

## Washtenaw Community College Comprehensive Report

### BIO 104 Biology of Exercise Effective Term: Fall 2017

#### Course Cover

**Division:** Math, Science and Engineering Tech

**Department:** Life Sciences

**Discipline:** Biology

**Course Number:** 104

**Org Number:** 12100

**Full Course Title:** Biology of Exercise

**Transcript Title:** Biology of Exercise

**Is Consultation with other department(s) required:** No

**Publish in the Following:** College Catalog , Time Schedule , Web Page

**Reason for Submission:** Three Year Review / Assessment Report

**Change Information:**

**Consultation with all departments affected by this course is required.**

**Course description**

**Outcomes/Assessment**

**Objectives/Evaluation**

**Rationale:** Syllabus Review

**Proposed Start Semester:** Fall 2017

**Course Description:** In this course, students are introduced to the basic principles of exercise biology, including the physiological responses to acute and chronic exercise, the impact of heat, altitude and other environmental stressors on exercise performance and safety, and the metabolic basis for measurements of oxygen uptake during exercise. The role of each body system in strength and endurance exercise performance will be considered. The relationships between physical activity, body composition, and health will be examined.

#### Course Credit Hours

**Variable hours:** No

**Credits:** 4

**Lecture Hours: Instructor:** 45 **Student:** 45

**Lab: Instructor:** 45 **Student:** 45

**Clinical: Instructor:** 0 **Student:** 0

**Total Contact Hours: Instructor:** 90 **Student:** 90

**Repeatable for Credit:** NO

**Grading Methods:** Letter Grades

Audit

**Are lectures, labs, or clinicals offered as separate sections?:** NO (same sections)

#### College-Level Reading and Writing

College-level Reading & Writing

#### College-Level Math

#### Requisites

## **General Education**

### **MACRAO**

MACRAO Science & Math

MACRAO Lab Science Course

### **General Education Area 4 - Natural Science**

Assoc in Applied Sci - Area 4

Assoc in Science - Area 4

Assoc in Arts - Area 4

### **Michigan Transfer Agreement - MTA**

MTA Lab Science

## **Request Course Transfer**

### **Proposed For:**

## **Student Learning Outcomes**

1. Identify the basic cellular and physiological principles that underly exercise performance, metabolism, and nutrition.

### **Assessment 1**

Assessment Tool: Departmentally-designed questions

Assessment Date: Winter 2019

Assessment Cycle: Every Three Years

Course section(s)/other population: all

Number students to be assessed: all

How the assessment will be scored: item analysis

Standard of success to be used for this assessment: 70% of students will score at least 70% of 10 most commonly occurring questions on exams 1,2,3,4, and 6.

Who will score and analyze the data: department faculty

2. Identify environmental factors that modify exercise performance and health status.

### **Assessment 1**

Assessment Tool: Departmentally-designed questions

Assessment Date: Winter 2019

Assessment Cycle: Every Three Years

Course section(s)/other population: all

Number students to be assessed: all

How the assessment will be scored: item analysis

Standard of success to be used for this assessment: 70% of students will score at least 70% on 10 most common occurring questions on exam 5.

Who will score and analyze the data: department faculty

3. Identify effects of acute and chronic exercise on health risk status, disease prevention and treatment, and on age-associated changes in biological function.

### **Assessment 1**

Assessment Tool: Departmentally-designed questions

Assessment Date: Winter 2019

Assessment Cycle: Every Three Years

Course section(s)/other population: all

Number students to be assessed: all

How the assessment will be scored: item analysis

Standard of success to be used for this assessment: 70% of students will score at least 70% on the 10 most commonly occurring questions on exam 7.

Who will score and analyze the data: department faculty

## 4. Reliably measure physiological and biometric variables.

**Assessment 1**

Assessment Tool: Lab reports 5 and 11

Assessment Date: Winter 2019

Assessment Cycle: Every Three Years

Course section(s)/other population: all

Number students to be assessed: all

How the assessment will be scored: departmentally-developed rubric

Standard of success to be used for this assessment: 70% of students will score at least 70%.

Who will score and analyze the data: department faculty

**Course Objectives**

1. Use correct terminology when referring to structure and function of the human body at all levels including biochemical, molecular, cellular, systemic, and organismal.
2. Identify metabolic processes and their respective locations, biochemical intermediates, physiological regulation, and limitations.
3. Identify nutrients and their roles and fates in energy production during exercise.
4. Identify characteristics of skeletal muscle fiber types and their corresponding neural components.
5. Identify, describe, and explain the functions of various body systems in the physiological responses to acute and chronic exercise.
6. Identify the major components of the body and the factors that influence body composition.
7. Identify effects of altitude on acute exercise performance and on responses to training.
8. Identify effects of temperature on exercise performance and identify effects of exercise training in high temperatures.
9. Identify health risk factors.
10. Identify the effects of acute and chronic exercise on health and health risk factors.
11. Identify age-associated changes in human physical performance.
12. Identify the effects of chronic exercise on age-associated changes in physical performance.
13. Measure and report resting and exercise heart rates.
14. Calculate and estimate of maximal oxygen uptake.
15. Measure, calculate, and report body composition based on skinfolds and girth.
16. Calculate caloric expenditure.
17. Measure blood pressure.

**New Resources for Course****Course Textbooks/Resources**

Textbooks

Katch, Victor et al. *Essential of Exercise Physiology*, 5th ed. LWW, 2016

Manuals

Periodicals

Software

**Equipment/Facilities**

Off-Campus Sites

**Reviewer****Action****Date****Faculty Preparer:***Marvin Boluyt**Faculty Preparer**Nov 22, 2016***Department Chair/Area Director:***Anne Heise**Recommend Approval**Nov 28, 2016***Dean:***Kristin Good**Recommend Approval**Dec 02, 2016*

**Curriculum Committee Chair:***David Wooten**Recommend Approval**Mar 21, 2017***Assessment Committee Chair:***Ruth Walsh**Recommend Approval**Mar 22, 2017***Vice President for Instruction:***Kimberly Hurns**Approve**Mar 23, 2017*