Current Chair: Brian Morgan

Request for Undergraduate Course Addition

Prepare ***one*** paper copy with all signatures and forward to Bernice Bullock in the Faculty Senate office. Additionally, immediately following attainment of the College Curriculum Chair signature, send ***one*** identical ELECTRONIC COPY sans signatures in PDF format with all supporting documentation converted to PDF format by email to Bernice Bullock in the Faculty Senate office.

College: COEHS Department/Division: ESSR Alpha Designator/Number: ESS 445 Graded: (•) CR/NC: ( )

Contact Person: Eric Arnold, Ph.D., and Gina Sobrero Evans, Ph.D. Phone: 696-2412/2924

NEW COURSE DATA:

New Course Title: Respiratory Exercise Physiology

Alpha Designator/Number: ESS 445

Title Abbreviation: Respir Exercise Phys

(Limit of 25 characters and spaces.)

Course Description (Limit of 30 words): Detailed study of the anatomy and physiology of the respiratory system and its response to acute and chronic exercise.

Co-requisite(s): None First Term to be Offered: Fall 2009

Prerequisite(s): ESS 444 Credit Hours: 3

Course(s) being deleted in place of this addition *(must submit course deletion form)*: None

CHECKLIST/REQUIREMENTS

1. After completing this two page form in its entirety, include a complete syllabus and route through the departments/committees below.
2. A complete syllabus can be from when this course was previously taught as a special topics course or by creating a new, intended syllabus to use with the course. The sample syllabus must at a minimum address the following areas:
    a. COURSE OBJECTIVES
    b. COURSE OUTLINE
    c. SAMPLE TEXT(S) WITH AUTHOR(S) AND PUBLICATION DATE
    d. INSTRUCTIONAL METHODS (Lecture, Lab, Internship, Practicum, etc...)
    e. EVALUATION METHODS (Unit/Chapter, Midterm, Final, Projects, etc...)
3. If this course will replace a course that is required by another department, please send a memo to the affected department and include it with this packet, as well as, the response received from the affected department.
4. If this course will be similar in title or content to another department's courses, please send a memo to the affected department and include it with this packet, as well as, the response received from the affected department.
5. Send a copy of this completed form to the Marshall University Catalog Editor.

SIGNATURES: (If disapproved at any level, do not sign. Return to previous signer.)

Department Chair/Division Head: _____	Date: _____
Registrar: _____	Date: _____
Librarian: _____	Date: _____
College Dean: _____	Date: _____
College Curriculum Chair: _____	Date: _____
University Curriculum Committee Chair: _____	Date: _____
Faculty Senate Chair: _____	Date: _____
VP Academic Affairs/VP Health Science _____	Date: _____

Request for Undergraduate Course Addition - Page 2

Additional Information Required for Undergraduate Course Addition

College: COEHS Department/Division: ESSR Alpha Designator/Number: ESS 445

Provide complete information regarding the new course addition for each topic listed below. Before routing this form, a complete syllabus also must be attached addressing the items listed on the first page of this form.

1. Identify by name the faculty in your department/division who may teach this course.

Eric Arnold, Ph.D., and Gina Sobrero Evans, Ph.D.

2. If your department/division requires additional faculty, equipment, or specialized materials, attach an estimation of money and time required to secure these items.

N/A

3. If this course will be required by a department/division other than your own, identify by name.

N/A

4. If there are any agreements required to provide clinical experience, attach details and signed agreements.

N/A

5. If library resources are deemed inadequate, attach a plan to overcome this. The plan must include the cost as stated by the Dean of Libraries.

N/A

6. EQUIPMENT/SUPPLIES NEEDED TO TEACH THIS COURSE (this does not refer to additional equipment/supplies that need to be purchased; simply what materials are needed in order to teach this course successfully.):

Metabolic Cart
Treadmill
Pulse Oximetry
Stop watch
Spirometer

7. ADDITIONAL GRADUATE REQUIREMENTS IF LISTED AS AN UNDERGRADUATE OR GRADUATE COURSE (please also submit to Graduate Council course addition for 5xx graduate component):

Please see attached sheet.

8. PROVIDE A COMPLETE BIBLIOGRAPHY INCLUDING ALL PUBLICATIONS RESEARCHED TO CREATE THIS COURSE AND WHAT PUBLICATIONS MAY BE BENEFICIAL TO STUDENTS TAKING THIS COURSE (separate page).

COURSE SYLLABUS
ESS 445
RESPIRATORY EXERCISE PHYSIOLOGY

MARSHALL UNIVERSITY
DIVISION OF EXERCISE SCIENCE, SPORT, AND RECREATION

Fall 2009

WHEN: TBA

LOCATION: TBA

TIME: TBA

INSTRUCTOR(S): Eric Arnold, Ph.D./Gina Sobrero Evans, Ph.D., HFI®

OFFICE: GH 108/ (GH 1) Exercise Physiology Laboratory

PHONE: 304-696-2412/2924

EMAIL: arnoldc@marshall.edu/evansg@marshall.edu

OFFICE HOURS: TBA

PREREQUISITE: ESS 344 Cardiovascular Exercise Physiology

COURSE DESCRIPTION:

Detailed study of the anatomy and physiology of the respiratory system and its response to acute and chronic exercise.

REQUIRED TEXTBOOKS:

Pulmonary Pathophysiology: The essentials (7th Ed.). John B. West. Wolters Kluwer/Lipincott Williams & Wilkins, 2008.

Respiratory Physiology: The essentials (8rd Ed.). John B. West. Williams & Wilkins, 2008.

PURPOSE OF THE COURSE

The purpose of this course is to provide detailed instruction regarding the acute and chronic effects of exercise on the respiratory system. In addition, students will study respiratory pathology and basic related pharmacology.

COURSE OBJECTIVES

Students should be able to:

1. Name the components of the oxygen transport system, describe the function of each, and understand the integrative interactions of the components
2. Understand the symbols and nomenclature in respiratory physiology
3. Discuss the architecture of the lung and its vital functions
4. Discuss why the pulmonary alveoli capillary membrane interface is considered ideal for gas exchange
5. Understand the physiologic, mechanical, and airflow properties of the respiratory system
6. Identify physical dimensions and functional capacity of lungs and relate them to overall respiratory function
7. Understand the regulation of respiration at rest and during exercise to match energy metabolism
8. Explain the process of gas exchange in the lungs and peripheral tissues at rest and during exercise
9. Explain how respiratory gasses are carried in the blood
10. Explain the phenomenon of exercise-induced arterial hypoxemia observed in elite endurance athletes
11. Discuss the respiratory responses and adaptations to altitude training
12. Ventilation-perfusion relationships
13. O_2 and CO_2 transport in blood
14. Ventilatory and blood-gas responses to exercise
15. Integrative control of ventilation
16. Ventilation and acid-base balance during exercise
17. Exercise response in persons with chronic pulmonary diseases

EXPECTATIONS and ATTENDANCE

Class attendance is extremely important and you are expected to attend **all** classes. Qualified **excused** absences will be considered to be **an illness**, **family crisis** or **approved institutional activity**. This **does not** include routine medical appointments (unless of special nature and only with written notification and approval). Classes that are missed to count for an excused absence must be verified, in writing with the instructor ahead of time in regard to an institutional activity. **Absences** will be counted as unexcused unless the student provides written documentation and verification within **one week** of the class missed. **A STUDENT HAVING EXCESSIVE UNEXCUSED ABSENCES WILL BE ADVISED TO DROP THE COURSE.** Students are required to make-up missed exams within **one week** of returning to class at a time mutually agreed upon with the instructor except with scheduled institutional activities which will be discussed **AHEAD** of time for a make-up schedule. The **make-up** exam and or quiz will be **different** than the **missed** exam and or quiz.

POLICY ON ACADEMIC HONESTY

The University assumes as a basic and minimum standard conduct in academic matters that students are honest and they submit for credit only the products of their own efforts. All dishonest work will be rejected as the basis for academic credit. This includes work done in unauthorized collaboration with another person, falsification, or plagiarism (for instance, misrepresented material, fabricated information, false or misleading citation sources, falsification of the results of experiments or computer data). Any of the above violations will result in a final grade of **F** being received.

OTHER PERTINENT INFORMATION

Class begins at **TBA;** therefore, it is important to be on time. If you are going to be late, **call** and **inform** the instructor. If you have to leave class early, inform the instructor (by phone or email) prior to class and try and sit close to the exit to minimize disruption to your fellow classmates. Also, please keep **pagers, cell phones, beepers, personal digital assistants, satellite messaging systems, laptops or other audible communicators** turned off during lecture or on vibration mode. Show **respect** toward your classmates and **please don't talk during lecture**. However, questions are welcomed during lecture.

GRADING POLICY

Each test or quiz is given in specific points. Assignments will be made during the semester. At the end of the semester, the total points you have received will determine your grade based upon the following:

GRADING

Exam 1	**100 points**
Exam 2	**100 points**
Exam 3	**100 points**
Comprehensive Exam	**200 points**
Total Points	**500 points**

GRADE	PERCENTAGE	POINTS
A	**89.5-100**	**447.99-500**
B	**79.5-89**	**397.99-500**
C	**69.5-79**	**347.99-500**
D	**59.5-69**	**297.99-500**
F	**< 59.5**	**< 297.99**

TESTS

Each **test** will be comprised of **multiple choice, fill-in the blank, and short essay** type questions. The total number of questions for **tests 1-3** will be designated at **50-60 multiple choice/fill in the blank, and possibly 1-2 short essay questions**. Students will have the entire class time to complete the exam. The **comprehensive exam** will have between **70 and 100 multiple choice/fill in the blank** questions.

STATEMENT CONCERNING LEARNING DISABLED STUDENTS

If you have special needs regarding testing or notetaking please notify the instructor at the beginning of the semester. You will be asked to follow up with written documentation from the appropriate agency. Appropriate accommodations will be- made on an individual basis. As a general rule please plan on taking exams on the day and time as posted in the syllabus.

RESPIRATORY EXERCISE PHYSIOLOGY

Course Schedule

Please note that this is considered a basic course schedule outline that will be followed as closely as possible; however, deviations from the designated schedule may occur. Each student is responsible for keeping up with the class schedule, scheduled changes, and requirements including assigned chapter readings.

Date	Topic	Chapter	Assignment/Test
Week 1	Syllabus Review Symbols & nomenclature in Respiratory Physiology Structure & Function of the Respiratory System	Supplementary Notes: Review & Research Paper	
Week 2	Structure & Function of the Respiratory System Ventilation Diffusion	Chapter 1-3 Supplementary Notes: Review & Research Paper	Respiratory Physiology pp. 1-31
Week 3	Blood Flow & Metabolism Acid-Base Physiology During Exercise	Chapter 4 Supplementary Notes: Review & Research Paper	Respiratory Physiology pp. 31-50
Week 4	Ventilation Perfusion Relationships at Rest and During Exercise	Chapter 5 Supplementary Notes: Review & Research Paper	Respiratory Physiology pp. 51-70
Week 5	Gas Transport to the Periphery @ Rest and During Exercise	Chapter 6 Supplementary Notes: Review & Research Paper	**Exam 1** **Chapters 1-5** **Respiratory Physiology** **Supplementary Notes: Review & Research Paper** Respiratory Physiology pp. 71-88
Week 6	Mechanics of Breathing	Chapter 7 Supplementary Notes: Review & Research Paper	Respiratory Physiology pp. 89-116

Week 7	Control of Ventilation at Rest and During Exercise	Chapter 8 Supplementary Notes: Review & Research Paper	Respiratory Physiology pp. 117-132
Week 8	Respiratory System Under Stress Altitude Training & Exercise Performance	Chapter 9 Supplementary Notes: Review & Research Paper	Respiratory Physiology pp. 133-150
Week 9	Ventilatory Threshold & VO_{2max} McCardle's Patients Pulmonary Limitations to Exercise Performance EIAH	Supplementary Notes: Review & Research Paper	**Exam 2** **Supplemental Notes: Review & Research Chapters 6-9 Respiratory Physiology**
Week 10	Tests of Pulmonary Function	Chapter 10 Respiratory Physiology Chapter 1-3 Pathophysiology Supplementary Notes: Review & Research Paper	Respiratory Physiology pp. 151-165 Pathophysiology pp. 3-48
Week 11	Obstructive Diseases Restrictive Diseases Response to Exercise	Chapters 4 & 5 Supplementary Notes: Review & Research Paper	Pathophysiology Pp. 49-98
Week 12	Vascular Diseases Response to Exercise	Chapter 6 Supplementary Notes: Review & Research Paper	Pathophysiology Pp. 99-120
Week 13	Environmental and Other Diseases Response to Exercise	Chapter 7	Pathophysiology Pp. 121-140

Week 14	Respiratory Failure Oxygen Therapy Response to Exercise	Chapters 8 & 9 Supplementary Notes: Review & Research Paper	Pathophysiology pp. 141-170 **Exam 3** **Supplementary Materials** **Chapter 10** **Respiratory Physiology** **Chapters 1-7** **Pathophysiology**
Week 15	Respiratory Failure Oxygen Therapy, cont. Mechanical Ventilation Response to Exercise	Chapter 10 Supplementary Notes: Review & Research Paper	Pathophysiology pp. 170-184
Week 16	**FINAL EXAM**		**COMPREHENSIVE**

References: Respiratory Exercise Physiology

American College of Sports Medicine. (2006). *ACSM's advanced exercise physiology*. Philadelphia: Lippincott Williams & Wilkins.

American College of Sports Medicine. (2006). *ACSM's guidelines for exercise testing and prescription* (7th ed.). Philadelphia: Lippincott Williams & Wilkins.

American College of Sports Medicine. (2006). *ACSM's resource manual for guidelines for exercise testing and prescription* (5th ed.). Philadelphia: Lippincott Williams & Wilkins.

Martin, D. E., & Youtsey, J. W. (1988). *Respiratory anatomy & physiology*. St. Louis, MO: The C. V. Mosby Company

McArdle, W. D., Katch, F. I., & Katch, V. L. (Eds.). (2006). *Exercise physiology: Energy, nutrition, and human performance* (6th ed.). Philadelphia: Lippincott Williams & Wilkins.

O'Toole, M. T. (Ed.). (1997). *Miller-Keane encyclopedia & dictionary of medicine, nursing, & allied health* (6th ed.). Philadelphia: W. B. Saunders Company.

Powers, S. K., & Howley, E. T. (Eds.). (2009). *Exercise physiology: Theory and application to fitness and performance.* Boston, MA: McGraw-Hill Higher Education.

Skinner, J. S. (Ed.). (2005). *Exercise testing and exercise prescription for special cases: Theoretical basis and clinical application* (3rd ed.). Baltimore: Lippincott Williams & Wilkins.

West, J. B. (2008). *Pulmonary pathophysiology: The essentials* (7th Ed.). Baltimore: Lippincott Williams & Wilkins.

West, J. B. (2008). *Respiratory physiology: The essentials* (8th Ed.). Baltimore: Lippincott Williams & Wilkins.