Cardiology (BIOM4180)
Winter 2011
Department of Biomedical Sciences
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Lecture: Monday 9:00 am-10:20 am; Wednesday 9:00 am-10:20 am; OVC1642

Course Objective: This course will examine the various components of cardiology, including normal cardiac physiology; clinical modalities and assessment tools; and pathophysiology of select conditions. It is expected that students will understand how the heart functions normally, and how cardiac physiology changes in response to disease or physiological stressors. Moreover, students will be expected to understand how clinical tools are used to assess cardiology patients, and have a basic understanding of what the clinical results tell us about cardiac physiology. The emphasis of of the course will be on molecular and cellular cardiology, but students will be expected to explain how molecular changes affect cardiac function.

It is expected that students will use the information gained in lectures and through independent readings to critically formulate ideas, and to critique the scientific and medical literature.

Course and Instructor Evaluation: Students will be asked to complete a questionnaire on instructors' teaching competence during the last two weeks of classes. This is part of information required by the University of evaluate faculty performance for purposes of Tenure, Promotion and Selective Increases. Administered by a third party rather than the instructors, these evaluations will be delivered to the respective instructors ONLY after the final grades have been submitted to the Registrar's Office. Note: only the numerical ratings from the form will be made available to the Chair for administrative purposes — the Chair will NOT see any comments that are written on the evaluation forms.

Academic Misconduct: The University of Guelph takes a very serious view of Academic Misconduct. Included in this category are such activities as cheating on examinations, plagiarism, misrepresentation, and submitting the same material in two different courses without written permission. Students are expected to be familiar with the section on Academic Misconduct in the Undergraduate Calendar and should be aware that expulsion from the University is a possible penalty.

Student Evaluation: Assessment of student performance will be weighted heavily towards an understanding of concepts, and the ability to think critically and independently.
Quizzes: lecture content will be assessed using a series of in-class quizzes. These tests will be short answer and/or multiple choice format, and will focus on material presented in lectures. While the scope of the tests will be limited to material covered in lectures, not all information will be contained in the instructor's slides. Any material discussed in class, including answers to student questions, are subject to examination in this format. There will be three (3) tests during the semester, each worth 10% of the final grade. If a student passes (50% or more) ALL tests, only the top two (2) will count.
Independent Writing:

In-class tests: 3 X 10%	30%
Independent Writing: 2 X 15%	30%
Critical Assessment: 2 X 5%	10%
Group Project:	30%

Cardiovascular and Respiratory: Material for the Cardiovascular and Respiratory section will be tested with 3 online quizzes, *each* accounting for 5% of the final grade (total of 15% of final grade). If the student passes all quizzes, only the highest 2 quizzes will count (total of 15% of final grade). The mid-term examination will be on Monday, February 22, from 5:30-7:00 pm (ROZH 101). This exam will cover the Cardiovascular and Respiratory Sections (Pyle). The mid-term examination will account for 20% of the student's final grade.
Final: The final examination will take place on April 12 between 2:30 pm and 4:30 pm. Material from the renal (Leatherland) and digestion (Petrik) units will act as the main focus of the final examination, but some material from the cardiovascular and respiratory units will also be included. Moreover, questions pertaining to the integration of the organ systems will also comprise a part of the final examination.

Textbooks: The textbook is available in the bookstore (Mammalian Physiology II BIOM3110). A reading list will be provided by each instructor for their section.

-letter to editor
-wikipedia article
-youtube video
-brochure
-newspaper
-minister briefing note

Lecture Schedule

Cardiovascular (Pyle)
Lecture 1: Cardiovascular Anatomy and Physiology (Jan 11)
Lecture 2: Electrophysiology (Jan 13)
Lecture 3: Excitation-Contraction Coupling (Jan 15)
Lecture 4: Arrhythmias (Jan 18)
Lecture 5: Blood Flow (Jan 20)
Guest Lecture: Justyna Kulpa, TBA (Jan 22)
Lecture 6: Capillary Exchange (Jan 25)
Lecture 7: Heart Regulation (Jan 27)
Lecture 8: Vascular Regulation (Jan 29)
Lecture 9: Humoral Regulation (Feb 1)
Lecture 10: Review/Questions (Feb 3)

Respiratory (Pyle)
Lecture 11: Pulmonary Mechanics (Feb 5)
Lecture 12: Gas Exchange (Feb 8)
Lecture 13: Gas Transport (Feb 10)
Lecture 14: Respiratory Control (Feb 12)
Lecture 15: Review/Questions (Feb 22)

Renal (Leatherland)
Lecture 1: Kidney Morphology (Feb 24)
Lecture 2: Glomerular filtration, and tubular absorption and secretion (Feb 26)

Lecture 3: The Loope of Henle and the standing osmotic gradient (Mar 1)
Lecture 4: Urea transporters and aquaporins, and the production of concentrated urine (Mar 3)
Lecture 5: pH regulation (Mar 5)
Lecture 6: Osmoregulation in mammals (Mar 8)
Lecture 7: Ion regulation in mammals (Mar 10)
Lecture 8: Special cases (camels, whales, bears, and desert ungulates) (Mar 12)

Digestion (Petrik)
Lecture 1,2: Structure and Function of the GI Tract (Mar 15, 17)
Lecture 3,4: Digestive Tract Motility (Mar 19, 22)
Lecture 5: Neural and Hormonal Regulation of Digestion (Mar 24)
Lecture 6,7: GI Tract Secretion - Function and Regulation (Mar 26, 29)
Lecture 8-11: Digestion, Absorption, and Disorders of the GI Tract (Mar 31, Apr 5, 7, 9)