

Course Change Request

Indiana University

IUPUI

Campus

Check Appropriate Boxes: Undergraduate credit [] Graduate credit [X] Professional credit []

1. School/Division Medicine/Graduate
2. Academic Subject Code Grad-6 3. Current Course Number G735 4. Current Credit Hours 1
5. Current Title Cardiovascular, renal & respiratory function in health & disease
6. Effective Semester/Year for changes listed below: Spring 2010 7. Instructor: Basile/Tune

Type of Change Requested (Check appropriate boxes and indicate changes)

8. Change course number to: (must be cleared with University Enrollment Services)
9. Current course title:
Change to:
Recommended abbreviation (optional)

10. Current credit hours fixed at: 1 or variable from: to
Change to credit hours fixed at: 2 or variable from: to

11. Current lecture contact hours fixed at: or variable from: to
Change to lecture contact hours fixed at: or variable from: to

12. Current non-lecture contact hours fixed at: or variable from: to
Change to non-lecture contact hours fixed at: or variable from: to

13. Is this course currently graded with S-F (only) grades? Yes No
Change to S-F (only) grading? Yes No

14. Does this course presently have variable title approval? Yes No
Is variable title approval being requested? Yes No

15. Is this course being discontinued? For all campuses or for this campus only

16. Current course description

Change course description to (not to exceed 50 words)

17. Justification for change need to increase depth of students knowledge in this area

18. Are the necessary reading materials currently available in the appropriate library?

19. A copy of every new course proposal must be submitted to departments, schools, or divisions in which there may be overlap of this course with existing courses or areas of strong concern, with instructions that they send comments directly to the originating Curriculum Committee. Please append a list of departments, schools, or divisions thus consulted.

Submitted by: Michael Storch Date 8/25/09
Department Chairman/Division Director

Approved by: A. J. Rhode Date 8/31/09
Dean

Dean of Graduate School (when required) Date

Chancellor/Vice-President Date

University Enrollment Services Date

After School/Division approval, forward the last copy (without attachments) to University Enrollment Services for initial processing, and the remaining four copies and attachments to the Campus Chancellor or Vice-President.

Change Course Request

- I. **Title:** Cardiovascular, renal and respiratory function in health and disease.
Course number: G735
Instructors: David Basile, Johnathan Tune
Prerequisites: G715, G717

II. COURSE DESCRIPTION AND RATIONALE

One of a group of two introductory courses designed to provide a foundation for integrative systems biology. This is a 2-credit course intended for basic science doctoral students in the School of Medicine programs or other interested graduate or GCND students. The course will advance fundamental elements of cardiovascular function including basic hemodynamics, cardiac function, basic respiratory function including ventilatory mechanics, gas exchange and basic kidney function, including control of excretion and regulation of body fluid dynamics. An overall emphasis will be placed on integrative function of the 3 systems on homeostasis.

Note that a ≤50 word version of the description will also be needed for the course request cover sheet and the bulletin.

The course will advance fundamental elements of cardiovascular function including basic hemodynamics, cardiac function, basic respiratory function including ventilatory mechanics, gas exchange and basic kidney function, including control of excretion and regulation of body fluid dynamics. An emphasis will be placed on integrative function of different organ systems.

III. EDUCATIONAL OBJECTIVES

- Know the structure and organization of the cardiovascular system
- Understand basic heart properties including mechanical and electrical control of cardiac contractility
- Understand basic hemodynamic concepts and understand the influence of control systems on the regulation of blood flow.
- To understand basic lung structure and ventilatory mechanics.
- To understand basic respiratory processes including exchange and transport of gases.
- To understand mechanism of ventilatory control mechanisms required to meet the needs of the organism.
- To understand basic renal structure and function including filtration and re-absorption.
- To understand influence of renal processing in maintaining body fluid homeostasis and blood pressure regulation and acid-base control

IV. COURSE CONTENT:

Cardiovascular Block

- Topic 1- Organization of the cardiovascular system
- Topic 2 Cellular Cardiac Electrophysiology In
- Topic 3 Cellular Cardiac Electrophysiology II
- Topic 4 EKG I
- Topic 5 EKG II
- Topic 6 Cardiac Cycle
- Topic 7 Cardiac Mechanics I
- Topic 8 Cardiac Mechanics II
- Topic 9 Arterial blood pressure
- Topic 10 Microvascular regulation
- Topic 11 Transcapillary exchange
- Topic 12 Neural regulation of the cardiovascular system.
- Topic 13 Special Circulations
- Topic 14 Diabetes and Hypertension

Exam 1

Respiratory Block

- Topic 1 Respiratory physiology introduction
- Topic 2 Pulmonary mechanics.
- Topic 3 Pulmonary mechanics II
- Topic 4 Diffusion; Blood flow through the lungs.
- Topic 5; Ventilation/perfusion ratio
- Topic 6 Transport of O₂ and CO₂
- Topic 7 control of breathing

Exam II

Renal Block

- Topic 1. Renal physiology introduction
- Topic 2 Renal blood flow and glomerular filtration
- Topic 3; The glomerulus- structure and function
- Topic 4: Tubular reabsorption I
- Topic 5: Tubular reabsorption II
- Topic 6: Water balance
- Topic 7 Production of dilute or concentrated urine
- Topic 8 Integrative control of Sodium balance
- Topic 9 Potassium and Acid Base Balance

FINAL EXAM

V. REQUIRED AND RECOMMENDED TEXTS:

Required: Boron and Boulpeap; Medical Physiology, Saunders, 2003

VI. EVALUATION AND GRADING:

Student grades in the course will be determined by three examinations; each covering approximately one-third of the material with no comprehensive final. Exams will be a combination of short answer/fill in the blank questions and short essay questions. Each exam will contribute one-third of the final grade. Objectives covered in the lectures will be the source of all examination questions.

Grading Scale:

Letter grade	Percentage
A	93-100
A-	90-92.99
B+	87-89.99
B	75-86.99
C	60-74.99
D	50-59.99
F	<50

Note that grades of C and lower are not passing grades in graduate level courses.

VII. BIBLIOGRAPHY:

Representative sample of the selected readings related to the course:

1. Mohrman, D.E. and Heller, L.J. Cardiovascular Physiology. Lange Medical Books/McGraw-Hill, 5th edition. 2003
2. West, J.B. Respiratory Physiology, The essentials. Lippincott, Williams and Wilkins, 7th edition. 2005.
3. Levitzky, M. G. Pulmonary Physiology. McGraw-Hill, 6th edition. 2003
4. Cowley, A.W. Jr. and Roman, R.J. The role of the kidney in hypertension. JAMA 275, 1581-89, 1996.
5. Eaton, D.C. and Pooler, J.P. Vander's Renal Physiology. Lange Medical Books/McGraw-Hill, 5th edition. 2004
6. Cowley, A.W. and Guyton, A.C., Baroreflex effects on transient and steady state hemodynamics of salt loading hypertension in dogs.
7. Gluck, S. Acid Sensing renal epithelial cells. J. Clin Investigation, 114: 1696-99, 2004

VIII. CHEATING AND PLAGIARISM:

Students are instructed to make themselves aware of University regulations concerning plagiarism, the maintenance of academic honesty and the definitions of unacceptable behavior and cheating. Academic misconduct of any sort will not be tolerated and will be dealt with as outlined in the ***IU/IUPUI Code of Student Rights, Responsibilities, and Conduct***, which can be viewed at:

http://www.life.iupui.edu/help/docs/Part_3all.html

Examples of misconduct include but are not limited to:

1. Cheating

A student must not use or attempt to use unauthorized assistance, materials, information, or study aids in any academic exercise.

2. Fabrication

A student must not falsify or invent any information or data in an academic exercise including, but not limited to, records or reports, laboratory results, and citations to the sources of information.

3. Plagiarism

A student must not adopt or reproduce ideas, words, or statements of another person without appropriate acknowledgment. A student must give credit to the originality of others and acknowledge an indebtedness whenever he or she does any of the following:

- a. Quotes another person's actual words, either oral or written
- b. Paraphrases another person's words, either oral or written
- c. Uses another person's idea, opinion, or theory; or
- d. Borrows facts, statistics, or other illustrative material, unless the information is common knowledge.

4. Interference

- a. A student must not steal, change, destroy, or impede another student's work.
- b. A student must not give or offer a bribe, promise favors, or make threats with the intention of affecting a grade or the evaluation of academic performance.

Potential consequences for academic misconduct:

If the instructor has information that one of his/her students committed an act of academic misconduct, the faculty member will hold an informal conference with the student. The conference will be prompt and private. If the faculty member concludes that the student is responsible for the misconduct, then the faculty member will impose an appropriate academic sanction (i.e., lower or failing grade on the assignment, assessing a lower or failing grade for the course).

IX. AMERICANS WITH DISABILITIES ACT:

If you need any special accommodations due to a disability, please contact Adaptive Educational Services at (317)-274-3241. The office is located in CA 001E.