

BIMM194 – Circadian Rhythms: physiological and molecular aspects.

Spring 2015, 2 units

Professor: Jose Pruneda-Paz, Biology Building #3214.

E-mail: jprunedapaz@ucsd.edu (please use the subject line: 'BIMM194'). E-mails sent before 8 AM Mon-Fri will generally be answered on the same day. E-mails sent later than 8 AM will generally be answered the following (business) day.

Phone: 858-534-8323 (please identify yourself as a student in BIMM194).

Class website: On WebCT: <http://ted.ucsd.edu>

Class hours: Fridays, 10:00 - 11:30 AM, in YORK 3010.

Important dates:

April 6: presenting groups (3 students each) should be sent to professor (jprunedapaz@ucsd.edu). After this date groups will be assigned in alphabetical order (by last name)

April 7: schedule and manuscripts for presentations will be posted on 'TED' (<http://ted.ucsd.edu>). First group will present on Apr 17.

Apr 10: Schedule acceptance form should be signed by each student (in class).

- For other important dates, see the Course Schedule below.

Course Prerequisites: BIMM100 (Molecular Biology).

If you feel rusty on the material of the prerequisites, it is strongly recommended that you carefully read Chapters 4-8, of the *Lodish* textbook (7th ed), which cover material that is considered prerequisite and will only be mentioned in passing during class.

Purpose of the course: Biological clocks are common to most life forms in the planet. Most organisms have evolved to perform biological functions in a time-of-day specific manner. Biological clocks allow an organism to coordinate its physiology with daily environmental and endogenous. In this course you will learn how biological clocks function at the molecular level, and how clock control of physiological processes ultimately regulates optimal organismal functions. The chronobiology field has rapidly extended to many areas of biology. The goal of the course is not only to provide an overall view of this field, but also to learn how to interpret and present the primary literature that has shaped our current knowledge in it.

COURSE STRUCTURE:

Lectures: In the first lecture we will review the general principles of biological clocks. In subsequent lectures (9 in all) manuscripts that illustrate key aspects of the clock function will be presented and discussed. The selected manuscripts will be available to download from website at least 2 weeks in advance and must be read before class. A group of 3 students will be

assigned for each paper. The presenters will identify the major question/s addressed by the paper, describe each figure and the corresponding conclusion and come up with a simple take-home message for the paper. **EACH presenter must be able to clearly explain ANY part of the assigned paper.**

I suggest the following template for the presentation:

- 1) Brief introduction and general question
- 2) Specific question 1, Figure 1, Conclusion from Figure 1
- 3) Specific question 2, Figure 2, Conclusion from Figure 2
- 4) Same as 2 and 3 with subsequent figures
- 5) Review of conclusions from each figure
- 6) TAKE-HOME MESSAGE

Office hours: Mondays 1:30 – 2:00 PM, Biology building room 3214, starting Apr 6.

Quizzes: There will be nine quizzes, one every week (except the first week) at the end of each paper presentation. They will consist of 1-2 multiple choice or short answer questions in relation to the paper presented. Questions will be related to conclusions or concepts emphasized during the paper presentation. Each quiz will account for 5 % of your grade.

Participation: Questions, comments, suggestions are encouraged at any time during the presentation.

COURSE GRADING:

- presentation of the assigned paper (45%)
- quizzes (45%)
- participation (10%)

Letter grades will be assigned as follows:

90-100: A
80-90: B
70-80: C
60-70: D
Below 60: F

The grading will be normalized to the highest score.

COURSE SCHEDULE:

Lecture day	Paper #	Paper title, authors & citation (PDF in TED)	Presenters
4/3/15	N/A	Introductory Lecture: Circadian clock overview	J Pruneda-Paz
4/10/15	#1	The Adaptive Value of Circadian Clocks An Experimental Assessment in Cyanobacteria Woelfle et al. Current Biology 2004, 14(16):1481–1486.	J Pruneda-Paz
4/17/15	#2		
4/24/15	#3		
5/01/15	#4		
5/08/15	#5		
5/15/15	#6		
5/22/15	#7		
5/29/15	#8		
6/5/13	#9		