RHODE ISLAND COLLEGE
FEINSTEIN SCHOOL OF EDUCATION AND HUMAN DEVELOPMENT
DEPARTMENT OF HEALTH AND PHYSICAL EDUCATION

COURSE NUMBER:	PED 420-01
	FALL 2010 Monday and Wednesday 2-3:50 pm. Murray Center 202
COURSE TITLE:	Physiological Aspects of Exercise
INSTRUCTOR:	Dr. Robin Kirkwood Auld
OFFICE:	Murray Center 140
OFFICE HOURS:	M & W 11-12 noon; T. 1-2 pm; Th. 4-5 pm; and by appointment
TELEPHONE:	401 456-8880 e-mail: rauld@ric.edu

A. COURSE INFORMATION

Prerequisites: BIOL 335 (C or better) and Admission to the FSEHD Health and Physical Education Teacher Preparation Program

Required Text:

McArdle, W.D., Katch, F.I., & Katch, V.L. (2006). *Essentials of exercise physiology*. 3rd ed. Philadelphia, PA: Lippincott, Williams, & Wilkins.

Class Format:
Throughout the semester, class time will incorporate lectures, discussions, student presentations, and laboratory sessions in the gymnasium or motor lab. Students are expected to participate in all of the above activities, complete all take home and laboratory assignments and dress to participate (comfortable gymnasium clothing and sneakers) for all laboratory sessions. Failure to do so will affect the participation portion of the grade.

Class attendance is vital. Two absences will be allowed. All subsequent absences will affect the final grade (5 points per absence will be deducted). Two late arrivals or early departures will count as one absence. Students are responsible for all announcements, assignments and material covered in class. If absent, students should check with peers about assignments before the next class in order to be prepared.

B. COURSE DESCRIPTION

Catalog Description:
Emphasis is on the physiological response of the human muscular and cardiorespiratory systems to the acute and chronic effects of physical activity. Lecture and laboratory. 3 credit, offered Fall and Spring semester.

Extended Description:
This course provides students with basic information about the physiological responses and adaptations to exercise in regard to human performance limitations, training effects, and health-related benefits.

Relationship to Professional Programs:
Students acquire basic content information essential for planning and implementing physical fitness programs for students in physical education classes. This information also enhances the students' ability to incorporate fitness concepts into all lesson plans and teach these concepts to students of all ages.

Relationship to Conceptual Framework and FSEHD:
This course provides students with a strong, scientific foundation related to physical activity and its effects on the human body. Students also acquire knowledge of the development of various organic systems of the human body. Using this knowledge base, students reflect on their knowledge of pedagogy and physical and mental development. The students will plan and design a developmentally appropriate lesson to teach these scientific concepts to children through physical activity. Students also will acquire knowledge of various techniques and methods to assess physical fitness and how to select valid methods of measurement. Various assessments are conducted in laboratory sessions and students are asked to reflect on the results of those assessments in class. Students are also introduced to terminology related to physical activity and health, and acquire experience in using technology and equipment related to exercise, health, and physical education.

C. COURSE OUTCOMES

Students will:

1. understand the differences among the three energy systems (C.F. Knowledge; RIPTS 1, 2; NASPE 1, 2)
2. explain factors that determine which energy system(s) is used to produce energy (C.F. Knowledge; RIPTS 1, 2, 5; NASPE 1)
3. calculate relative and absolute VO_2, energy expenditure and METS (C.F. Knowledge; RIPTS 2, 5, 6, 7; NASPE 1)
4. understand the differences between fast twitch and slow twitch muscle fibers (C.F. Knowledge, Diversity; RIPTS 1, 2, 5; NASPE 1)
5. explain factors that affect VO_2 max (C.F. Knowledge, Diversity; RIPTS 1, 2, 5; NASPE 1)
6. understand factors that affect the measurement of the capacity of the aerobic and anaerobic energy systems and how to select valid methods of measuring those systems (C.F. Knowledge, Assessment; RIPTS 1, 2, 5, 6; NASPE 1, 3, 5)
7. explain the mechanics of ventilation and the factors that control ventilation (C.F. Knowledge; RIPTS 1, 2, 5; NASPE 1)
8. explain how to modify exercise for individuals with Exercise-Induced Asthma (C.F. Knowledge; RIPTS 1, 2, 3, 4, 5, 7; NASPE 1, 3, 4)
9. understand how gases are transported and exchanged in the body (C.F. Knowledge; RIPTS 1, 2, 5; NASPE 1)
10. explain factors that affect cardiac output, blood pressure, and heart rate (C.F. Knowledge, Diversity; RIPTS 1, 2, 5; NASPE 1)
11. explain the theories about muscle soreness and how to prevent it (C.F. Knowledge, RIPTS 1, 2, 5; NASPE 1)
12. design exercise training programs to improve health, VO_2max, and muscular strength and endurance (C.F. Knowledge; RIPTS 2, 3, 5, 6, 7; NASPE 1, 2, 3)
13. explain physiological adaptations to aerobic and anaerobic training (C.F. Knowledge, Professionalism; RIPTS 1, 2, 5; NASPE 1)
14. explain acute physiological responses to exercise (C.F. Knowledge; RIPTS 1, 2, 5; NASPE 1)
15. interpret measurements of body composition and calculate ideal body weight (C.F. Knowledge; RIPTS 2, 5, 6, 7; NASPE 1, 5)
16. explain the physiological effects of aging from childhood and adolescence through mature adulthood (C.F. Knowledge, Professionalism; RIPTS 1, 2, 3, 4, 5; NASPE 1)
17. explain how gender-related differences affect the ability to perform physical activities (C.F. Knowledge, Diversity; RIPTS 1, 2, 3, 4, 5; NASPE 1)
18. explain how altitude changes affect the body and exercise performance (C.F. Knowledge; RIPTS 1, 2, 5; NASPE 1)
19. explain how various ergogenic aids affect exercise performance (C.F. Knowledge; RIPTS 1, 2, 5; NASPE 1)
20. gain experience using heart rate monitors, blood pressure equipment, and pedometers (C.F. Knowledge; RIPTS 1, 2, 3, 4, 5, 6, 7; NASPE 1, 2, 4)

D. TENTATIVE COURSE SCHEDULE, TOPICS, AND ASSIGNMENTS

WEEK	TOPICS	ASSIGNMENTS
1 & 2	Overview/ Assignments Research Discussion Nutrition and Energy	Chap. 1 & 2 Chap. 3
3 & 4	Sports Nutrition Aids to Performance Ergogenic Aids	Chap. 4 3 day Food Log
5	Energy Transfer during exercise **EXAM 1 Nutrition as Energy**	Chap. 5, 6
6	**Fitness Lab** Pedometers & HR monitors Fitness Testing – Fitnessgram Fitness Pre-Test	Exercise Journal RHR/Pedometer Baseline
7	**Energy Systems Presentations** Measuring Energy Expenditure	 Chap. 7 & 8
8	Pulmonary System & Exercise	Chap. 9
9	Cardiovascular System & Exercise Neuromuscular & Endocrine Systems & Exercise	Chap. 10 Chap. 11 & 12
10	**EXAM 2 Physiologic Systems & Exercise**	
11	Training Principles Aerobic and Anaerobic Training Muscles /Types of Training	Chap. 13 Chap. 14
12	Resistance Training Adaptations Factors Affecting Physiological Function	 Chap. 15
13	**Fitness Lab** Fitness Post Test Body Composition, Obesity, Weight Control	 Chap. 16
14	Diet and Exercise Balance Exercise & Aging Clinical Exercise Physiology **DUE: Exercise Journal Project & Personal Training Program** **Return Pedometers/HR Monitors**	 Chap. 17 & 18
15	Exercise Physiology Lessons/Critiques **EXAM 3 Training/Factors Affecting Function**	

E. COURSE REQUIREMENTS:

All assignments must be passed in at the beginning of class. These assignments must be word processed unless otherwise notified. **Hard copies only; no e-mails will be accepted**. Late assignments will be reduced one level for each calendar day it is late and may not be passed in after the assignment has been returned to the class by the instructor. **Students must use their RIC e-mail address for all correspondence. The instructor will use Blackboard and/or RIC e-mail addresses for announcements.**

If there are any questions about a grade on a returned assignment or exam, talk with the professor no later than one week after the grade was posted. Be sure to contact the professor immediately when the material becomes confusing, extra help is needed, or conflicts with class time arise.

1. Three Day Food Log: Each student will record the type and quantity of food he/she consumes in a three day period. Students must go to the new food pyramid website (www.mypyramid.gov) to enter intake for three days.

2. Ergogenic Aids Presentation: each student will be assigned a nutritional ergogenic aid to research then present to the class. Students will be required to describe the aid, discuss the benefits and risks associated with taking the aid, where in a person's diet would he/she get the same result, and is the aid accepted as a legal and ethical supplement in sport? (Outcome 19).

3. Personal Exercise Journal Project: each student will complete a reflective journal to assess current fitness and physical activity status. Students will complete a Pre-test of fitness components, BMI and RHR, design and follow a seven week training program, post-test the fitness components after the seven week period. Students will be assigned a pedometer and heart rate monitor to complete this project. Project guidelines will be discussed in class (Outcome 6, 10, 12, 14, 15, 16, 17, 20).

4. Group Energy System Presentation: each student will be assigned to a group to prepare a presentation to describe either the ATP/PCr, Glycolytic/Lactic Acid, or Aerobic energy system. This will serve as a review from BIO 335. Groups will have 15 minutes to give a general overview of the system, describe what kind and how much energy is produced by the system, describe the sports that utilize the system, the advantages/disadvantages of the system, and determine if the system stands alone or works in conjunction with other systems. Each group must produce a power point presentation for this project (Outcome 1, 2, 6).

5. Personal Training Program: after completing the fitness pre-test and starting the seven week fitness program, each student will design a program to improve a fitness component (e.g. cardiovascular endurance, upper body strength, flexibility). Be creative in the types of activities used to enhance the fitness component (Outcome 3, 6, 10, 12, 13).

6. Exercise Physiology Activity: each student will develop a 10 minute K-12 Physiology of Exercise mini lesson. Students will bring out a physiology concept through activities. Think of this lesson as a team teaching situation or supplemental activity with a classroom teacher. Students will teach this activity to the class and prepare a written plan using the prescribed format. (Outcome 1, 2, 3, 5, 7, 10, 11, 13, 14, 18).

7. There will be three exams. Exams will be multiple choice, short answer, and short essay questions. Questions will be drawn from readings in the text, class discussion, and student presentations. There will be an in-class review prior to each exam (Outcome 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 13, 14, 16, 17, 18, 19).

F. EVALUATION:

30% Exams
10% 3-Day Food Log and Analysis
10% Personal Training Program
20% Exercise Journal Project
10% Exercise Physiology activity
10% Participation
10% In-class Assignments (e.g. Ergogenic Aid Presentation, Energy Systems Presentation, Systems of body) and Quizzes

100%

Grading Scale:

93 – 100	A	70 – 72	C-
90 – 92	A-	67 – 69	D+
87 – 89	B+	63 – 66	D
83 – 86	B	60 – 62	D-
80 – 82	B-	59 -	F
77 – 79	C+		
73 – 76	C		

G. RESOURCES

Fox, S.I. (2006). *Human physiology*. 9th ed. New York, N.Y: McGraw-Hill.

McArdle, W.D., Katch, F.I., & Katch, V.L. (1994). *Essentials of exercise physiology* Malvern, PA: Lea & Febiger.

Power, S.K. & Howley, E.T. (2001). *Exercise physiology: Theory and application to fitness and performance*, 4th ed. Boston, MA: McGraw-Hill.

Rowland, T.W. (2005). *Children's exercise physiology*. 2nd ed. Champaign, IL: Human Kinetics.

Rowland, T.W. (1996) Developmental *exercise physiology.* Champaign, IL: Human Kinetics.

Wilmore, J.H. & Costill, D.L. (2004). *Physiology of sport and exercise.* 3rd ed. Champaign, IL: Human Kinetics.

Wilmore, J.H. & Costill, D.L. (1999). *Physiology of sport and exercise.* Champaign, IL: Human Kinetics.

H. OTHER:
The instructor reserves the right to change the syllabus at any point in the semester. Students will be notified in class of any changes.

Student's assignments may be duplicated and utilized anonymously for the Health and Physical Education Department's program folios for purposes of accreditation. All information that identifies a document as belonging to a particular student will be removed before it is used.

RIC Academic Dishonesty Policy

3.9.1 Academic Dishonesty* *(As amended by the Council of Rhode Island College – 11/07/08)*
Academic integrity is the foundation of the academic community. Students who violate College rules on academic dishonesty are subject to disciplinary penalties, including the possibility of failure or removal from a course, disciplinary probation, and/or dismissal from the College. Individual schools may have additional standards and policies related to academic honesty.

(a) Examples of Academic Dishonesty include (but are not limited to):
• Cheating: intentionally using or attempting to use unauthorized materials, information or study aids in any academic exercise.
• Fabrication: intentional and unauthorized falsification or invention of any information or citation in an academic exercise.
• Plagiarism: intentionally or knowingly representing the words or ideas of another as one's own in any academic exercise. The following are examples of plagiarism:

i. Word-for-word plagiarism: This includes (a) the submission of another student's work as one's own; (b) the submission of work from any source whatever (print or electronic) without proper acknowledgement by footnote or reference within the text of the paper; (c) the submission of any part of another's work without proper use of quotation marks.

ii. Patchwork plagiarism: This consists of a piecing together of unacknowledged phrases and sentences quoted verbatim (or nearly verbatim) from a variety of sources. The mere reshuffling of other people's words does not constitute original work.

iii. Unacknowledged paraphrase: It is perfectly legitimate to set forth another author's facts or ideas in one's own words, but if one is genuinely indebted to the other author for these facts or ideas, the debt must be acknowledged by footnote or reference within the text of the paper (e.g., the above paragraphs are based largely on Sears, Harbrace *Guide to the Library and Research Paper*, p.39).

Many facts, ideas, and expressions are considered to be in the public domain or general knowledge and need not be acknowledged (e.g., the fact that the Declaration of Independence was signed in 1776; the idea that universal public education is essential to the survival of democratic institutions; such proverbial expressions as "A rolling stone gathers no moss," or "New York is a great place to visit, but I wouldn't want to live there,") but as a general rule, when one is in doubt, it is best to acknowledge the source.
• Collusion: facilitating academic dishonesty intentionally or knowingly helping or attempting to help another to commit an act of academic dishonesty.
• Deception: Providing false information to an instructor concerning a formal academic exercise, e.g. giving a false excuse for missing a deadline or falsely claiming to have submitted work.
• Sabotage: Acting to prevent others from completing their work. This includes cutting pages out of library books or willfully disrupting the experiments of others.
• Multiple Submissions: Submitting for credit, when a student has not been given permission to do so, any work that is the same or substantially the same as work that has been submitted for credit in another course. Many professors allow re-working or building on prior work; however, multiple submissions are permitted only with the prior permission of the instructor(s), and only when the student acknowledges the multiple submission in the work itself.

(b) Faculty Role
The faculty member has two clearly defined roles: first, to establish preventive measures; and, second, to ensure that detected instances of academic dishonesty are dealt with appropriately and reported. Preventive measures should include a statement to each class by the faculty member outlining expected standards of intellectual honesty and the necessity for such standards.

The faculty member should also maintain reasonable security of all examination materials and procedures. Generally, the faculty member should employ any reasonable methods to discourage acts of academic dishonesty. A faculty member may take action up to and including failing a student accused of academic dishonesty. Some often-used penalties include:

i. A low or failing grade on the assignment in which the offense occurred.
ii. An additional assignment.
iii. Reduction of the final grade up to and including failure.
iv. Any combination of the above.

In all cases, a report describing the nature of the dishonesty and the subsequent action taken by the faculty member shall be filed with the Vice President for Academic Affairs. Additionally, the faculty member may recommend that the Board of College Discipline recommend further action.

(c) Vice President for Academic Affairs Role
The Vice President for Academic Affairs shall maintain a file of any and all reports of academic dishonesty. At the discretion of the Vice President for Academic Affairs and depending upon the severity of the infraction, the student may be informed in writing about possible consequences of further infractions.

In the case of multiple infractions, the Vice President for Academic Affairs will refer the student's name to the Board of College Discipline for review and possible action.

d) Board of College Discipline role
The Board of College Discipline shall consider cases referred to it by a faculty member or the Vice President for Academic Affairs, and has the option to recommend any of the penalties ranging from those available to the faculty member to placing the student on academic probation or expelling the student from the College.

i. Appeal - Any student accused of academic dishonesty may appeal action taken by the instructor in a case to the Board of College Discipline.
ii. Appeals Procedure
• Appeals or referrals to the Board will follow the standard procedure of the Board.
• The Board shall inform the student, the faculty member, and Vice President for Academic Affairs of its decision.
• A record of the cases concerning academic dishonesty will be kept in the Office of the Vice President for Academic Affairs.
• A student may appeal the decision of the Board of College Discipline (concerning academic dishonesty) to the Vice President of Academic Affairs. Appeals may be considered on the basis of new information or procedural errors.

* Rhode Island College Handbook of Policies, Practices, and Regulations. (2010, Spring). Chapter 3: Academic policies and procedures. Pp. 32-34, section 3.9.1.

Students with Disabilities: Request for Reasonable Accommodations (http://www.ric.edu/disabilityservices/faq.php)

Once accepted to the College, students with disabilities who want to request reasonable accommodations MUST contact and make an appointment with the Disability Services Office. The process of registering as a student with a disability includes three elements in order to be considered complete:

- Students are required to make an appointment to meet with the Office of Disability Services, Craig Lee, Room 127, 456-8061.
- Students should bring to this appointment, documentation of the disability from a qualified licensed professional. (See Disability Verification Documentation.)
- A Release of Information form must be signed by the student allowing the Disability Services Office to verify registration and eligibility for accommodations.