

Syllabus for BMS625 Module: *Animal Physiology*

Spring 2020 (Section 0850)

Zoom Meetings (synchronous): Tu/Th 11-12:15AM

Professor: Kristy Townsend, Ph.D.

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***** THIS SYLLABUS IS SUBJECT TO CHANGE – SEE PROFESSOR EMAILS FOR THE CURRENT VERSION OF SYLLABUS THROUGHOUT THE SEMESTER***** *This is Version: 1*

Course Description

This course is a graduate-level introduction to Animal Physiology, with a special emphasis on building skills and knowledge relevant for a successful graduate and professional career. Students will take part in preparing and presenting content curriculum around a specific physiological system with relevance to their own ongoing or future research. A significant portion of the grade comes from class participation, including in critical thinking and analytical exercises as well as article discussions. Special topics and scientific themes in the study of physiology will be presented in order to help students gain the skills and abilities needed to confront any physiological topic in the future.

Learning Objectives

After completion of this course students are expected to:

- Be able to vet and acquire reputable scientific resources in physiology that span textbooks, review and primary research articles in peer-reviewed journals, and lay science articles.
- Think critically about experiments, data, and what knowledge is missing and can be pursued by research in fields of physiological research
- Present curriculum to peers in order to present an up-to-date view of a topic in physiology; spur discussion; create opportunities for analytical thinking.
- Build pedagogical skills relevant for a future career
- Understand the basics of several physiological systems, including: Metabolic, Immune, Nervous, Endocrine/Circulatory
- Appreciate the scientific themes that underlie physiological systems
- Gain skills and knowledge relevant for a successful graduate and professional career in the biomedical sciences; including team work

Grading:

50% Significant participation in class discussions, thought questions, reading articles before class, article discussions during class, critical thinking exercises, and data activities

50% Curriculum development and content delivery on a given topic in Physiology

- Students will work in groups of 3 and will be assigned a physiological system around which to create a pedagogical approach as follows:
- **Tuesdays will be Content Classes** and will include 60min interactive power point presentations by student groups, covering textbook-level foundational knowledge (20min), current research (including methods, techniques, and open areas of investigation) (20min), and

then aspects of medically-relevant pathophysiology (20min). Power points should include at least 2 thought questions, discussion prompts or data analysis/interpretation activities to do in class (5-10min each). A list of resources should be provided with the slides, and each slide should have images and content properly cited. Students are welcome to include aspects of their own previous or ongoing research as examples. A good rule of thumb: each slide will take 60-90sec to discuss/present.

- **Thursdays will be Discussion Classes** and will be focused around article discussions. A lay:scientific article discussion is required, and other articles (up to 4) can include primary research articles, review articles, commentaries, or lay science articles. Student groups pick these articles and clear with instructor at least 10 days prior to their Tuesday content class.
- As student groups prepare their curriculum content, the Professor is available to give feedback, guidance, and to answer questions. A final version of the Power Point content is due the Thursday prior for the Professor to vet; the students will lead both the Tuesday and Thursday classes on their topic week and materials will be shared with the class via the shared Google Drive.

100% total

** Power point PDFs with images from course lectures and each week's readings will be made available by email and in the course shared Google Drive prior to each week's Tuesday meeting

Help Outside of Class:

Please email the professor (kristy.townsend@maine.edu) with any questions or concerns about the course. If needed, we can arrange a mutually available time to meet at my office (in person or virtually via Zoom). Office hours are by appointment only, but the professor encourages students to arrange meetings at any time in the semester, or to ask questions before/after class time (typically there is 15min available before/after class to talk to the professor).

Required Readings

Each week a set of required readings will be sent by Email and posted to our class shared Google Drive; these readings are required.

Suggested/Optional Readings

1. The Elements of Style (Strunk and White) – a writing guide you'll find on nearly every scientist's desk – writing is a key aspect of certain assignments and essential for science communication
2. To fill in the gaps in your knowledge about physiology you may want to consult: Vander's Human Physiology (Widmaier et al.)
3. Supplemental Textbook: Alberts et al. Molecular Biology of the Cell, available on NCBI bookshelf: <http://www.ncbi.nlm.nih.gov/books/NBK21054/>

**** THIS SCHEDULE AND SYLLABUS ARE SUBJECT TO CHANGE ****

| Class Date | Lecture topics/themes and Discussions | Assignments and Activities |
|-------------------|--|---|
| <u>Week 1</u> | <p>Course overview, Course technology, Syllabus</p> <p>Modern Pedagogy and Curriculum Development</p> <p>Working in Teams</p> <p>Assessing and Vetting Scientific Literature and Resources</p> | <p>Readings - see email list</p> <p>Class Introductions</p> <p>Questions about your topic assignments?</p> <p>How to analyze and critique primary research articles (Handouts discussed Thursday)</p> |
| <u>Week 2</u> | <p>Special Topics in Physiology; Scientific Themes in Physiology</p> | <p>Readings - see email list</p> <p>Content presented by: Townsend</p> |
| <u>Week 3</u> | <p>Metabolic system (liver, pancreas, adipose)</p> | <p>Readings - see email list</p> <p>Content presented by: Fong, McGilvrey, Costa</p> |
| <u>Week 4</u> | <p>Immune System</p> | <p>Readings - see email list</p> <p>Content presented by: Weller, Fahey, Ouellette</p> |
| <u>Week 5</u> | <p>Nervous System</p> | <p>Readings - see email list</p> <p>Content presented by: Tomasch, Olson, Sanon</p> |
| <u>Week 6</u> | <p>Endocrine and Circulatory System</p> | <p>Readings - see email list</p> <p>Content presented by: Almaghasilah, Easterbrooks, Butts</p> |

Course Policies

(Additional Course Policies are found on the Google Drive for this course)**

There are policy statements required for every syllabus at the University of Maine.

<https://umaine.edu/citl/teaching-resources-2/required-syllabus-information/>