**Zoology 431/531: Vertebrate Physiology I Winter 2018**  

Lecture: T, R, 1000-1120  
Prerequisites: C- or better in (BI211, 212, 213) and (CH 331 or CH 334) and (CH332 or CH335 - may be taken concurrently)  
3 Credits  
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Text: Guyton and Hall, Textbook of Medical Physiology n\textsuperscript{th} ed.

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<tr>
<th>Week</th>
<th>Lecture topic (Text chapters)</th>
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<tr>
<td>Jan 8, 10</td>
<td>Cellular processes; Cellular communication, Neuron physiology and integration; (Ch.1, 4)</td>
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<td>Jan. 15, 17</td>
<td>Central nervous system integration, neural circuits: Motor control; spinal reflexes (Ch. 54)</td>
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<td>Jan 22, 24</td>
<td>Central nervous system integration: motor control and basal nuclei/cerebellar function (Ch. 56)</td>
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<td>Jan. 29, 31.</td>
<td>Autonomic nervous system; neurotransmitters. (Ch. 67-71) (\text{Thursday, Jan 31 Exam #1 (50 points)} )</td>
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<td>Feb 5, 7</td>
<td>Control of digestion, absorption, nutrition, metabolism, (Ch. 73)</td>
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<td>Feb. 12, 14</td>
<td>Kidney structure and nephron physiology (Ch. 26, 27)</td>
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<td>Feb. 19, 21</td>
<td>Osmoregulation (Ch. 28, 29)</td>
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<td>Feb. 26, 28</td>
<td>Endocrine control of growth, metabolism, minerals (Ch. 74-79) (\text{Quiz, Tues 26th: Kidney, Osmoregulation (25 pts)} )</td>
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<td>March 5, 7</td>
<td>Endocrine cont. (Ch. 74-79); Reproduction (Ch. 80-81)</td>
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<td>March 12, 14</td>
<td>Reproduction (Ch. 80-81)</td>
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<td>March 20</td>
<td>(\text{Final Exam (Wed, 20 March, 1400 hrs; 100 points; comprehensive)} )</td>
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Grading:

Quiz: 25
Exam 1: 50 points
Exam 2: 100 points
175 total

Exams will be short answer/essay/fill-in blank, and will test your knowledge and comprehension of physiological systems in the vertebrate body, and to the extent that is covered in class, the variation in those systems among vertebrate taxa. Be advised that some anatomical knowledge will be required to describe the physiological systems.

Student Learning Outcomes
At the end of this course, you should be able to

- with background knowledge of chemistry and physics and introductory biology, explain the function of excitable cells such as neurons, and how they regulate movement
- describe the role of the central nervous system in integrating sensory information and creating appropriate responses during locomotion
- explain the role of the autonomic nervous system in controlling vertebrate physiology
- with background knowledge of chemistry and physics and introductory biology, explain the function of the digestive system, and how it extracts chemical energy from the environment
- describe how that energy is, stored, mobilized and used,
- describe how nitrogenous wastes are eliminated, and osmotic balance maintained
- explain the role of the endocrine system in controlling vertebrate physiology
- describe the neural and hormonal control of the reproductive system

Graduate students taking this course as Z531 will be required to write a short paper describing a vertebrate specialization of one of the systems covered (e.g., the endocrine control of sequential hermaphroditism in fish), and in so doing, demonstrate the ability to

- conduct an independent review of the primary scientific literature;
- summarize the current state of what the scientific community knows, and what we would like to know about this topic.

This paper will be worth 25 points, and the course grade will thus use a 200 point total.

Statement Regarding Students with Disabilities: Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at http://ds.oregonstate.edu. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

Link to Statement of Expectations for Student Conduct: http://studentlife.oregonstate.edu/studentconduct/offenses-0