

Curriculum Proposal Signature Sheet

PATHOPHYSIOLOGY (BIOL 454)

TITLE OF PROPOSAL

Type of Proposal

Program

- New
- Changes within Major
- Changes within Cognate *
- Changes in Minor or Track
- Changes in Concentration*
- Program Deletion

Course

- New
- Changes in Course taken only by Majors
- Changes in Course required of Non-Majors*
- Changes in Course open to Non-Majors
- Deletion of Course taken only by Majors
- Deletion of Course required of Non-Majors*
- Deletion of Course open to Non-Majors

BIOLOGY

SPONSORING DEPARTMENT (S)

Review and Approval

4 SEPT. 2008

DATE(S)

Signature of Sponsoring Chair(s)/Date

Janine Volz

1/26/09

* For starred items Chairs of affected Departments/Programs must sign below before Dean's review

Dean's Preliminary Review

Proposal: Complete

Additional preliminary comments below

- Satisfies U of S Curricular Requirements
- Consistent with College Goals/Mission

Dean's Signature/Date

[Signature]

2-6-09

CAS

CPS

SOM

GRAD

DHC

Preliminary FSCC Disposition:

- Committee recommends approval (*new program proposals require a Recommendation from the full Senate*)
- Proposal will require minimal review: Anticipated FS Meeting Date: _____
- Proposal will require significant review: Anticipated FS Meeting Date: _____

FSCC Chair Signature/Date _____

Issues: _____

Additional Signatures

Department	Signature	Date

New Course

Course Title: Pathophysiology

Course Number: BIOL 454 **Date Of Initial Offering:** Spring 2009
Semester year

Rationale for Course level

This course is designed for advanced Biology majors seeking to explore physiologic principles of body function more fully. This course will use case studies to investigate function and dysfunction. The degree of integration of chemistry, biology and physics combined with the required critical thinking and problem solving requires a high level of independent thought by the student. We request a 400 level designation.

Credit Hours: 3 **Format:** lecture lab other: _____

Frequency: annual each semester alternate years

Prerequisites: BIOL 245

Rationale for pre-requisites (if pre-requisites are listed)

Converting observed symptoms to physiologic processes will require a general understanding of physiologic systems. A general understanding of physiologic systems will be necessary to integrate the symptomatic, molecular and pharmacological information.

Catalog Description (50 word maximum)

Pathophysiology considers how disease impacts the normal workings of the human body. This course will consider case studies from all major systems of the body and allow students to investigate the molecular basis for dysfunction. Pharmacological remedies will be explored providing a mechanism for the return of homeostasis. 3 Hours lecture. Spring.

Similar Courses being offered at the University

None to our knowledge.

Discuss Extent of overlap with existing courses

Although the normal physiology discussed within this course has elements common with a number of "Physiology" courses, the pathology part of the physiology, the case study approach to critical thinking and the pharmacological actions of drugs is unique to this course.

Special Resources Required (e.g. library, equipment, materials/facilities)

Students will be expected to utilize library resources in acquiring information specific to diseases. Current library resources are adequate.

Characteristics (check any/all that apply):

Major: Required Elective
GE : submitted to CCC will be submitted to CCC _____ Area Free only
date

<input type="checkbox"/> Humanities (CA)	<input type="checkbox"/> S/B Sciences (S)	<input type="checkbox"/> Cultural Diversity (D)
<input type="checkbox"/> Humanities (CH)	<input type="checkbox"/> Natural Science (E)	<input type="checkbox"/> Writing Intensive(W)
<input type="checkbox"/> Humanities (CL)	<input type="checkbox"/> Theology/Phil (P)	
<input type="checkbox"/> Humanities (CF)	<input type="checkbox"/> Quantitative Reasoning (Q)	

Interdisciplinary: YES NO **Team Teaching:** YES NO

Exclusively For Special Programs/Concentrations: NO YES (Name) _____

Home College: XCAS PCPS KSOM GRAD

Required Attachments:

- Syllabus with student learning objectives, assessment/evaluation mechanisms, and outline of topics
- Description of, or example of, readings/papers/projects/examinations
- Assessment/evaluation based course improvement mechanisms

Pathophysiology

(Biol 384 Special Topics — Spring 2009)

= Biol 454,
if Approved.

Instructors:

Michael A. Hardisky, Ph. D.
Professor of Biology
Loyola 207
Hardiskym1@Scranton.edu

Anthony Gillott, M. D.
General Surgery
Loyola 102
Gillotta2@Scranton.edu

Donald Kachline, D. O.
Internal Medicine
Loyola 102
Kachlined2@Scranton.edu

Course Description

Pathophysiology focuses on how disease or disruption of the normal physiological state affects the normal workings of the body. Understanding the functions of the normal working state is essential to evaluating alterations in function. This represents a study of function and dysfunction, coupled in a way to enhance understanding of the underlying physiological processes. We have chosen an approach that utilizes case studies to illustrate physiological mechanisms. We will engage students in discussions that will encourage them to think about mechanisms and relationships. Our problem solving approach will foster critical thinking and reinforce basic physiologic principles.

Textbooks

Costanzo, L. S. 2007. Physiology. 4th Ed., Lippincott Williams and Wilkins, Baltimore, MD.
ISBN -13:978-0-7817-7311-9

Rosenfeld, G. C. and D. S. Loose. 2007. Pharmacology. 4th Ed., Lippincott Williams and Wilkins, Baltimore, MD. ISBN – 13: 978-0-7817-8074-2

Student Learning Objectives

Upon completion of this course, students will be able to:

1. Relate changes in normal body function to particular changes in cell physiology.

2. Understand the molecular basis for changes in the normal physiology.
3. Recognize the interdependence of systems within the body in regulating internal homeostasis.
4. Understand the molecular basis for medication impacts upon body cells.
5. Identify how disease alters normal physiologic processes.
6. Identify the likely cellular response to a particular change in the environment.
7. Recognize the underlying physical principles driving molecular interactions.
8. Be able to interpret data represented in figure and table form.

Evaluation

Grades will be based on a mid-term and final exam weighted equally. Exams will be written to include objective and essay questions. Exams will be designed to test your understanding of the concepts presented. Essay questions will present case information for you to evaluate. Some objective questions testing general knowledge of system function will also be included. You will not miss a regularly scheduled exam. This course requires participation in discussions by students. 10% of your semester grade will be our subject assessment of your contribution to discussions.

Grading scale will conform to the University system.

100-94 = A	86-84 = B	76-73 = C
93-90 = A-	83-80 = B-	72-70 = C-
89-87 = B+	79-77 = C+	66-69 = D+
		60-65 = D

We expect you to be present for lectures. All material will be presented in class. Exam questions will be modeled after discussion of the lecture material and the assigned readings. All is fair game so, yes, you need to read everything! If unexcused absences exceed 10% of the total lectures, you will have the option of withdrawing from the class. Most lectures will include experiential information, material that is not available in print. Also, borderline grade decisions at the end of the semester can be influenced by regular attendance.

We occasionally hear rumors of ACADEMIC DISHONESTY. DON'T EVEN CONSIDER IT, BECAUSE WE WILL FAIL YOU IN A HEARTBEAT!!! Be advised that we will exercise the most extreme punishment possible upon the culprit. Final punishment will subject the culprit to the Departmental Academic Dishonesty Policy.

If we encounter inclement weather during the semester and the roads are hazardous, STAY HOME! Regardless of whether or not the University is open, we expect you to exercise good judgment. We, in turn, will not hold your absence against you.

We expect you to spend substantial time outside the classroom reading the textbook information and researching each disease. We strongly suggest that you read material for a particular topic before coming to class.

In order to receive appropriate accommodations, students with disabilities must register with the Center for Teaching and Learning Excellence and provide relevant documentation. Students should contact Mary Ellen Pichiarello (Extension 4039) or Jim Muniz (Extension 4218), 5th floor, St. Thomas Hall, for an appointment.

Tentative Lecture Schedule

Week	Topic	Chapter, section
1	<u>Cell Membrane Physiology</u> Gastric Secretion Cases 1, 30	1 - 1, 2, 3: 6 - 4
2	<u>Autonomic Nervous System</u> Function of Respiratory System Cases 5, 7	2 - 1: 4 - 1, 2, 9
3	<u>O₂, CO₂ Transport</u> Control of Breathing Cases 19, 20	4 - 3, 4, 5, 8
4	<u>C V Hemodynamics</u> Regulation of Blood Pressure Cases 8, 13	3 - 2, 6
5	<u>Electrocardiography</u> Mechanical Activity of Heart Cases 10, 11	3 - 3, 4, 5
6	<u>Regional Blood Flow</u> Physio Adaptation to Shock Case 14, 51	3 - 7, 8, 9
7	<u>Smooth Muscle</u> Lower Motor Neuron Cases 6, 46	1 - 7, 8: 2 - 3
MID TERM		
8	<u>Gastrointestinal Regulation</u> Gastro Digestion and Absorption Cases 28, 31	6 - 2, 5
9	<u>Renal Blood Flow</u> Regulation of Body Fluids Cases 21, 24	5 - 1, 2, 3, 7
10	<u>Regulation of Na</u> Acid Base Cases 25, 27	5 - 4, 5, 8, 9
11	<u>Thyroid Physiology</u> Calcium Metabolism Cases 34, 38	7 - 4, 7
12	<u>Pancreatic Islets</u> Humoral/Regulation Fuel Cases 36, 37	7 - 6
13	<u>Cerebellar</u> Learning and Memory Cases 48, 49	2 - 4, 5
14	<u>Physiologic Signals</u> Body Temperature Cases 2, 50	7 - 1, 2: 2-6

Description of, or example of, readings/papers/projects/examinations

Readings

Reading material will come from assigned textbooks. These texts are concise; therefore, students requiring additional explanation are expected to refer to General Physiology textbooks for more in depth explanation of processes. Once case studies are assigned, students must search the literature for information concerning that disease. Students will submit references of the articles that they found to be particularly useful each week.

Examinations

Examinations will include some objective style questions designed to test critical knowledge of the systems being investigated. The majority of the examination will be cases from which students will need to assess the symptoms and hypothesize the aberrant processes that would lead to that condition. They will then be expected to suggest remedies to correct the physiology in order to restore normal function. The questions will be open ended, allowing student significant latitude for interpretation. This type of testing will promote critical thinking and force students to integrate information from multiple systems. It is our desire to foster critical thinking skills in students and to develop a process of objectively reviewing information and synthesizing a hypothesis regarding malfunction. We will emphasize the molecular basis of processes.

Classes

We have listed 2 cases for each system discussed. The first lecture will include a short explanation of the salient processes necessary for understanding the cases. Then the actual cases will be presented. Between this class period and the next, students will be expected to research the diseases presented. The second class period will be a discussion of the disease, the mechanisms of malfunction and the options available for correction. We will discuss the pharmacology of specific drugs capable of alleviating the observed alteration in normal physiology. We use the pharmacology mostly as a means to illustrate alternate molecular actions necessary to restore homeostasis.