

Washtenaw Community College Comprehensive Report

BIO 201 Physiology of Exercise Effective Term: Spring/Summer 2022

Course Cover

College: Math, Science and Engineering Tech

Division: Math, Science and Engineering Tech

Department: Life Sciences

Discipline: Biology

Course Number: 201

Org Number: 12100

Full Course Title: Physiology of Exercise

Transcript Title: Physiology 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.

Outcomes/Assessment

Rationale: Three-year syllabus review

Proposed Start Semester: Fall 2021

Course Description: In this course, students are introduced to the basic principles of exercise physiology, 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 as well as the effects of regular exercise on health and aging.

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

Prerequisite

BIO 109

or

Prerequisite

BIO 110

or

Prerequisite

BIO 111

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 cellular and systems physiological principles that underly exercise performance, metabolism, and nutrition.

Assessment 1

Assessment Tool: Outcome-related departmentally-designed questions

Assessment Date: Fall 2023

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Answer key and item analysis

Standard of success to be used for this assessment: At least 70% of students will score at least 70% on the outcome-related questions.

Who will score and analyze the data: Life Science faculty

2. Identify biological responses to environmental stressors that modify exercise performance and health status.

Assessment 1

Assessment Tool: Outcome-related departmentally-designed questions

Assessment Date: Fall 2023

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Answer key and item analysis

Standard of success to be used for this assessment: At least 70% of students will score at least 70% on the outcome-related questions.

Who will score and analyze the data: Life Science faculty

3. Identify the 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: Outcome-related departmentally-designed questions

Assessment Date: Fall 2023

Assessment Cycle: Every Three Years
Course section(s)/other population: All
Number students to be assessed: All
How the assessment will be scored: Answer key and item analysis
Standard of success to be used for this assessment: At least 70% of students will score at least 70% on the outcome-related questions.
Who will score and analyze the data: Life Science faculty

4. Reliably and accurately measure physiological and biometric variables.

Assessment 1

Assessment Tool: Laboratory exercises
Assessment Date: Fall 2023
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: At least 70% of students are expected to score 75% or better on the laboratory exercises.
Who will score and analyze the data: Life Science faculty

5. Analyze physiological and biometric variables using scientific standards.

Assessment 1

Assessment Tool: Laboratory reports
Assessment Date: Fall 2023
Assessment Cycle: Every Three Years
Course section(s)/other population: All
Number students to be assessed: All
How the assessment will be scored: Students will be scored on formal laboratory reports using a departmentally-developed rubric.
Standard of success to be used for this assessment: At least 70% of students are expected to score 75% or better on each laboratory report.
Who will score and analyze the data: Life Science faculty

Course Objectives

1. Use correct terminology when referring to structure and function of the human body at all levels including biochemical, molecular, cellular, systematic, 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 neutral components.
5. Identify, describe, and explain the functions of various body system 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 how biological responses to acute and chronic exercise are influenced by altitude.
8. Identify how biological responses to acute and chronic exercise are influenced by temperature.
9. Identify health risk factors.
10. Explain the effects of acute and chronic exercise on health and health risk factors.
11. Identify age-associated changes in human physical performance.
12. Explain the effects of chronic exercise on age-associated changes in physical performance.
13. Measure and report resting and exercise heart rates.
14. Calculate an estimate of maximal oxygen uptake.
15. Measure, calculate, and report body composition based on skinfolds and girth.
16. Calculate caloric expenditures.

New Resources for Course

Course Textbooks/Resources

Textbooks

Katch, VL, McArdle, WD, Katch FI. *Essentials of Exercise Physiology*, 4th ed. Baltimore: Wolters Kluwer/LWW, 2011, ISBN: 1-60831-267-4.

Manuals

Periodicals

Software

Equipment/Facilities

Level I classroom

Testing Center

Other: Exercise Science Laboratory (LA235)

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
Faculty Preparer: <i>Marvin Boluyt</i>	<i>Faculty Preparer</i>	<i>Aug 02, 2021</i>
Department Chair/Area Director: <i>Anne Heise</i>	<i>Recommend Approval</i>	<i>Aug 04, 2021</i>
Dean: <i>Victor Vega</i>	<i>Recommend Approval</i>	<i>Aug 10, 2021</i>
Curriculum Committee Chair: <i>Randy Van Wagnen</i>	<i>Recommend Approval</i>	<i>Dec 03, 2021</i>
Assessment Committee Chair: <i>Shawn Deron</i>	<i>Recommend Approval</i>	<i>Dec 08, 2021</i>
Vice President for Instruction: <i>Kimberly Hurns</i>	<i>Approve</i>	<i>Dec 08, 2021</i>

Washtenaw Community College Comprehensive Report

BIO 201 Physiology of Exercise Effective Term: Winter 2016

Course Cover

Division: Math, Science and Engineering Tech

Department: Life Sciences

Discipline: Biology

Course Number: 201

Org Number: 12100

Full Course Title: Physiology of Exercise

Transcript Title: Physiology 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

Rationale: Three-year syllabus review

Proposed Start Semester: Fall 2015

Course Description: In this course, students are introduced to the basic principles of exercise physiology, 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 as well as the effects of regular exercise on health and aging.

Course Credit Hours

Variable hours: No

Credits: 4

Lecture Hours: Instructor: 45 Student: 45

Lab: Instructor: 45 Student: 45

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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

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College-Level Math

Requisites

Prerequisite

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or

Prerequisite

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Prerequisite
BIO 111

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 cellular and systems physiological principles that underly exercise performance, metabolism, and nutrition.

Assessment 1

Assessment Tool: Departmentally-designed questions

Assessment Date: Fall 2017

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: A selected set of exam questions that address this outcome will be assessed by item analysis.

Standard of success to be used for this assessment: At least 70% of students will score at least 70% on a selected set of questions from exams embedded in the course.

Who will score and analyze the data: Life Science Faculty

2. Identify biological responses to environmental stressors that modify exercise performance and health status.

Assessment 1

Assessment Tool: Departmentally-designed questions

Assessment Date: Fall 2017

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: A selected set of exam questions that address this outcome will be assessed by item analysis.

Standard of success to be used for this assessment: At least 70% of students will score at least 70% on a selected set of questions from exams embedded in the course.

Who will score and analyze the data: Life Science Faculty

3. Identify the 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: Fall 2017

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: A selected set of exam questions that address this outcome will be assessed by item analysis.

Standard of success to be used for this assessment: At least 70% of students will score at least 70% on a selected set of questions from exams embedded in the course.

Who will score and analyze the data: Life Science Faculty

4. Reliably and accurately measure physiological and biometric variables.

Assessment 1

Assessment Tool: Responses to questions on laboratory exercises and laboratory reports

Assessment Date: Fall 2017

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Students will be scored on formal laboratory reports using a departmentally-developed rubric.

Standard of success to be used for this assessment: At least 70% of students are expected to score 75% or better on each laboratory report.

Who will score and analyze the data: Life Science Faculty

Course Objectives

1. Use correct terminology when referring to structure and function of the human body at all levels including biochemical, molecular, cellular, systematic, and organismal.
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3. Identify nutrients and their roles and fates in energy production during exercise.
4. Identify characteristics of skeletal muscle fiber types and their corresponding neutral components.
5. Identify, describe, and explain the functions of various body system 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 how biological responses to acute and chronic exercise are influenced by altitude.
8. Identify how biological responses to acute and chronic exercise are influenced by temperature.
9. Identify health risk factors.
10. Explain the effects of acute and chronic exercise on health and health risk factors.
11. Identify age-associated changes in human physical performance.
12. Explain the effects of chronic exercise on age-associated changes in physical performance.
13. Measure and report resting and exercise heart rates.
14. Calculate an estimate of maximal oxygen uptake.
15. Measure, calculate, and report body composition based on skinfolds and girth.
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Equipment/Facilities

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Testing Center
Other: Exercise Science Laboratory (LA235)

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
Faculty Preparer: <i>Marvin Boluyt</i>	<i>Faculty Preparer</i>	<i>May 15, 2015</i>
Department Chair/Area Director: <i>Anne Heise</i>	<i>Recommend Approval</i>	<i>May 18, 2015</i>
Dean: <i>Kristin Good</i>	<i>Recommend Approval</i>	<i>May 19, 2015</i>
Curriculum Committee Chair: <i>Kelley Gottschang</i>	<i>Recommend Approval</i>	<i>Jun 24, 2015</i>
Assessment Committee Chair: <i>Michelle Garey</i>	<i>Recommend Approval</i>	<i>Jul 07, 2015</i>
Vice President for Instruction: <i>Bill Abernethy</i>	<i>Approve</i>	<i>Jul 09, 2015</i>