University of North Texas at Dallas
Fall 2014
SYLLABUS

BIOL5240D : Topics in Molecular Biology 3Hrs			
Department of	**Life and Health Sciences**	**Division of**	**Liberal Arts and Life Sciences**

Instructor Name:	Dr. Aubrey Frantz
Office Location:	Room 251, Building 2
Office Phone:	972-338-1523
Email Address:	aubrey.frantz@untdallas.edu
Office Hours:	**Monday 10:00-11:00, 4:30-5:30** **Wednesday 10:00-11:00** **Thursday 3:00 - 4:00** **(If you need another time, please contact me by email)**
Classroom Location:	**DAL2 room 240**
Class Meeting Days & Times:	**M 5:30 – 8:20**
Course Catalog Description:	The concepts and techniques of molecular biology are the foundation for the studies of all aspects of modern biology. A basic understanding of molecular biology is essential for teaching current college level biology courses as well as preparation for the advanced study of a wide range of biological sciences. In this course, students will be exposed to the theoretical concepts and experimental techniques of molecular biology. Topics include genetic analysis of gene structure, regulation of gene expression and principles of molecular biology techniques.
Recommended text:	**Watson: Molecular Biology of the Gene. 7th Ed. 2013. Benjamin Cummings** **ISBN: 978-0321896568**
Access to Learning Resources:	UNT Dallas Library: phone: (972) 780-3625; web: http://www.unt.edu/unt-dallas/library.htm UNT Dallas Bookstore: phone: (972) 780-3652; e-mail: 1012mgr@fheg.follett.com

Course Goals and Student Learning Objectives At the end of this course, the student will	
1	Demonstrate an understanding of molecular biology concepts and techniques
2	Critically read, analyze, interpret and communicate primary data and literature.
3	Understand the foundations of critical molecular biology methods and understand the capacity and limitations of these methods
4	Design experiments using molecular biology to address a hypothesis as well as expand on current knowledge

Course Outline

This schedule is subject to change by the instructor. Any changes to this schedule will be communicated by the instructor in class.

Date	Assignment Due	TOPICS
Week 1 8/25		Course Introduction *The "Central Dogma" of Biology*
Week 2 9/1		**LABOR DAY- *No Class***
Week 3 9/8	Perspective #1	*Nucleic Acids: DNA and RNA* **Journal Club #1 – FRANTZ**
Week 4 9/15	Perspective #2	*Nucleic Acids: sequencing and high-throughput methods* **Journal Club #2**
Week 5 9/22	Perspective #3	*Protein analysis and proteomics* **Journal Club #3**
Week 6 9/29	Perspective #4	*Nucleic acid – protein interactions and post-translational modifications* **Journal Club #4**
Week 7 10/6	Perspective #5	*Chromatin modifications and epigenetics* **Journal Club #5**
Week 8 10/13	Perspective #6	*RNA splicing and alternative splicing* **Journal Club #6**
Week 9 10/20	Perspective #7	*"Junk DNA" and non-coding RNA* **Journal Club #7**
Week 10 10/27	Perspective #8	Model Organisms for Molecular Biology **Journal Club #8**
Week 11 11/3	Perspective #9	Molecular Biology in *Health and Disease* **Journal Club #9**
Week 12 11/10	Perspective #10	Molecular Biology in *Evolution* **Journal Club #10**
Week 13 11/17	Perspective #11	Molecular Biology in *Environmental Science* **Journal Club #11**
Week 14 11/24	Perspective #12	**TBD** **Journal Club #12**
Week 15 12/1	Perspective #13	**Journal Club #13**
Week 16 12/8	Take-Home Exam	**No Class**

Course Evaluation Methods

Journal Club – Several of the course goals and SLO are served by analyzing primary literature. Reading these journal articles exposes you to the process of scientific investigation. Through these readings, you should gain insight into how scientists design experiments to answer hypotheses and into the way scientists analyze data to draw conclusions. Preparation, attendance and class participation in the journal club is essential.

Journal Article Presentations – You will be required to present at one journal club. For each journal club presentation, you will choose an article relevant to molecular biology. The article must have been published within the past two years. During these presentations, you will walk the class through the article, focusing on the data presented in the figures and tables. Presentation dates will be assigned the first week of class. ***You must submit your selected paper to the instructor at least 1 week before your journal club presentation date.***

Journal club perspective papers: Prior to each journal club, you are expected to read the selected papers and write a short 1 page perspective describing the main findings of the paper and evaluating the research. Instructions for these writing assignments will be posted on blackboard and distributed in class. Prior to the journal club discussion, your perspectives should be submitted via Blackboard. You must complete 10 perspectives during the semester. ***Late perspective papers will not be accepted.***

Take-home Exam - You will be given one take-home exam. The take-home exam is designed to assess your understanding of molecular biology concepts discussed in class as well as your ability to read and evaluate scientific literature. The take-home exam will consist of reading a specific journal article and answering several short-answer questions. You must answer the questions on your own. You may not work with anybody else on the exams. You will have one week to complete the exam. The take-home exam must be submitted via Blackboard by the due date.

Class participation – Class discussion is an essential part of this course. You will receive 5 points per class session for attending and contributing to the class discussion and journal club presentations. If you miss class, there is no make-up for attendance/class participation points.

Grading Matrix:

Instrument	Value	SLO
Journal Club Presentation – Article 1	100	2, 3
Journal Article Perspectives (25pts x 10)	250	2, 3
Take-home Exam 1	100	1,2,3,4
Attendance and Class Participation (5pts x 15)	75	2
Total:	**525**	

Grade Determination:

A = 90% or better
B = 80 – 89 %
C = 70 – 79 %
D = 60 – 69 %
F = less than 60%

University Policies and Procedures

Students with Disabilities (ADA Compliance):
The University of North Texas Dallas faculty is committed to complying with the Americans with Disabilities Act (ADA). Students' with documented disabilities are responsible for informing faculty of their needs for reasonable accommodations and providing written authorized documentation. Grades assigned before an accommodation is provided will not be changed as accommodations are not retroactive. For more information, you may visit the Student Life Office, Suite 200, Building 2.

Student Evaluation of Teaching Effectiveness Policy:
The Student Evaluation of Teaching Effectiveness (SETE) is a requirement for all organized classes at UNT. This short survey will be made available to you at the end of the semester, providing you a chance to comment on how this class is taught. I am very interested in the feedback I get from students, as I work to continually improve my teaching. I consider the SETE to be an important part of your participation in this class.

Academic Integrity:
Academic integrity is a hallmark of higher education. You are expected to abide by the University's code of Academic Integrity policy. Any person suspected of academic dishonesty (i.e., cheating or plagiarism) will be handled in accordance with the University's policies and procedures. Refer to the Student Code of Academic Integrity at http://www.unt.edu/unt-dallas/policies/Chapter%2007%20Student%20Affairs,%20Education,%20and%20Funding/7.002%20Code%20of%20Academic_Integrity.pdf for complete provisions of this code.

Bad Weather Policy:
On those days that present severe weather and driving conditions, a decision may be made to close the campus. In case of inclement weather, call UNT Dallas Campuses main voicemail number (972) 780-3600 or search postings on the campus website www.unt.edu/dallas. Students are encouraged to update their Eagle Alert contact information, so they will receive this information automatically.

Attendance and Participation Policy:
The University attendance policy is in effect for this course. Class attendance and participation is expected because the class is designed as a shared learning experience and because essential information not in the textbook will be discussed in class. The dynamic and intensive nature of this course makes it impossible for students to make-up or to receive credit for missed classes. Attendance and participation in all class meetings is essential to the integration of course material and your ability to demonstrate proficiency. Students are responsible to notify the instructor if they are missing class and for what reason. Students are also responsible to make up any work covered in class. It is recommended that each student coordinate with a student colleague to obtain a copy of the class notes, if they are absent.

Diversity/Tolerance Policy:
Students are encouraged to contribute their perspectives and insights to class discussions. However, offensive & inappropriate language (swearing) and remarks offensive to others of particular nationalities, ethnic groups, sexual preferences, religious groups, genders, or other ascribed statuses will not be tolerated. Disruptions which violate the Code of Student Conduct will be referred to the Office of Student Life as the instructor deems appropriate.