**SYLLABUS**

**MISSISSIPPI VALLEY STATE UNIVERSITY**

**COLLEGE OF EDUCATION**

**DEPARTMENT OF HEALTH, PHYSICAL EDUCATION AND, RECREATION**

**COURSE SYLLABUS**

**PE 303: Physiology of Exercise**

**Spring 2018-2019**

**Instructor:** Robert McClung

**Class Meetings: Location/Time**: TBA HPER Building room #031

**Office Hours**: TBA

**Office Phone**: 662-254-3126

**COURSE DESCRIPTION**

PE 303: Designed to study the basic physiological principles of human responses to exercise.

**CREDIT HOURS: 3**

**PURPOSE/RATIONALE:**

PE 303 is designed to allow students the systematic approach to the analysis of the physiological aspects of the human body during light, heavy and moderate exercise. This course is structured for individuals in the sports medicine field, and for those teaching elementary, junior high, high school and college students. This course will provide teacher candidates in physical education with a strong foundation in these areas.

**PREREQUISITES: 301**

**GENERAL GOALS**

**The general course goals for PE 303 include:**

. 1. Understand and Demonstrate how Exercise Physiology is transferred to the consumer (e.g., students with diverse needs)( TIAI 11; 17 INTASC 1,4; NASPE1,5,6)

 2. Describe the historical evolution of exercise physiology from physical education (TIAI 10,15; INTASC 6,10; NASPE 1,5)

 3. Differentiate homeostasis and steady state (TIAI 16,17; INTASC 1,4; NASPE 1,6)

4. Differentiate between ATP-PC system, Glycolysis, Krebs Cycle and the Electron Transport Chain(TIAI 30,31;INTASC 7,8,9; NASPE 1,7)

 5. Demonstrate activities and sports that lie within the ATP-PC system, anaerobic and aerobic pathways (TIAI 7,5;INTASC 1,2,5,7; NASPE 2,3,7)

 6. Understand, analyze, demonstrate and evaluate testing of Maximal Aerobic Power (TIAI 11,14;INTASC3,4,5,6; NASPE 4,5,6,8)

 . 7. Utilize instructional material to promote critical thinking in designing Aerobic programs of appropriate intensity and durations TIAI 3,21,22;INTASC 1,2,4,6,7 NASPE 1,2,5,6,8,9)

 8. Understand the components of health related and skilled related aspects of fitness (TIAI 11, 17,18;INTASC 2,3,4;NASPE 3,5,6,)

 9. Understand the effects of nutrition on exercise performance(TIAI 9,10,29; INTASC 5,6; NASPE5, 6)

 10. Employ technology as a an informational and instructional tool

**GENERAL COURSE OBJECTIVES**

1. Provide different examples of the control systems of the human body (TIAI 11; 17 INTASC 1,4; NASPE1,5,6)
2. Analyze how carbohydrates, fats and proteins are broken down and utilized by the body (TIAI 10,15; INTASC 6,10; NASPE 1,5)
3. Utilize laboratory tests and interpret their results to predict endurance performance (TIAI16,17;INTASC1,4;NASPE1,6)
4. 4. Understand, analyze, demonstrate and evaluate testing of maximal Anaerobic Power (TIAI 30,31;INTASC 7,8,9; NASPE 1,7)
5. 5. Understand, analyze, demonstrate how to evaluate isometric, isotonic, and isokinetic strength. (TIAI 7,5; INTASC 1,2,5,7; NASPE 2,3,7).
6. Design a resistance program for various populations including students with diverse needs (e.g., boys/girls, students with disabilities) (TIAI 11,14,18;INTASC2, 3,4,5,6; NASPE3, 4,5,6,8)
7. Describe the transition in metabolism from rest to exercise( TIAI 3,21,22;INTASC 1,2,4,6,7 NASPE 1,2,5,6,8,9)

**Required Text and other recommended materials**

Text: Howley, S. &. Scott, P. (2008). Exercise Physiology Theory and Application To Fitness and Performance. (7th Ed.) McGraw Hill Publishing. New York, N.Y**.**

**ATTENDANCE**

Class attendance and participation is vital to your success and development as a competent, effective administrator. Attendance is mandatory and every three unexcused absent is 20% of your letter grade. Participation is a requirement of this course. Participation means you must be actively involved in the discussion and presentations by both instructor and students.

**CHEATING AND PLAGIARISM**

***\*\*\*Mississippi Valley State University will not tolerate cheating in any form. Cheating and plagiarism compromise the process of fair and equitable evaluation of students’ academic performance and erode the quality and value of degrees conferred by the University. [*2007-2008 catalogue 112]**

**MAKE-UP POLICY**

**Make up may be allowed depending on the circumstances with an official excuse from the MVSU Student Affairs office.**

**TEACHING /LEARNING STRATEGIES**

Teaching methods employed in PE 431 include lectures, direct instruction, inquiry-based instruction, various group work strategies, student research presentations, critical thinking, demonstrations, class discussions, video presentations, power point presentations, simulations, games, and handouts.

**EVALUATION AND GRADING CRITERIA**

 1. Attendance…………………………………………………………10%

 2. Literature Review..........................................................20%

 3. Research Paper .................................................................................10%

 4. Port folio…………………............................................................ 10%

 5. Content examinations, quizzes .........................................................10%

 6. Mid Term examination……………………………………………..20%

 6. Final Examination..............................................................................20%

**Grading Scale**

90 ------------ 100 = A

 80 ------------ 89 = B

 70 ------------ 79 = C

 60 ------------ 69 = D

 59 and below = F

**GENERAL RUBRIC**

 A. Excellent: Full Accomplishment

 B. Proficient: Substantial Accomplishment

 C. Marginal: Partial Accomplishment

 D. Unsatisfactory: Little Accomplishment

**ASSESSMENT STRATEGIES**

 A. Periodic test and final examinations

 B. Port folio of individual’s course, self-evaluation and presentations scored with rubrics.

 C. Critique articles and research which relate to issues/topics in organization & administration scored with rubrics.

 D. Research Presentations scored with rubrics.

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| **Mississippi Valley State University Services for students with Disability (SSD)****Disability Statement for Course Syllabus** | Mississippi Valley State University is committed to providing reasonable accommodations for students with a documented disability. If you feel you are eligible to receive accommodations for a covered disability ( medical, physical, psychiatric, learning, vision, hearing, etc.) and would like to request it for this course, you must be registered with the services for students with disability (SSD) program administered by University College. It is recommended that you visit the Disability Office located inside the EMAP Computer Lab in the Technical Education (IT Mr. Billy Benson , Jr.) Building to register for the program at the beginning of each semester.For more information or to schedule an appointment, please contact Mr. Billy Benson via phone or email at 662 254 3005 or billy.benson@mvsu.edu. |

**Course Schedule and Topic Outline**

**Text Chapters:**

Chapter 1 Physiology of Exercise in the United States-Its Past, Its Future

Chapter 2 Bioenergetics(control of internal environment)

Chapter 3 Exercise Metabolism

Chapter 4 Hormonal Responses to Exercise

Chapter 5 Exercise Metabolism

Chapter 6 Measurement of Work, Power and Energy Expenditure

Chapter 7 The Nervous System: Structure and control of Movement

Chapter 8 Skeletal Muscle: Structure and Function

Chapter 9 Circulatory Response to Exercise

Chapter 10 Respiration During Exercise

Chapter 11 Acid- Base Balance During Exercise

Chapter 12 Temperature Regulation

Chapter 13 The Physiology of Training: Effect on VO2 max Performance. Homeostasis and Strength

**Tentative Class Schedule:**

Week One: Orientation

Week Two: History of physiology

Week Three Bioenergetics

Week Four Control of the internal environment Homeostasis and steady state

Week Five Stress Proteins and negative feedback and control of a biological control system

Week Six Bioenergetics Newton’s first two laws of gravity. Two laws of bioenergetics

Week Seven Midterm

Week Eight Cell Structure, chemical reactions, role of enzymes, fuels for exercise, metabolism

Week Nine ATP, ADP energy production, Aerobic and Anaerobic respiration

Week Ten Krebs cycle, glycolysis, ATP-PC, Electron transport chain

Week Eleven Exercise metabolism, rest to recovery transitions

Week Twelve Measuring VO2 max, o2 consumption, work, power output in wellness center

Week Thirteen Skeletal muscle structure and function

Week Fourteen Respiration During Exercise

Week Fifteen: Acid-Base Balance During Exercise. Patterns in Health and Disease: Epidemiology and Physiology.

**BIBLIOGRAPHY AND RELATED READING AND RESEARCH MATERIAL**

Adams, G. M. (2004). Exercise Physiology: laboratory manual. (3rd Ed.). Dubuque, IA. WCB Brown and Benchmark.

Adolph, E. (1968).. Origins of Physiological Regulations. Academic Press, New York.

American Alliance for Health, Physical Education, Recreation and Dance. (1980). Lifetime Related Physical Fitness: test

manual, Reston, VA.

Baldwin, K. M. (2000). Research in the exercise sciences: Where do we go from here? Journal of Applied Physiology 88:332-

336.

Brooks, G.A.et al. (2000). Exercise Physiology: Human Bioenergetics and its application. (2nd Ed.). Mountain View, Camay

Field.

Buskick, E. R. (1999). Early Exercise Physiology in the United States, Human Kinetics.

Greenhaff, P.I., and Timmons, J.A.. (1998). *Interaction between aerobic and anaerobic metabolism during intense muscle*

 *contraction .*Exercise Sport Science Review,*, 26;1.*

Locke, M. 1997. The cellular response to exercise: Role of stress proteins. Exercise and Sport Reviews, vol. 25, 105-36.

Powers, S. K. &. Howley, E. T. (2008). Exercise Physiology: Theory and Application to Fitness and Performance.(7th Ed.).

MrGraw-Hill.