

BIOLOGY 4X03
Environmental Physiology
Term I – 2018

OUTLINE:

This course will cover the influence of environmental factors on the physiology and biochemistry of animals, and the adaptation to diverse environments in the context of biodiversity. The focus will be on animal adaptations to environments with extremes of temperature, water availability, oxygen tension or salinity. This is an advanced course intended primarily for students with a strong interest and background in physiology.

PREREQUISITES:

One of Biology 3MM3, 3P03, 3U03, 3UU3.

INSTRUCTOR:

Dr. Grant McClelland
LSB 228, Ext. 24266
grantm@mcmaster.ca

TEACHING ASSISTANT:

Cayleih Robertson
LSB 208
roberceg@mcmaster.ca

LECTURES:

Mondays 13:30-14:20, Thursdays 13:30-14:20 in HH 102

TUTORIALS:

Wednesday 13:30-14:20 in BSB B154

The tutorials are an integral and significant component of the course. **Attendance at all tutorials is required.** We will run the tutorials in 2-week units with week 1 a structured discussion of a review paper focusing on physiological concepts. In week 2 students will work in groups of 3-4 to answer questions previously posted on A2L. We will use the tutorials to delve into more detail specific aspects of environmental physiology covered in lectures.

TEXT:

There is no text for this course. Handouts on lecture material will be posted on the class site on aVenue to Learn (<http://avenue.mcmaster.ca/>)

Suggested but not required textbooks and other resources:

1. Hill, Wyse, and Anderson (2008, 2012 or 2016). Animal Physiology (2nd edition, 3rd edition, or 4th edition). Sinauer Associates Inc.
2. Somero, Lockwood, and Tomanek (2017). Biochemical Adaptation: Response to Environmental Challenges From Life's Origins To The Anthropocene. Sinauer Associates Inc.
3. Hochachka, P.W. & G.N. Somero, (2002). Biochemical adaptation: mechanisms and process in physiological evolution. New York: Oxford University Press.

MARKS:

30% - Midterm Examination Thursday Nov. 1st (covers material up to and including Oct. 25th)

35% - Final Examination (covers the entire year with emphasis from Oct 30th-Dec 4th)

10% - Tutorial Test 1 (Oct. 17th due one week later)

15% - Tutorial Test 2 (Nov. 21st due one week later)

10% - Participation (in tutorials)

IMPORTANT NOTE:

1. MSAF forms may NOT be used for the midterm test (please see <http://registrar.mcmaster.ca/calendar/2012-13/pg2246.html>)

MISSED WORK:

If you are absent from the university for a minor medical reason, lasting fewer than 5 days, you may report your absence, once per term, without documentation, using the McMaster Student Absence Form (MSAF) on-line self-reporting tool. Absences for a longer duration or for other reasons must be reported to your Faculty/Program office, with documentation, and relief from term work may not necessarily be granted. When using the MSAF, report your absence to your instructor immediately (normally within 2 working days) to learn what relief may be granted for the work you have missed, and relevant details such as revised deadlines, or time and location of a make-up exam. Please note that the MSAF may not be used for term work worth 25% or more, nor can it be used for the final examination. You must contact the Associate Dean's Office for these absences.

BIOLOGY 4X03 -2018

Lecture / Tutorial Schedule*

Week	Date	Lecture #	Topic	Tutorials
1	Sept 3-7	1	Introduction/ Temperature I	
2	Sept 10-14	2-3	Temperature II/III	Tutorial 1 – Lecture
3	Sept 17-21	4-5	Temperature IV/ V	Tutorial 2 – Group work
4	Sept 24-28	6-7	Temperature VI/ Temperature VII	Tutorial 3 – Lecture
5	Oct 1-5	8-9	Temperature VIII/Oxygen I	Tutorial 4 – Group work
6	Oct 8-12	NA	NA	Mid-term break
7	Oct 15-19	10-11	Oxygen II/ Oxygen III	Tutorial 5 - Lecture
8	Oct 22-26	12-13	Oxygen IV/ Guest	Tutorial 6 – Group Work
9	Oct. 29-Nov 2	14	Guest/ Midterm	Tutorial 7 – Lecture
10	Nov 5-9	15-16	Water Stress I/ Water Stress II	Tutorial 8 – Group work
11	Nov 12-16	17-18	Osmotic Stress I/ II	Tutorial 9 – Lecture
12	Nov 19-23	19-20	Osmotic Stress III/ IV	Tutorial 10 – Group work
13	Nov 26- Nov 30	21-22	Developmental Plasticity I/ II	Tutorial 11 – TBA
14	Dec 3-7	23	TBA	

**At certain points in the course it may make good sense to modify the schedule. The instructor may modify elements of the course and will notify students accordingly.*