Integrative Physiology and Pharmacology (PHRM 396)
Fall 2018 Syllabus

Course Director: George C. Wellman, Ph.D.
Office: 430 HSRF
E-mail: gwellman@uvm.edu
Phone: 656-3470

Class Time: MWF 10:50-11:40
Location: Carpenter Auditorium (unless otherwise noted)

Course Overview: This graduate level course, which is intended for students pursuing careers in basic scientific research or health-related fields, is designed to combine general physiological principles with examples of disease-based pathophysiology and targeted pharmacological approaches. Case studies will be used throughout this course as a means to integrate material and highlight the impact of these processes on human function.

Course Materials and Recommended Text Books: All required course materials including lecture slides and assigned readings will be available on the course BlackBoard site. There are no required textbooks for this course, however, students may find that *Principles of Pharmacology: The Pathophysiologic Basis of Drug Therapy* and to be a useful resource for general information on topics covered in class. *Cardiovascular Physiology* and *Renal Physiology* from The Mosby Physiology Monograph Series are also excellent resources.

Grading: Grades will be based on in-class quizzes (**10 % of total grade**), written assignments (**20 % of total grade**), 4 exams (**60 % of total grade**) and class participation (**10 % of total grade**). Exams will be a combination of multiple choice questions and short answer questions.

The table below defines the nominal cut-offs for grades in the course relative to percentile scores.

A+	99-100	B+	87-89	C+	77-79	D	60-69
A	94-98	B	83-86	C	73-76	F	<60
A-	90-93	B-	80-82	C-	70-72		

Written Assignments: Students will write two "mini-reviews" on specific diseases/pathologies of their choice. These papers should include descriptions of the physiological process that is compromised, the molecular basis of the pathology, symptoms/prognosis, currently approved treatments, and future directions of research in this area. There is a 5 page limit on the length of each paper (excluding figures and references) and each paper must include a minimum of 15 references.

Academic Integrity: All assignments, take-home or in-class, are to be completed independently without help from others (including other students in the course). Answers are expected to be unique and the students' own original work. Please make sure you understand the UVM Code of Academic Integrity (https://www.uvm.edu/policies/student/acadintegrity.pdf).

Class Schedule:

Date			Topic
8/27	(M)	1.1	Course Introduction and Overview of the peripheral nervous system
8/29	(W)	1.2	TRPV1 channels and pain
8/31	(F)	1.3	Nicotinic Receptors and the Neuromuscular Junction
9/3	**(M)**		**Labor Day Holiday**
9/5	(W)	1.4	Parasympathetic NS Physiology/Pharmacology
9/7	(F)	1.5	Parasympathetic NS Pathologies
9/10	(M)	1.6	Sympathetic NS Physiology/Pharmacology
9/12	(W)	1.7	Sympathetic NS: Pathologies
9/14	(F)	1.8	Case Study 1
9/17	(M)	1.9	Autonomic NS: Clinical Applications
9/19	(W)	1.10	Autonomic NS: Clinical Applications
9/21	**(F)**		**EXAM 1**
9/24	(M)	2.1	Peripheral Artery Disease
9/26	(W)	2.2	Case Study 2
9/28	(F)	2.3	Stroke
10/1	(M)	2.4	Case Study 3
10/3	(W)	2.5	Shock
10/5	**(F)***	**2.6**	Case Study 4
10/8	**(M)**		**Fall Recess**
10/10	(W)	2.7	Hypertension
10/12	(F)	2.8	Hypertension
10/15	**(M)**		**EXAM 2**
10/17	(W)	3.1	Coronary artery disease: Etiology and Pathophysiology
10/19	(F)	3.2	Angina Treatments
10/22	(M)	3.3	Cholesterol lowering drugs: statins and beyond
10/24	(W)	3.4	Acute Coronary Syndrome
10/26	(F)	3.5	Heart Failure
10/29	(M)	3.6	Case study 5
10/31	(W)	3.7	Electrical Activity in the Heart: Normal Sinus Rhythm
11/2	(F)	3.8	Antiarrhythmic approaches
11/5	(M)	3.9	Atrial Fibrillation: Rhythm control versus Rate Control
11/7	(W)	3.10	Ventricular Tachycardia and Ventricular Fibrillation
11/9	**(F)**		**EXAM 3**
11/12	(M)	4.1	Kidney: Structure/Function
11/14	(W)	4.2	Glomerular Filtration
11/16	(F)	4.3	The Nephron: Part I
11/19	**(M)**		**Thanksgiving Recess**
11/21	**(W)**		**Thanksgiving Recess**
11/23	**(F)**		**Thanksgiving Recess**
11/26	(M)	4.4	The Nephron: Part II
11/28	(W)	4.5	Water Homeostasis
11/30	(F)	4.6	Electrolyte Homeostasis
12/3	(M)	4.7	Renal Failure
12/5	(W)	4.8	Diuretics
12/7	**(F)****		**EXAM 4**

*** 1st paper due ** 2nd paper due**