Medical Physiology - BIOL 393
Spring 2016
3 Credits
University of Alaska Fairbanks – Spring Semester 2016
Instructor: Robert H. Coker, PhD, FACSM
Office: 323 D Murie Building; email: rcoker@alaska.edu
Office Hours: Tuesday 12:30-4:30 PM
Telephone 907 474-6701 or 907 474-7542

Required Textbook: Guyton and Hall, Textbook of Medical Physiology, 12th edition. Handouts will also be provided via UAF Blackboard. Supplementary information will be noted as such. Otherwise, all materials are directly relevant to overall evaluation.

Course Description: The science of physiology integrates the unique relationships that exist among cells, tissues, organs and how they function as a whole. This course will build on previous concepts related to Human Anatomy and Physiology, and utilize those core competencies to enhance the understanding of clinical practice. This will utilize the presentation of case studies in medical and surgical practice to enhance the application of knowledge in biomedicine.

Prerequisite Courses: BIOL 115X and 116X; or BIO 213X and 214X; or permission of instructor. If a student enrolls in the course without these prerequisites or considerations, they will be withdrawn from the course.

Course Goals: Students will gain an in depth understanding of the physiological processes in all of the primary systems with a special focus on pathophysiology and the basis of clinical care.

Course Objectives:

1. Understand the “how and why” that is responsible for the etiology of human disease.
2. Acquire the ability to explain physiological processes that maintain homeostasis.
3. Identify the specific mechanisms responsible for regulation of blood flow, respiratory function, renal filtration, endocrine systems and splanchnic metabolism
4. Explain plausible clinical solutions for diseases, syndromes and conditions.

Instructional Methods: This course will be taught using a combination of lectures, discussion of student led presentation and case studies (ie., Problem Solving Modules).

Evaluation: Student performance will be based on three primary components: 1) exams, 2) problem solving modules, and 3) oral presentation. The sum of these components = 100 points. Absences must be excused prior to an evaluation date (ie., athletic competition or conference presentation). Missed evaluations due to sickness must be excused by the note of a clinician (MD, PA, APN, etc).

Exams: Five exams will be given during the course, including a final exam. At least one of these exams will be administered and graded prior to mid-term so that students can accurately assess their initial performance in the course. Each exam will be worth 10 possible points.

Oral Presentation: Worth 10 points towards the final grade, each student will present one research article in the field of clinical physiology. Students will cover the rationale, methods, results and discussion sections of the article.

Problem Solving Modules: This portion of the course will provide students with symptoms, laboratory values and history of the physiological condition. Students will work in teams to diagnosis the condition and formulate a treatment option. The sum of all problem solving modules will be worth 40

points, and you will be expected to work cohesively. These are “due” on the date assigned below under class schedule.

Calculation of Grade: In brief, A = 90-100, B = 80-89, C = 70-79, D = 65-69, F = 64 or below. Grades will represent an average of course requirements.

Required Textbook: Guyton and Hall, Textbook of Medical Physiology, 12th edition. Handouts will also be provided via UAF Blackboard.

Instructional Methods: A lecture/discussion-based model will be used in this course. A problem solving model will incorporate hypothetical case studies, diagnosis and treatment scenarios. Students will be given the opportunity to answer questions posed by the Professor. As part of the requirements of the course, students will also make a one “presentation” of a research article that specifically relates their specific interest. (ie., respiratory, muscle, etc.).

Class Schedule (Unit Numbers correspond to Text)

01/14/16	Unit II	Membrane Physiology, Nerve and Muscle
01/19/16	Unit III	The Heart
01/21/16	Unit III	The Heart – Problem Solving Module 1
01/26/16	Unit IV	The Circulation
01/28/16	Unit IV	The Circulation - Problem Solving Module 2
02/02/16	EXAM 1	
02/04/16	Unit V	The Body Fluids and Kidney
02/09/16	Unit V	The Body Fluids and Kidney Problem Solving Module 3
02/11/16	Unit VI	Blood Cells, Immunity and Blood Coagulation Problem Solving Module 4
02/16/16	EXAM 2	
02/18/16	Unit VII	Respiration
02/23/16	Unit VII	Respiration Problem Solving Module 5
03/25/16	Unit IX	The Nervous System
03/01/16	Unit X	The Nervous System
03/03/16	Unit XI	The Nervous System Problem Solving Module 6
03/08/16	EXAM 3	
03/10/16	Unit XII	Gastrointestinal Physiology
03/22/16	Unit XIII	Gastrointestinal Physiology
03/29/16	Unit XIII	Metabolism and Temperature Regulation
03/31/16	Unit XIII	Metabolism and Temperature Regulation
04/05/16	Unit XIII	Metabolism and Temperature Regulation Problem Solving Module 7
04/07/16	EXAM 4	
04/12/16	Unit XIV	Endocrinology and Reproduction
04/14/16	Unit XIV	Endocrinology and Reproduction
04/19/16	Unit XIV	Endocrinology and Reproduction Problem Solving Module 8
04/21/16	Presentations	
04/26/16	Presentations	
TBA	EXAM 5 – Final	

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Honor Code and Plagiarism: Students will be expected to uphold the UAF standard of conduct for students relating to academic dishonesty. Students will assume full responsibility for the content and integrity of the academic work submitted by them during the course. For the student code or additional information, please use the following URL
http://www.uaf.edu/catalog/current/academics/regs3.html

Support Services: While there are no organized tutoring services in the area for this course, students are encouraged to present questions during and after class for clarification.

UAF Disabilities Services: The Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials. I will work with the Office of Disabilities Services (203 WHIT, 474-7043) to provide reasonable accommodation to students with disabilities. ** *If students require any assistance due to documented disability, please make the Professor award of this important need by the 2nd week of semester, and they will make the necessary accommodations.*