PENNSTATE
Milton S. Hershey Medical Center
College of Medicine

General Information							
Course Title:	**Homeostasis Selective** *(revised 11/7/07)*			Course Designation: PSIO/PHARM 582			Credits: 1
Semester:	**Spring**		Year:	**2008**			
Department:	**Physiology & Pharmacology**						
Co-Directors:	**Charles H. Lang, PhD** **Kelly Karpa, RPh, PhD**	Phone # 5538 1621			Email: **clang@psu.edu** **kjd136@psu.edu**	Office Rm # **C4765** **HCAR 3027**	
Time :	**9:00 to 9:50**	Days:	**M/W/F**			Location:	**HCAR 1101**

Course Information

Description and/or Overview:

This course can be taken alone, but the student is encouraged to register for all three parts (581, 582 and 583).

PSIO/PHARM 582 will cover general principles related to the pharmacology (mechanisms and sites of action; receptors and associated cellular transduction and biochemical cascades; physiological effects; toxicity; contraindications) of major classes of drugs affecting the cardiovascular system. Materials will be presented through reading and study of textbook materials and the primary scientific literature, reinforced and assisted by lectures and discussions. Concepts of this course are organized on the heart and vascular system. Topics to be covered include pharmacology related to anemias, anticoagulants, the adrenergic nervous system, hypertension, heart failure, and coronary heart disease. The impact of these classes of drugs will be on the regulation of cardiac function and the microcirculation will be studied in detail. To reinforce new concepts students will use the simulation laboratory at the College of Medicine to directly observe the effects of various classes of cardiac drugs on the physiological control of the cardiovascular system in humans. The objectives for this part of the course are to: Describe how invasive cardiac monitoring and knowledge of the Frank Starling curve are used to diagnose and manage acute hemodynamic catastrophes (ie. cardiogenic shock, hypovolemic shock); describe the pharmacology of the positive inotropic agents and their major side effects: and describe the pharmacological effects of antiarrhythmics used in management of cardiac abnormalities.

Goals and/or Objectives:

This course focuses on the pharmacology related to the heart and vascular system. The overall goal of this part of the course is to be able to explain the mechanisms underlying these effects of drugs acting on the cardiovascular system at various levels of biological organization (e.g., cell, tissue and whole-body). In this regard, the successful student will: a) demonstrate an understanding of the terminology used to describe basic pharmacologic principles and drug classification; b) describe the basic pharmacokinetic principles governing uptake, distribution, metabolism and elimination of drugs described in this course; c) describe and explain pharmacodynamic concepts of drug-receptor interaction to accurately predict drug responses at all levels of biological organization; d) interpret pharmacological data such as dose-response curves in the context of optimizing drug therapy; e) demonstrate an understanding of the basic mechanisms of drug-induced toxicity and drug interactions; f) demonstrate an understanding of the basic mechanisms involved in modification of drug responses by disease, genetics, and age. g) To experience the in vivo actions of cardiovascular acting drugs under in the human simulation laboratory.

Pre-requisites:

Successfully completion of two of the three courses in the Fall Core Curriculum (i.e., Theme 1: Information Flow; Theme 2: Life Requires Structure; and Theme 3: Life Requires Energy).

Requirements; course-specific policies and expectations:

It is not possible for the student to master the material by "cramming the night before the exam: there is simply too much material to learn. It is strongly suggested that students study daily and set aside a significant block of time weekly in order to keep abreast of the material presented. Furthermore, students are encouraged to prioritize their time so they can familiarize themselves with lecture material prior to its presentation in class. All handouts and slide presentations will be placed on ANGEL (https://cms.psu.edu) no less than 48 hours prior to lecture.

Required Texts and Resources:

Medical Physiology
Eds. Walter F. Boron and Emile L. Boulpaep
ISBN# 0-7216-3256-4

Pharmacology
Goodman and Gilman's The Pharmacological Basis of Therapeutics
ISBN # 0-07-146804-8

The directors of this course highly recommend that students purchase and read the required textbooks. The texts are current and will be useful throughout the students' career. A limited number of copies of each book will be placed on "reserve" in the HMC library.

This course follows the factual objectives defined by the American Physiological Society as enumerated in the "medical Physiology Core Objectives"
http://www.the-aps.org/education/MedPhysObj/medcor.htm

Electronic Links:

Appropriate links will be provided by each instructor.

Attendance Policy:

Although class attendance is not mandatory, it is very strongly recommended. The student is responsible for all material and information presented during class lecture hours.

Examination Policy:

This course will have three (3) examinations, each administered at the end of a block of lecture and discussion material. Each exam is usually a combination of multiple choice, short answer, and essay-type problem-solving questions. The number of questions per topic is directly proportional to the amount of lecture time spent on that topic. Two and one-half (2.5) hours are allotted for completion of the exam.

Grading Criteria:

Each exam will be worth 100 points and the absolute number of points and percentile grade reported to the student. Grades >90 will receive a letter designation of “A”, >80 will receive a “B” and >70 receive a “C.”

Academic Integrity

Academic Integrity at Penn State is defined by Faculty Senate Policy 49-20 as “the pursuit of scholarly activity in an open, honest and responsible manner”. The University's Code of Conduct states that “all students should act with personal integrity, respect other students' dignity, rights and property, and help create and maintain an environment in which all can succeed through the fruits of their efforts.

Academic integrity includes a commitment not to engage in or tolerate acts of falsification, misrepresentation or deception. Such acts of dishonesty violate the fundamental ethical principles of the University community and compromise the worth of work completed by others”. Academic dishonesty (including, but not limited to cheating, plagiarism, or falsification of information) will not be tolerated and can result in academic or disciplinary sanctions such as a failing (F) grade in the course.

Plagiarism

[For more information, see: http://tlt.its.psu.edu/suggestions/cyberplag/cyberplagstudent.html]

Statement on Remediation

The basis for grades, as stated in Senate Policy 47-20, is "...the instructor's judgment of the student's scholastic achievement..." Occasionally, a disagreement arises in the assignment of a grade. A student who wishes to question or challenge the grade assigned in a course must first discuss grading practices and assignments with the instructor. It is expected that the student and instructor will try to eliminate any misunderstandings and will attempt to work out any disagreements over grades.

On the rare occasion that a student and instructor fail to resolve the grade dispute through informal means, the student may request that the head of the academic program offering the course act as a mediator. If this mediation does not resolve the dispute, the student who is a graduate student may request further mediation from the associate dean for graduate studies.

[For more information, see: http://www.psu.edu/dept/oue/aappm/G-10.html]

Educator's Code of Conduct

The Penn State Milton S. Hershey Medical Center and Penn State College of Medicine are dedicated to developing and maintaining a strong commitment to ethical teaching practices at all levels of the education process. The foundation for this Educator's Code of Conduct is provided by the Penn State University Graduate School Statement on Teaching Ethics (1). The development of this Graduate School statement was based on a special issue of the journal, *New Directions for Teaching and Learning*. In this special issue, entitled *Ethical Dimensions of College and University Teaching: Understanding and Honoring the Special Relationship between Teachers and Student*s (2*)*, several authors provided theoretical and practical guidelines for honing ethical college teaching skills. Some of the authors' recommendations have been used to formulate the Educator's Code of Conduct provided herein. Some of these recommendations were modified to specifically fit the needs of both educators and students at the Hershey Medical Center and the Penn State College of Medicine. Both the Unified Campus Commitment to Excellence of the Hershey Medical Center and Penn State College of Medicine (3) and the Code of Ethical Behavior of the Hershey Medical Center, Policy A-20 HAM (4) were also consulted in preparing this Educator's Code of Conduct.

Four Norms to Govern Teaching

Honesty
Honesty and integrity must be practiced during all aspects of the education process.

Promise-Keeping
Promise keeping requires the educator to fulfill the "promises" made at the beginning of the semester or any other learning activity. Syllabi, assignments, grading principles, and class and office hour schedules each involve promises that are made to students and that must be adhered to under normal circumstances.

Respect for Persons
The educator must approach the learner with personal respect. In addition, the educator ought to encourage mutual respect among students. In particular, respect for race, religion, sexual orientation, disability gender, age, marital status, cultural differences, and political conviction should be supported and encouraged in all aspects of the educational process. Additionally, educators ought to show respect and common courtesy for students both during interpersonal interactions and in responding promptly to students' need for guidance and feedback. An environment free from harassment and discrimination, verbal abuse, physical violence, and intimidation in any form must also be provided for all learning activities.

Fairness
Recognizing the inherent subjectively involved in grading, an educator ought to ensure that their grading practices are as objective as possible by creating and adhering to unambiguous criteria.

Principles of Ethical College and University Teaching

Content Competence
An educator maintains a high level of subject matter knowledge and ensures that the content of the educational experience is current, accurate, representative, and appropriate to the position of the learning experience within the students' program of study. The educator must be capable of approaching each learner with a commitment to meeting his or her educational needs.

Pedagogical Competence
A pedagogically competent educator communicates the objectives of the educational experience to students, is aware of alternative instructional methods or strategies, and selects methods of instruction that are effective in helping students to achieve the course objectives.

Dealing with Sensitive Topics
Topics that students are likely to find sensitive or discomforting are dealt with in an open, honest, and positive way.

Student Development
The overriding responsibility of the educator is to contribute to the intellectual development of the student, at least in the context of the educator's own area of expertise, and to avoid actions such as exploitation and discrimination that detract from student development.

Dual Relationship with Students
To avoid conflict of interest, an educator does not enter into dual-role relationships with students that are likely to detract from student development or lead to actual or perceived favoritism on the part of the educator. The establishment of a romantic/sexual relationship between an educator and a student should be reported to the immediate supervisor of the educator. Such relationships should be dealt with consistent with Penn State Administrative Policy AD41 — Sexual Harassment (5).

Student Confidentiality
Student grades, letters of evaluation, attendance records, and private communications are treated as confidential materials and are released only with student consent, for legitimate academic purposes, or if there are reasonable grounds for believing that releasing such information will be beneficial to the student or will prevent harm to the student or to others.

Patient Privacy and Confidentiality
Educators who utilize patient information as part of any educational experience must follow patient privacy and confidentiality guidelines as outlined by the Health Insurance Portability and Accountability Act of 1996 (HIPAA).

Respect for Colleagues
An educator respects the dignity of his or her colleagues and works cooperatively with colleagues in the interest of fostering student development.

Valid Assessment of Students
An educator is responsible for taking adequate steps to ensure that the assessment of a student's performance is valid, open, fair, and congruent with the course/educational experience objectives. An educator must be aware that such assessments are important in students' lives and in the development of their careers.

Respect for Institution and Profession
In the interest of student development, an educator is aware of and respects the educational goals, policies, and standards of the institution in which he or she teaches and the profession which he or she represents.

Citing Sources of Educational Material
An educator acknowledges and documents, as appropriate, the sources of information and other materials used for teaching.

Violations of the Educator's Code of Conduct

Should a learner experience conduct that is inconsistent with the Educator's Code of Conduct, he/she is encouraged to first address the issue with either the educator responsible for the inconsistency or the director of the course in which the educator teaches. Should this attempt to resolve the problem fail, or if the nature of the inconsistency is such that the learner does not feel comfortable addressing the issue with either the educator or the course director, the student may consult other individuals. These individuals may include but are not limited to: faculty advisor, student ombudsman, departmental chair, the Vice Dean for Educational Affairs, and the Vice Dean for Faculty and Administrative Affairs. The decision of who to contact may be dependent on the educational program of the learner and/or type of violation that was encountered.

References:
(1) http://www.gradsch.psu.edu/research/ethics.html#teaching)
(2) http://cte.uncwil.edu/et/br030697.htm
(3) Unified Campus Commitment to Excellence of the Penn State Milton S. Hershey Medical Center and College of Medicine; 05/11/01
(4) Code of Ethical Behavior of the Hershey Medical Center, Policy A-20 HAM; Effective Date October, 2001
(5) http://guru.psu.edu/POLICIES/Ad41.html

Developed by the Unified Campus Academic Team Endorsed by Teams Council — May 21, 2003

Course Schedule					
Course Title:		**Homeostasis Selective**	**Course Designation**:	PSIO/PHARM 582	
Course Directors:		**Charles H. Lang, PhD Kelly Karpa, RPh, PhD**			
Time :	**9:00 to 9:50 AM**	**Days:**	**M/W/F**	**Location:**	**HCAR 1101**
Date	**Lecture #**	**Instructor Last, first**	**Instruction Type (Lecture or lab)**	**Projected Lecture Topic - This list is an approximate guide to lecture topics. Titles and content are subject to change**	
Wed. Feb. 20, 2008	1	Karpa, Kelly *(Pharmacology)*	Lecture	Pharmacologic Management of Anemia	
Fri. Feb. 22, 2008	2	Karpa, Kelly *(Pharmacology)*	Lecture	Anticoagulants I	
Mon. Feb. 25, 2008	3	Karpa, Kelly *(Pharmacology)*	Lecture	Anticoagulants II	
Wed. Feb. 27, 2008	4	Karpa, Kelly *(Pharmacology)*	Lecture	Adrenergic Pharmacology Overview: Beta blocker focus:	
Fri. Feb. 29, 2008	5	Karpa, Kelly *(Pharmacology)*	Lecture	Pharmacology in Heart Failure: RAAS focus	
Mon. Mar. 3, 2008	6	Karpa, Kelly *(Pharmacology)*	Lecture	Hypertension Pharmacology Overview: CCB focus	
Wed. Mar. 5, 2008	7	Karpa, Kelly *(Pharmacology)*	Lecture	Hypertension II – Vasodilator focus	
Fri. Mar. 7, 2008	*	N/A	Grad. Student Assoc. Research Forum NO CLASS	NO CLASS	
Mon. Mar. 10, 2008	*	N/A	SPRING BREAK NO CLASS	NO CLASS	
Wed. Mar. 12, 2008	*	N/A	SPRING BREAK NO CLASS	NO CLASS	
Fri. Mar. 14, 2008	*	N/A	SPRING BREAK NO CLASS	NO CLASS	
Mon. Mar. 17, 2008	8	Karpa, Kelly *(Pharmacology)*	Lecture	Coronary Artery Disease: Stable angina	
Wed. Mar. 19, 2008	9	Karpa, Kelly *(Pharmacology)*	Lecture	Coronary Artery Disease: Unstable angina	
Fri. Mar. 21, 2008	10	Karpa, Kelly *(Pharmacology)*	Lecture	Antiarrhythmics	
Mon. Mar. 24, 2008	11	Karpa, Kelly *(Pharmacology)*	Lecture	Antihyperlipidemics	

Wed. Mar.26, 2008	12	Karpa & Lang *(Pharmacology and Physiology)*	Lecture	SIM Lab
Fri. Mar. 28, 2008	13	Karpa & Lang *(Pharmacology and Physiology)*	Lecture	SIM Lab

Mon. Mar. 31, 2008	*	Karpa, Kelly *(Pharmacology)*	REVIEW	REVIEW
Wed. Apr. 2, 2008	*	EXAM	EXAM	EXAM (Room & Time - TBA)

Contact Information					
Faculty / Title	**Department**	**Phone #**	**EMAIL**	**Office Room #**	**Mail Code**
Charles H. Lang, Ph.D. Professor	C & M Physiology	5538	clang@psu.edu	C4763	H166
Comments: (i.e. preferred method of contact, contact hrs.)					
Kelly Karpa, RPh, PhD	Pharmacology	1621	Kjd136@psu.edu	HCAR 3027	H078
Comments: (i.e. preferred method of contact, contact hrs.)					
Beth Ditzler Course Assistant	C & M Physiology	0221	Bat4@psu.edu	C4600	H166
Comments: (i.e. preferred method of contact, contact hrs.)					
Lisa Harman Course Assistant	C & M Physiology	0221	lsb10@psu.edu	C460O	H166
Comments: (i.e. preferred method of contact, contact hrs.)					