



**COWLEY COLLEGE
& Area Vocational Technical School**

COURSE PROCEDURE FOR

**INTRODUCTION TO EXERCISE SCIENCE
ALH6396 3 Credit Hours**

Student Level:

This course is open to students on the college level in either the freshman or sophomore year.

Catalog Description:

ALH6396 - INTRODUCTION TO EXERCISE SCIENCE (3 hrs)

This is a basic course in exercise science, training theory and cardiovascular development. It will provide the knowledge and inspire the understanding of exercise physiology necessary to organize and teach safe, effective physical education, physical fitness, and athletic programs.

Prerequisites:

None.

Controlling Purpose:

This course is designed to provide experiences that will help the student become more aware of his or her own level of physical fitness/wellness and extend that awareness to application of fitness/wellness programming techniques and knowledge to others.

Learner Outcomes:

Upon completion of the course, the student will have developed a more in-depth scientific background and understanding of some of the physiological functions of the body and the role that physical activity has in influencing these functions. Furthermore, the student will be better informed as to how to measure his or her own as well as other's fitness and performance levels. The student will also understand how much of this information has been obtained, its accuracy, and possible errors that can be obtained in determining various physiological parameters.

Units Outcomes and Criterion Based Evaluation Key for Core Content:

The following defines the minimum core content not including the final examination period. Instructors may add other content as time allows.

Evaluation Key:

- A = All major and minor goals have been achieved and the achievement level is considerably above the minimum required for doing more advanced work in the same field.
- B = All major goals have been achieved, but the student has failed to achieve some of the less important goals. However, the student has progressed to the point where the goals

- of work at the next level can be easily achieved.
- C = All major goals have been achieved, but many of the minor goals have not been achieved. In this grade range, the minimum level of proficiency represents a person who has achieved the major goals to the minimum amount of preparation necessary for taking more advanced work in the same field, but without any major handicap of inadequacy in his background.
- D = A few of the major goals have been achieved, but the student's achievement is so limited that he is not well prepared to work at a more advanced level in the same field.
- F = Failing, will be computed in GPA and hours attempted.
- N = No instruction or training in this area.

UNIT 1: THE ESSENTIALS OF MOVEMENT						
Outcomes: The student will gain an understanding of how the human body maneuvers using the skeletal and neuromuscular systems, and how they adapt.						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Describe the structure and function of skeletal muscle.
						Understand the neuromuscular adaptations to resistance training.
						Explain resistance training and gains in muscular fitness.
						List the organization of the nervous system.
						Discuss the nervous system as a whole and its two components.
UNIT 2: THE ENERGY FOR MOVEMENT						
Outcomes: The student will understand the basic knowledge for the energy systems and how they adapt to training.						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Describe the aerobic and anaerobic energy systems.
						Understand how to manipulate the two different energy systems.
						Compare and contrast the differences between in aerobic and anaerobic training.
						Analyze energy expenditure at rest and during exercise.
						Detect hormonal effects on metabolism and energy from exercise.
UNIT 3: CARDIOVASCULAR, RESPIRATORY FUNCTION AND PERFORMANCE						
Outcomes: The student will gain an understanding of cardiovascular and respiratory regulation during exercise.						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Understand the transportation of oxygen and carbon dioxide along with gas exchange in the muscles.
						Explain structure and function of the cardiovascular system.
						Understand how one can enhance his or her cardiorespiratory fitness through exercise.

						Evaluate a person's cardiovascular endurance capacity.
						Track long-term improvement in cardiorespiratory endurance.
						Explain the respiratory and metabolic adaptations to training.
UNIT 4: ENVIRONMENTAL INFLUENCES ON PERFORMANCE						
Outcomes: The student will be able to describe the different environmental influences that are associated with different climates.						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Understand physiological responses to exercise in the heat and cold.
						Compare and contrast the differences in exercising at altitude, underwater and in space.
						Distinguish the health risks associated with exercising in the heat and cold.
UNIT 5: OPTIMIZING PERFORMANCE IN SPORT						
Outcomes: The student will gain an understanding of the different theories of training in sport.						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Explain the role of training for specific sports.
						Recognize the relationship between nutrition and sport.
						Define overtraining, detraining and retraining.
						Assess body weight, body composition and body size.
						Differentiate between pharmacological, hormonal, physiological and nutritional agents utilized in optimizing performance in sport.
						Evaluate water and electrolyte balance.
						Understand tapering for peak performance.
UNIT 6: AGE AND GENDER CONSIDERATIONS IN SPORT AND EXERCISE						
Outcomes: The student will understand age and gender differences associated with exercise.						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Describe body composition, growth and development of tissues.
						Explain physiological adaptations to exercise training.
						Understand the gender differences in sport and exercise.
						Examine the growth from childhood to adolescent in sport and exercise.

Projects Required:

Projects may vary according to the instructor.

Textbook:

Contact Bookstore for current textbook.

Materials/Equipment Required:

Computer and calculator.

Attendance Policy:

Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:

The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:

Based on classroom occupancy

Course Timeframe:

The U.S. Department of Education, Higher Learning Commission and the Kansas Board of Regents define credit hour and have specific regulations that the college must follow when developing, teaching and assessing the educational aspects of the college. A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally-established equivalency that reasonably approximates not less than one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work for approximately fifteen weeks for one semester hour of credit or an equivalent amount of work over a different amount of time. The number of semester hours of credit allowed for each distance education or blended hybrid courses shall be assigned by the college based on the amount of time needed to achieve the same course outcomes in a purely face-to-face format.

Refer to the following policies:

[402.00 Academic Code of Conduct](#)

[263.00 Student Appeal of Course Grades](#)

[403.00 Student Code of Conduct](#)

Disability Services Program:

Cowley College, in recognition of state and federal laws, will accommodate a student with a documented disability. If a student has a disability which may impact work in this class and which requires accommodations, contact the Disability Services Coordinator.