

COMPARATIVE PHYSIOLOGY

BIPN 106 Summer 2019

INSTRUCTOR:

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H&SS 1145F

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Office hours: Thursday 11 AM-11:50 PM

INSTRUCTIONAL ASSISTANT: Diya Shabbir Basrai

The purpose of this course is to learn how different physiological adaptations allow animals to live and succeed in challenging environments. Students will learn anatomy and physiological processes of wide range of invertebrates and vertebrates. Students will learn how to interpret graphs and figures and will be able to apply the knowledge acquired to solve physiological problems.

To succeed in this course, you must do the following:

1. Work hard. Go over the material every week; do not try to learn everything the weekend before the exam.
2. Learn the terminology and concepts. There are two components important when learning physiology: memory and understanding. You will have to memorize anatomical and physiological terms, but to succeed you must understand the concepts and physiological processes and learn to critically think about physiology.
3. Read through the power point presentations before each class.
4. Print out the power point outlines and take your own notes on them.
5. Attend every lecture and take notes
6. Attend your discussion sections each week.

Lectures

Lectures (CENTR 214, M/T/W/TH 9:30-10:50 AM)

You must attend lectures and take notes. Lecture notes will be posted on TED at least 24 hours before each lecture, but essential material will be presented in class that does not appear on web-posted notes. Lectures will be podcasted at podcast.ucsd.edu.

Discussion sections

Discussion sections schedule:

Section A01: M/W 12-12:50 PM in WLH 2207

Section A02 T/TH, 12-12:50 PM in CENTR 222

Discussion sections are very important; you should attend the discussion section you are registered in (if you have a schedule conflict, please check with the instructor and instructional assistant (IA) before switching sections). During the discussion sections you will have the opportunity to discuss lecture material, exams and go over problem sets with your IA.

Readings - OPTIONAL

Textbook: Eckert Animal Physiology, 5th edition, Randall, Burggren and French

There are recommended readings from the text for each topic. The text is **NOT** required, and the exams will only include the material seen in class.

TED site: ted.ucsd.edu

Announcements, lecture slides and grades will be posted here. PLEASE check on a regular basis

Exams and Grading:

One midterm exam, see the Syllabus and Schedule for midterm date

Final Exam: Friday September 6, 8-11 AM

The midterm exam will be based on material for that section of the course. The final exam will be cumulative. Any questions concerning exams will be addressed during office hours or discussion sections, not by email. Requests for re-grading questions of the exam must be submitted together with the exam as a written request specifying the question and the reason for the re-grade to the Instructional Assistant (IA).

There are no make-up exams. If you miss the midterm exam, you will be required to provide official documentation of an unavoidable emergency. Without the documentation, you will receive a failing grade for the exam.

Grading:

Quizzes (discussion sections) 10%

Midterm exam 35%

Final exam 45%

Attendance/Participation in discussion sections 5%

Clickers (lecture) 5%

You will receive the full 5% for attendance and full 5% for Clickers if you attend at least 75% of the sections and lectures, respectively. The remaining 25% buffer accounts for forgotten clickers, battery failure and missed class or sections.

Cheating Any student caught cheating will receive an F in the course. For information on academic integrity at UCSD visit the following website <http://senate.ucsd.edu/manual/appendices/app2.htm>

Date	Topic	Reading 5 th ed
Monday Aug. 5	<ul style="list-style-type: none"> • Introduction • Homeostasis 	7-11
Tuesday Aug.6	<ul style="list-style-type: none"> • Cardiovascular. Circulatory function • How are materials distributed? (diffusion, convection) 	473-481
Wednesday Aug. 7	<ul style="list-style-type: none"> • Open and closed circulatory systems • Vertebrate hearts and heart function 	488-494
Thursday Aug.8	<ul style="list-style-type: none"> • Heart rate, SV, CO, BP • Hemodynamics 	482-485
Monday Aug.12	<ul style="list-style-type: none"> • Regulation of cardiovascular function • Blood 	
Tuesday Aug.13	<ul style="list-style-type: none"> • Respiration: oxygen and CO₂ content in air and water • Gas laws 	525-529
Wednesday Aug.14	<ul style="list-style-type: none"> • Transport of respiratory gases in the blood and respiratory pigments 	525-539
Thursday Aug.15	<ul style="list-style-type: none"> • Respiratory surfaces and gas exchange with the environment 	545-562
Monday Aug.19	<ul style="list-style-type: none"> • Regulation of respiration 	564-568
Tuesday Aug. 20	EXAM	
Wednesday Aug. 21	<ul style="list-style-type: none"> • High altitude and diving • pH regulation 	568-571 539-544
Thursday Aug. 22	<ul style="list-style-type: none"> • Body fluids: regulating osmolarity and water in the body 	579-593
Monday Aug. 26	<ul style="list-style-type: none"> • Body fluids: regulating osmolarity and water in the body cont. Body fluids: regulating volume	579-593
Tuesday Aug. 27	<ul style="list-style-type: none"> • Body fluids: the vertebrate kidney • Body fluids: other vertebrate regulatory mechanisms 	593-614 615-621
Wednesday Aug. 28	<ul style="list-style-type: none"> • Body fluids: invertebrate mechanisms • Handling nitrogenous wastes 	621-624 624-628
Thursday Aug. 29	<ul style="list-style-type: none"> • Temperature: environmental diversity 	699-707
Monday Sept. 2	<ul style="list-style-type: none"> • NO CLASS 	
Tuesday Sept. 3	<ul style="list-style-type: none"> • Temperature: regulation vs. conforming 	707-725
Wednesday Sept. 4	<ul style="list-style-type: none"> • Temperature: adaptations to special circumstances 	730-735
Thursday Sept. 5	<ul style="list-style-type: none"> • Using energy: BMR and the effects of body size 	667-681
Friday Sept. 6	FINAL EXAM 8-11 AM	