result in lowered grades. Excessive absenteeism, whether excused or unexcused, may result in a student's course grade being reduced or in assignment of a grade of "F". Absences are accumulated beginning with the first day of class.

### **Student Academic Appeals Process**

Authority and responsibility for assigning grades to students rests with the faculty. However, in those instances where students believe that miscommunication, errors, or unfairness of any kind may have adversely affected the instructor's assessment of their academic performance, the student has a right to appeal by the procedure listed in the Undergraduate Catalog and by doing so within thirty days of receiving the grade or experiencing any other problematic academic event that prompted the complaint.

### **Disability statement (See Student Handbook):**

Students with disabilities, including learning disabilities, who wish to request accommodations in class should register with the Services for Students with Disabilities (SSD) early in the semester so that appropriate arrangements may be made. In accordance with federal laws, a student requesting special accommodations must provide documentation of their disability to the SSD coordinator.

**TECHNICAL CONSIDERATIONS****Minimum Recommended Hardware and Software:**

- Intel PC or Laptop with Windows 7; Mac with OS X; Smartphone or iPad/Tablet with Wi-Fi
- High speed Internet access
- 8 GB Memory
- Hard drive with 320 GB storage space
- 15” monitor, 800x600, color or 16 bit
- Sound card w/speakers
- Microphone and recording software
- Keyboard & mouse
- Most current version of Google Chrome, Safari, Internet Explorer or Firefox

**Note:** Be sure to enable Java & pop-ups

**Participants should have a basic proficiency of the following computer skills:**

- Sending and receiving email
- A working knowledge of the Internet
- Proficiency in Microsoft Word (or a program convertible to Word)
- Proficiency in the Acrobat PDF Reader
- Basic knowledge of Windows or Mac O.S.

**Netiquette (online etiquette):**

Students are expected to participate in all discussions and virtual classroom chats as directed. Students are to be respectful and courteous to others on discussions boards. Foul or abusive language will not be tolerated.

**Technical Support:**

Students should go to <https://mypassword.pvamu.edu/> if they have password issues. The page will provide instructions for resetting passwords and contact information if login issues persist. For other technical questions regarding eCourses, call the Office of Distance Learning at 936-261-3283

**Communication Expectations and Standards:**

Emails or discussion postings will receive a response from the instructor, usually in less than 48 hours. Urgent emails should be marked as such. Check regularly for responses.

**Discussion Requirement:**

Online courses often require minimal to no face-to-face meetings. However, conversations about the readings, lectures, materials, and other aspects of the course can take place in a seminar fashion. This will be accomplished by the use of the discussion board. The exact use of discussion will be determined by the instructor.

**It is strongly suggested** that students type their discussion postings in a word processing application and save it to their PC or a removable drive before posting to the discussion board. This is important for two reasons: 1) If for some reason your discussion responses are lost in your online course, you will have another copy; 2) Grammatical errors can be greatly minimized by the use of the spell-and-grammar check functions in word processing applications. Once the post(s) have been typed and corrected in the word processing application, it should be copied and pasted to the discussion board.



**Calendar:**

Jan 10 - Jan 11 Thursday through Friday	Regular Registration Period
Jan 14 Monday	First Class Day
Jan 14 Monday	Tuition payment deadline is 5:00 p.m. for all students who registered for the spring semester
Jan 14 - Jan 16 Monday through Wednesday	Late registration for the spring semester for all students who have not yet registered. To complete registration, students must pay by 5:00 p.m. on Wednesday, February 6.
Jan 14 - Jan 18 Monday through Friday	Add/Drop for all students for the spring semester. Tuition payment for all students who add/drop for spring must pay by 5:00 p.m. on Wednesday, February 6.
Jan 21 Monday	Dr. Martin Luther King Day (University Closed)
Jan 22 Tuesday	Class resumes
Jan 30 Wednesday	12th Class Day (Census Date)
Jan 30 Wednesday	Last day to drop/withdraw from course(s) without academic record. A financial record will still exist.
Jan 31 - Mar 29 Thursday through Friday	Withdrawal from course(s) with record (“W”)
Feb 06 Wednesday	Tuition payment deadline is 5:00 p.m. for all students who late registered and add/drop for spring semester

Feb 11

Monday

20th class day

Feb 12 - Apr 30

Tuesday through Tuesday

Submit application for Tuition Rebate for spring graduation undergraduate candidates

Mar 07 - Mar 09

Thursday through Saturday

Mid-semester examination

Mar 11 - Mar 16

Monday through Saturday

Spring Break

Mar 15

Friday

Spring Break (University Closed)

Mar 18

Monday

Class resumes

Mar 19

Tuesday

60% of Term

Mar 19

Tuesday

Mid-semester grades due by 11:59 p.m.

Mar 27

Wednesday

Founders Day/Honors Convocation

Mar 27

Wednesday

Last day to apply for spring graduation (ceremony participation)

Mar 28 - Apr 30

Thursday through Tuesday

Apply for degree conferral only for spring graduation (no ceremony participation or name listed in program)

Mar 29 Friday	Last day for withdrawal from course(s) with record (“W”)
Apr 08 - Apr 12 Monday through Friday	Priority registration for continuing students for summer and fall semesters <a href="#">Priority Registration Schedule</a>
Apr 15 - May 24 Monday through Friday	Pre-registration for all students for the summer and fall semester
Apr 19 Friday	Good Friday (Student Holiday)
Apr 29 - Apr 30 Monday through Tuesday	Course Review Days (Classes must convene and instructors will prepare students for final exams)
Apr 30 Tuesday	Last day to withdraw from the university with record
Apr 30 Tuesday	Last day to apply for degree conferral only for spring graduation (no ceremony participation or name listed in program)
Apr 30 Tuesday	Last day to submit application for Tuition Rebate for spring graduation undergraduate candidates
Apr 30 Tuesday	Last Class Day
May 01 - May 07 Wednesday through Tuesday	Final Examinations