

**Chemistry 1105 / CRN 17752 Special Research Course Section: Circadian Rhythm Fall 2018**

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<b>TA:</b>	Brenda Moreno	<b>Peer Leader:</b>	Joseph Fresquez, Luis Nunez, & Neha Vijay
<b>Class Meet:</b>	WF 9:30-12:20pm @ CCSB G.0417	<b>Office Hrs:</b>	<u>By appointment</u>

**Scope:** A study of research methods and techniques along with basic chemistry, biochemistry, molecular biology and microbiology

**Objective:** This course is intended to introduce freshman to basic General Chemistry and Biochemistry concepts and laboratory procedures through authentic research on genes and proteins associated with the human circadian rhythm. The skills, concepts and techniques will not only help students apply those basic principles learned in *General Chemistry I*, but will also allow students to actively participate in cutting edge research and learn to conduct science the way experts do. The lab modules will not necessarily run in synchronicity with what is being covered in CHEM 1305 (the lecture portion of *General Chemistry I*). Some of the material will be presented in the context of the research topic, thus emphasizing the principles of chemistry in real world applications.

**Required Materials:** ABSOLUTELY REQUIRED NO EXCEPTIONS:

1. Goggles (Anzi87.1 ONLY) and Lab Coat
2. Lab Manual: None
3. All work must be in pen only. No pencil work will be accepted

**Suggested Materials:** Laptop computer, Scientific calculator, and Sharpie

**Safety Guidelines:** You will be exposed to hazardous chemicals. Personal Protective, Equipment (PPE) is necessary to protect your body. You will not be admitted in the lab if any of the following safety guidelines are not met. If you violate safety guidelines you will be asked to leave the lab and a grade of **ZERO for the day's lab work will be issued.**

1. Shoes that cover the **entire foot** are required at all times.
2. Goggles or appropriate safety glasses are needed when required
3. Long sleeves and long pants are mandatory.
4. No musical devices may be used in the chemistry labs at any time
5. Use of the cell phones is **NOT** permitted and must be on silence and placed in **YOUR BAG** before you enter the lab.
- 6.

**Grading:** Participation: 60% + (Bonus Points)  
(Attendance + Research + Group Activities)  
Quizzes: 10%  
Final Report & Presentation: 30%

- Quizzes:** Quizzes will be given at any time (such as downtime between experiments) during the lab period and will cover material from previous experiments and concepts. **MSDS information for your chemicals** may also be on the quiz. Quizzes will last 10 to 15 minutes. Missed quizzes due to absences **cannot** be made up and will be dropped only under exceptional cases with valid and documented written excuses.
- Reports:** Students individually have to work on their own project, write a report explaining one of the critical circadian processes and explain the experimental processes. They are expected to explain their project providing logical reasons derived from published literature. The report will be due on the last lab period.
- Class Attendance:** CLASS ATTENDANCE IS REQUIRED: YOU CANNOT BE LATE FOR THE CLASS.  
Attendance will be routinely taken in the form of a daily quiz and questions during the lecture. All cell phones and pagers should be turned OFF during class. Students are responsible for attending lectures regularly and knowing what takes place during classes. This includes not only the material covered in the class, but also all announcements, changes in the syllabus, etc. IF you MUST miss a class, YOU need to make a special effort to learn what occurred during your absence. You also need to submit documents to be approved by the instructor for your absence to get documented absences (DA) so that it will not affect your quiz average and semester attendance bonus points. Otherwise, zero score will be included in your quiz average and you will lose your semester attendance bonus. Absence documents that are submitted two weeks later than the absence date will NOT be accepted. Your first absence will be automatically waived (WA) without counting its zero quiz score in the quiz average. However, you do lose points for semester attendance bonus (see below).
- Bonus points:** Every student can earn bonus points. Semester attendance bonus points: Bonus points will be given to students' Q&H average: 10 points if attended all the classes. 6 points if attended all the classes except documented absence (DA). 4 points if attended all but one class (one waived absence (WA) but no other missing class except document absence. Extra points for post class hour work up to 10%. Post class hour work is defined by the ownership of the project which will be estimated by the amount of experimental work done. Post class hour work will include preparing buffers, protein expression and purification, running gels as well as other related experiments. Just stopping by the lab for any number of hours without getting any work done will not be considered towards points.
- Safety & Cleaning Up:** It is your responsibility to maintain your bench space clean, put chemicals away, wash your glassware, and collaborate with your team members. NOT doing so will result in points being deducted from your grade. (2 points) will be deducted from each member of the group even if one of the members do not clean up after themselves.
- Participation:** Students are expected to attend every lab period and come prepared to participate in research. There will be bonus points for participation in research after class hours.

**Final Report  
/Presentaion:**

Submit final report. The reports will be judged based on their overall originality and the research done to develop the project. The students are also expected to give a final presentation about their project. For rubric for presentation, please see appendix. This is the rubric that will be used to score presentations. The instructors score sheet will add up to a total of 100 points. The student's evaluations will add up to a total of 100 points. The average of the students' evaluations will be added to the instructors score to add up to a total of 200 points. The Final Report is worth 30% of the written and oral presentation. Breakdown percentages will be: 200 total points, 75 % Written Part (Individual) 25% Oral Presentation Part (Individual)

**Quiz Rules and  
policy:**

1. *Quiz Rules:* Students are allowed to look your textbook. Students are not allowed to talk to their classmates. Asking classmates will be treated as cheating.
2. *Lab Assignments:* Students will have at least 5 days to finish the lab assignments. The PLA will be due on the notified date except special announcements. **NO EXTENSION OF DEADLINE** will be given after the due time.
3. *Exam Rules:* Students should wait outside the exam room before instructor finish preparing the room. Students will be **assigned** to their seats by the proctors. Proctors have the rights to re-seat the students. Students are highly suggested to go to the restroom before the exam. During the exam, only one student a time can go to the restroom and will be accompanied by one proctor. Remove baseball caps. Do not look around. No talking, no joking, no sharing of pencils and erasers. Cellular phone and all other electronic devices must be turned off and put away. All belongs must be put on the floor on the side or in front of the classroom and put away out of sight. **NO calculators or other electronic devices are allowed.** Do not disrupt students around you if you finish the exam earlier. Suspicious activity will be dealt with accordingly.
4. In order to drop an exam, you must have taken the exam or prepare documents before the exam to state your dropping. **NO ZEROS WILL BE DROPPED!**
5. **THERE WILL BE NO MAKE-UP TESTS/EXAMS IN THIS COURSE!** The missed exam will be the one you drop if you have a **DOCUMENTED EXCUSED ABSENCE**. The documents must submit and approved **BEFORE** the exam.
6. Please go over your exams when you come to review them and check for adding/grading errors. Except for clerical errors, re-grade requests will be a reevaluation of the entire exam.

**Class  
Environment:**

Cell phones must be turned off. Use of cells phones will result in dismissal of class for that day. Each student is responsible for notice of and compliance with the provisions of the Regents **Rules and Regulations**, which are available for inspection electronically at <http://www.utsystem.edu/bor/rules/homepage.htm>. Use of laptops and tablets is allowed only when specifically requested by the instructor. No liquids or food are allowed in the classroom.

- Academic Dishonesty:** It is the official policy of the University that all suspected cases or acts of alleged scholastic dishonesty must be referred to the Dean of Students for investigation and appropriate disposition. It is contrary to University policy for a faculty member to assign a disciplinary grade such as an "F" or zero to an assignment, test, examination, or other course work as a sanction for admitted or suspected scholastic dishonesty in lieu of normally charging the student through the Dean of Students. Similarly, students are prohibited from proposing and/or entering into an arrangement with a faculty member to receive a grade of "F" or any reduced grade in lieu of being charged with scholastic dishonesty. Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but is not limited to cheating, plagiarism, collusion, and the 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.
- Plagiarism:** "Plagiarism" means the appropriation of another person's ideas, processes, results, or words without giving appropriate credit. This includes intentionally, knowingly or carelessly, presenting the work of another as one's own; failing to credit sources used in a work product; attempting to receive credit for work performed by another; failing to cite the World Wide Web, databases and other electronic resources. Written work will be checked for plagiarism.
- Disability:** If you have or suspect a disability and need an accommodation you should contact Center for Accommodations and Support (CASS) at 747-5148 or at [dss@utep.edu](mailto:dss@utep.edu) or go to Room 106 Union East Building.
- Students with Pregnancies:** If you are pregnant or you become pregnant, please consult with your physician, student health center as well as UTEP EH&S for recommended whether you drop the course. If you chose not to drop, then lab coat and long sleeves, long pants and gloves, for every lab are mandatory.

**Tentative Schedule for general objective of each lab\***

<b>Events</b>	<b>Assignment</b>
Introduction	First day of classes, Introduce to syllabus; Refresher on lab safety rules, research ethics and maintaining lab records
Lab 1	Refresher on lab safety rules, research ethics and maintaining lab records (contd.)
Lab 2	Knowledge and practice of cleaning, weighing samples, pipetting and sterilization techniques
Lab 3	Knowledge and practice of cleaning, weighing samples, pipetting and sterilization techniques (contd.)
Lab 4	Concepts of atoms, periodic table and bond formation
Lab 5	Introduction to central dogma, amino acids and protein chemistry
Lab 6	Introduction to circadian rhythm,
Lab 7	Introduction to stoichiometric calculations,
Lab 8	Proficiency in stoichiometric calculations, central dogma, protein chemistry & circadian rhythm (contd.)
Lab 9	Proficiency in stoichiometric calculations, central dogma, protein

		chemistry & circadian rhythm (contd.)
Lab	10	Concept of acid, base, buffers and pH
Lab	11	Concept of Beer-Lambert's law and UV-visible spectroscopy
Lab	12	Conduct and make bacterial growth media, stock solutions and buffers
Lab	13	Conduct and make bacterial growth media, stock solutions and buffers (contd.)
Lab	14	Determining bacterial concentration through spectroscopy
Lab	15	Concept of growth curve and protein expression in bacteria
Lab	16	Concept of diffusion, osmosis and cell lysis
Lab	17	Concept of positive and negative controls in an experiment
Lab	18	Concept of electrochemistry, polyacrylamide gel electrophoresis, staining and destaining
Lab	19	Concept of diffusion, osmosis and cell lysis
Lab	20	Introduction Microsoft Power-point, excel and research data presentation
Lab	21	Introduction to scientific literature, writing and presentation
Lab	22	Introduction to protein purification (observation)
Lab	23	Practice Scientific presentation
Lab	24	Practice Scientific presentation (contd.)
		Holiday
Lab	25	Practice Scientific presentation (contd.)
Lab	26	Final Scientific presentation
Lab	27	Final Scientific presentation (contd.); Final reports due

\* We may end up going slower or faster depending on how the class is doing or unpredictable events. The presentation dates might also be affected and changed.