

## **SYLLABUS**

<b>DATE OF LAST REVIEW:</b>	2011
<b>CIP CODE:</b>	24.0101
<b>SEMESTER:</b>	DEPARTMENTAL SYLLABUS
<b>COURSE TITLE:</b>	Introduction to Exercise Science
<b>COURSE NUMBER:</b>	EXSC0201
<b>CREDIT HOURS:</b>	3
<b>INSTRUCTOR:</b>	DEPARTMENTAL SYLLABUS
<b>OFFICE LOCATION:</b>	DEPARTMENTAL SYLLABUS
<b>OFFICE HOURS:</b>	DEPARTMENTAL SYLLABUS
<b>TELEPHONE:</b>	DEPARTMENTAL SYLLABUS
<b>EMAIL:</b>	DEPARTMENTAL SYLLABUS <i>KCKCC-issued email accounts are the official means for electronically communicating with our students.</i>
<b>PREREQUISITES:</b>	None

**REQUIRED TEXT AND MATERIALS:** Please check with the KCKCC bookstore, <http://www.kckccbookstore.com/> for the required texts for your particular class.

### **COURSE DESCRIPTION:**

This course is to introduce the scientific discipline of Exercise Science. Students will be exploring the areas of exercise science, exercise physiology, preventive and rehabilitation of sports-related injuries, biomechanics, sport psychology, motor learning, and nutrition and health benefits of exercise.

### **METHOD OF INSTRUCTION:**

A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, and panels, conferencing, learning experiences, and performances outside the classroom. Methodology will be selected to best meet student needs.

### **COURSE OUTLINE:**

- I. Overview of the Human in Motion
  - A. Introduction to Exercise Science
  - B. Exercise Science and Related Disciplines
  - C. The Scientific Method
  - D. Movement at Every Level
- II. Physiology of Exercise
  - A. Exercise Physiology

- B. Adaptations to Exercise Training
- C. Nutrition and Exercise Science
- D. Health Benefits of Exercise and Fitness
- E. Exercise and the Environment
- III. Sports Medicine: Prevention and Rehabilitation of Injuries
  - A. Fundamentals of Sport Medicine
  - B. Treatment of Sports Medicine Injuries
- IV. Biomechanics of Human Motion
  - A. Introduction to Biomechanics
  - B. Special Topics in Biomechanics
  - C. Exercise, Sport, and Materials Science
- V. The Mind and Brain in Exercise
  - A. Sports Psychology
  - B. The Neural Control of Movement
  - C. Motor Learning
- VI. Special Issues in Exercise Science
  - A. Developmental Issues in Exercise Science
  - B. Intervention Strategies

### **EXPECTED LEARNER OUTCOMES:**

- A. The student will be able to define exercise science and its sub disciplines.
- B. The student will be able to discuss muscular contraction, environmental stress and health related aspects of exercise.
- C. The students will be able to identify the role of nutritional concepts with performance.
- D. The student will be able to discuss common sport injuries, inappropriate exercises and some common rehabilitative treatments for sport injuries.
- E. The student will be able to discuss the kinetics of human movement, force and motion and muscle force.
- F. The students will be able to define biomechanics and discuss techniques to analysis human movement, kinetics of human, and muscle force.
- G. The student will be able to define Sports Psychology and discuss athletic personality, exercise addition, and methods to control stress.
- H. The student will be able to define Motor Learning and discuss skill acquisition and retention.
- I. The student will be able to discuss developmental issues from the perspective of varying age and levels of development.

### **COURSE COMPETENCIES:**

*The student will be able to define exercise science and its sub disciplines.*

1. The student will be able to identify and discuss the sub disciplines that comprise Exercise Science.
2. The student will be able to distinguish between anecdotal and scientific evidence.
3. The student will be able to discuss how Exercise Science has emerged as an independent academic discipline.

*The student will be able to discuss muscular contraction, environmental stress and health related aspects of exercise.*

4. The student will be able to discuss how skeletal muscles create force and movement.
5. The student will be able to identify the types of movements muscles can perform.
6. The student will be able to distinguish between aerobic and anaerobic energy transfer.
7. The student will be able to list the benefits from an exercise training program.

8. The student will be able to identify the changes in muscle and motor performance achieved through resistance training program.
9. The student will be able to discuss the physiologic and biochemical changes that resistance training can produce in skeletal muscle.

*The students will be able to identify the role of nutritional concepts with performance.*

10. The student will be able to identify the right proportion of carbohydrates, fats, and proteins for athletes.
11. The students will be able to determine the caloric value of foods.
12. The student will be able to identify the right kinds of fluids and foods to consume before, during, and after exercise.
13. The student will be able to list the risk factors that contribute to the development of heart disease.
14. The student will be able to discuss how exercise helps us understand the relationship between physical activity and disease development.
15. The student will be able to identify lifestyle factors that may produce high blood pressure.
16. The student will be able to discuss how changes in blood flow aid in temperature regulation.
17. The student will be able to identify the kinds of physical characteristics in the environment that pose a challenge during physical activity.

*The student will be able to discuss common sport injuries, inappropriate exercises and some common rehabilitative treatments for sport injuries.*

18. The student will be able to list common causes of athletic injuries and techniques that can be used to prevent these injuries.
19. The student will be able to discuss the role of exercise in sports medicine rehabilitation.
20. The student will be able to identify new technologies that can improve injury treatment.

*The student will be able to discuss the kinetics of human movement, force and motion and muscle force.*

21. The student will be able to identify the kinds of forces that are important factors in the study of human movement.
22. The student will be able to discuss the characteristics of force relevant to the body in motion.

*The students will be able to define biomechanics and discuss techniques to analysis human movement, kinetics of human, and muscle force.*

23. The student will be able to discuss how biomechanics plays an important role in human movement.
24. The student will be able to discuss how movement mechanics influences the design of sports implements.

*The student will be able to define Sports Psychology and discuss athletic personality, exercise addition, and methods to control stress.*

25. The student will be able to identify the benefits of imagery, biofeedback, and relaxation techniques.

*The student will be able to define Motor Learning and discuss skill acquisition and retention.*

26. The student will be able to discuss how the brain uses visual information to help control movement.
27. The student will be able to identify the types of tools used to measure motor learning.

*The student will be able to discuss developmental issues from the perspective of varying age and levels of development.*

28. The student will be able to identify the types of performance training uses for the various age levels.

## **ASSESSMENT OF LEARNER OUTCOMES:**

Assessment methods may include, but are not limited to, the following: homework, quizzes, class participation, journals, tests, essay papers and final exam. The grading scale and the process for calculating the course grades are to be determined by individual instructors. This information will be included in each instructor's syllabus.

### **NOTE:**

This syllabus is subject to change at the discretion of the instructor. Material included is intended to provide an outline of the course and rules that the instructor will adhere to in evaluating the student's progress. However, this syllabus is not intended to be a legal contract. Questions regarding the syllabus are welcome any time.

Kansas City Kansas Community College is committed to an appreciation of diversity with respect for the differences among the diverse groups comprising our students, faculty, and staff that is free of bigotry and discrimination. Kansas City Kansas Community College is committed to providing a multicultural education and environment that reflects and respects diversity and that seeks to increase understanding.

Kansas City Kansas Community College offers equal educational opportunity to all students as well as serving as an equal opportunity employer for all personnel. Various laws, including Title IX of the Educational Amendments of 1972, require the college's policy on non-discrimination be administered without regard to race, color, age, sex, religion, national origin, physical handicap, or veteran status and that such policy be made known.

Kansas City Kansas Community College complies with the Americans with Disabilities Act. If you need accommodations due to a documented disability, please contact the Director of Academic Resource Center, in Rm. 3354 or call at: 288-7670 V/TDD.

# KANSAS CITY KANSAS COMMUNITY COLLEGE

## COMPETENCY INDEX

Course Number/Section/Title:

Student Name:

Student Number:

Instructor:

Division:

RATING SCALE for Competency Achievement

4-Superior, 3-Good, 2-Average, 1-Inferior, 0-Failure, NA-not addressed

### DIRECTIONS:

Evaluate the student by checking or highlighting the appropriate number to indicate the degree of competency achieved.

### COURSE COMPETENCIES:

- 4 3 2 1 0 NA 1. The student will be able to identify and discuss the sub disciplines that comprise Exercise Science.
- 4 3 2 1 0 NA 2. The student will be able to distinguish between anecdotal and scientific evidence.
- 4 3 2 1 0 NA 3. The student will be able to discuss how Exercise Science has emerged as an independent academic discipline.
- 4 3 2 1 0 NA 4. The student will be able to discuss how skeletal muscles create force and movement.
- 4 3 2 1 0 NA 5. The student will be able to identify the types of movements muscles can perform.
- 4 3 2 1 0 NA 6. The student will be able to distinguish between aerobic and anaerobic energy transfer.
- 4 3 2 1 0 NA 7. The student will be able to list the benefits from an exercise training program.
- 4 3 2 1 0 NA 8. The student will be able to identify the changes in muscle and motor performance achieved through resistance training program.
- 4 3 2 1 0 NA 9. The student will be able to discuss the physiologic and biochemical changes that resistance training can produce in skeletal muscle.
- 4 3 2 1 0 NA 10. The student will be able to identify the right proportion of carbohydrates, fats, and proteins for athletes.
- 4 3 2 1 0 NA 11. The students will be able to determine the caloric value of foods.
- 4 3 2 1 0 NA 12. The student will be able to identify the right kinds of fluids and foods to consume before, during, and after exercise.
- 4 3 2 1 0 NA 13. The student will be able to list the risk factors that contribute to the development of heart disease.
- 4 3 2 1 0 NA 14. The student will be able to discuss how exercise helps us understand the relationship between physical activity and disease development.
- 4 3 2 1 0 NA 15. The student will be able to identify lifestyle factors that may produce high blood pressure.
- 4 3 2 1 0 NA 16. The student will be able to discuss how changes in blood flow aid in temperature regulation.
- 4 3 2 1 0 NA 17. The student will be able it identify the kinds of physical characteristics in the environment that pose a challenge during physical activity.

- 4 3 2 1 0 NA 18. The student will be able to list common causes of athletic injuries and techniques that can be used to prevent these injuries.
- 4 3 2 1 0 NA 19. The student will be able to discuss the role of exercise in sports medicine rehabilitation.
- 4 3 2 1 0 NA 20. The student will be able to identify new technologies that can improve injury treatment.
- 4 3 2 1 0 NA 21. The student will be able to identify the kinds of forces that are important factors in the study of human movement.
- 4 3 2 1 0 NA 22. The student will be able to discuss the characteristics of force relevant to the body in motion.
- 4 3 2 1 0 NA 23. The student will be able to discuss how biomechanics plays an important role in human movement.
- 4 3 2 1 0 NA 24. The student will be able to discuss how movement mechanics influences the design of sports implements.
- 4 3 2 1 0 NA 25. The student will be able to identify the benefits of imagery, biofeedback, and relaxation techniques.
- 4 3 2 1 0 NA 26. The student will be able to discuss how the brain uses visual information to help control movement.
- 4 3 2 1 0 NA 27. The student will be able to identify the types of tools used to measure motor learning.
- 4 3 2 1 0 NA 28. The student will be able identify the types of performance training uses for the various age levels.

Please check one of the following:

\_\_\_\_\_I certify that the student completed the course and the competencies indicated as indicated.

\_\_\_\_\_I certify that the student completed 25% of the course competencies, as indicated.

\_\_\_\_\_I certify that the student did not complete 25% of the course competencies.

Instructor Signature:\_\_\_\_\_