

# Exercise Science - MS - Exercise Science

## 2017 - 2018 Assessment Plan

Currently status is: Report Accepted

### I. ANNUAL REPORT FOR 2016 - 2017

#### Mission Statement

The mission of the MS Program in Exercise Science at the University of South Carolina is to promote the interest in and the understanding of behavioral, physiological, and cellular mechanisms of exercise and physical activity and their relationship to health and rehabilitation through classroom, clinical, and research activities.

#### Goal 1.

Master of Science students are expected to gain an understanding of the fundamental principles and practices of public health and epidemiology.

#### Curriculum

PUBH 700, EPID 700

#### Learning Outcome 1.

Master of Science students will demonstrate an understanding of current public health practice and how various health-related disciplines contribute to achieving public health goals.

#### Measures and Criteria

Students will complete PUBH 700, which is a required seminar that orients students to the history, mission, core services, and disciplines of public health, and requires students to develop an understanding of current public health practice and how various health-related disciplines contribute to achieving public health goals. Accordingly, the course grade is an appropriate measure of this learning outcome and our criteria is that 80% or more of the students will pass with a grade of 80% or higher. Due to the small size of the program, results from 2 or more consecutive academic years will be used to assess passing rates.

#### Methods

At the end of the spring semester, the EXSC MS Program Director will collect the data from the Coordinator of Graduate Programs or Primary Instructor of PUBH 700, use the data to identify any weaknesses in the curriculum and determine what changes, if any, need to be made to the curriculum.

#### Results

During the 2014-2015, 2015-2016, and 2016-2017 academic years, 15 MS students in Exercise Science enrolled in PUBH 700. All 15 students (100%) successfully passed the class. This exceeds the 80% pass criterion, indicating that the MS students in Exercise Science were able to demonstrate an understanding of current public health practice.

#### Use of Results

Given that the MS students in Exercise Science comfortably surpassed the 80% pass criterion, we do not recommend implementing changes to the curriculum or assessment measures.

#### Learning Outcome 2.

Master of Science students will demonstrate an understanding of the principles and practices that are used in epidemiology to examine the health status of populations and translate epidemiologic findings into public health action.

#### Measures and Criteria

Students will complete EPID 700, which is a required course that presents the principles and practices of epidemiology that are used to examine the health status of populations and translate epidemiologic findings into public health action. Accordingly, the course grade is an appropriate measure of this learning outcome and our criteria is that 80% or more of the students will pass with a grade of 80% or higher. Due to the small size of the program, results from 2 or more consecutive academic years will be used to assess passing rates.

## **Methods**

At the end of the spring semester, the EXSC MS Program Director will collect the data from the Coordinator of Graduate Programs or Primary Instructor of EPID 700, use the data to identify any weaknesses in the curriculum, and determine what changes, if any, need to be made to the curriculum.

## **Results**

During the 2014-2015, 2015-2016, and 2016-2017 academic years, 17 MS students in Exercise Science enrolled in EPID 700. All 17 students (100%) successfully passed the class with a grade of 80% or higher. This exceeds the 80% pass criterion, indicating that the MS students in Exercise Science were able to demonstrate an understanding of the principles and practices that are used in epidemiology to examine the health status of populations and translate epidemiologic findings into public health action.

## **Use of Results**

Given that the MS students in Exercise Science comfortably surpassed the 80% pass criterion, we do not recommend implementing changes to the curriculum or assessment measures.

## **Goal 2.**

Master of Science students are expected to gain the required knowledge of research design and statistical procedures and to complete a research project/thesis in agreement with their advisor on a topic in Exercise Science.

## **Curriculum**

EXSC 798, 799; BIOS 700, 701, 757

### **Learning Outcome 1.**

Master of Science students will evaluate scientific literature, create a research plan and analyze original research results in order to formulate an answer to one or more research questions.

## **Measures and Criteria**

Students will compose an inclusive paper containing an introduction, purpose, methods, results and discussion to address one or more research questions and synthesize an interpretation based on the findings. A committee (Thesis) or faculty mentor (Project) will assess the paper for completeness, accuracy, and interpretation of findings. Ninety percent of students will satisfy the project/thesis demands.

## **Methods**

The student's advisor (Project) or Committee (Thesis) will assess the completed document for thoroughness, accuracy and interpretation of the research. The student's advisor (Project) or two out of three committee members (Thesis) must approve the document and the student's oral defense of the document. At the end of the spring semester, the EXSC MS Program Director will collect the data from the Coordinator of Graduate Programs, use the data to identify any weaknesses in the curriculum, and determine what changes, if any, need to be made to the curriculum.

## **Results**

During the 2014-2015, 2015-2016, and 2016-2017 academic years, 22 MS students in Exercise Science completed a MS Thesis or Project that involved composing an inclusive research paper that addressed one or more research questions and synthesized an interpretation from research findings. All 22 students (100%) satisfied the MS Thesis or Project demands. This exceeded the 90% pass criterion, indicating that the criterion was met.

## **Use of Results**

Given that the MS students in Exercise Science comfortably surpassed the 90% pass criterion, we do not recommend implementing changes to the curriculum or assessment measures. The MS program was revised to eliminate concentrations and the plan for 2017-2018 is being revised accordingly.

## **Goal 3.**

Applied Physiology Master of Science students are expected to participate in classroom laboratory activities, clinical testing/evaluation programs, and research projects.

## **Curriculum**

EXSC 742, 743

### **Learning Outcome 1.**

Applied Physiology Master of Science students will demonstrate laboratory proficiency through written and practical evaluations.

#### **Measures and Criteria**

Students will write lab reports that explain the methodology, analyze the data, and evaluate the results for each laboratory exercise. All lab reports will be evaluated with a rubric (see attachment); a passing grade will be set at 70%. Students who receive a grade below 70% on a lab report will be permitted a single resubmission to attain this standard on up to 30% of their lab reports. At least eighty percent of students will receive a score of 70% or higher on all their lab reports on the first attempt. Due to the small size of the program, results from 2 or more consecutive academic years will be used to assess passing rates.

#### **Rubric for 742/743**

##### **Methods**

At the end of the spring semester, the EXSC MS Program Director will collect the data from the Coordinator of Graduate Programs or faculty teaching courses in the curriculum. He/she will then use the data to identify any weaknesses in the curriculum, and meet with the faculty teaching courses in the curriculum determine what changes, if any, need to be made to the curriculum.

##### **Results**

During the 2014-2015, 2015-2016, and 2016-2017 academic years, 22 MS students in Exercise Science with specialization in Applied Physiology completed EXSC 742 and/or EXSC 743, which required lab reports explaining the methods and results of laboratory exercises. 18 out of 22 MS students (82%) successfully obtained a grade of 70% or higher on all lab reports. The 4 students who did not successfully obtain a grade of 70% or higher on all lab reports on their first attempt successfully obtained a grade of 70% or higher on resubmission. This criterion was met.

##### **Use of Results**

We do not recommend implementing changes to the curriculum. The MS program was revised to eliminate concentrations and the plan for 2017-2018 is being revised accordingly.

### **Goal 4.**

Applied Physiology Master of Science students are expected to gain the required knowledge of exercise physiology and its relationship to health and performance.

#### **Curriculum**

EXSC 620, 666, 669, 777, 780, 781, 784, 880

### **Learning Outcome 1.**

Applied Physiology Master of Science students will explain, analyze and evaluate: 1) physiological changes that occur during a single session of exercise, 2) physiological adaptations that take place with repeated exercise sessions, and 3) how environmental conditions influence these responses.

#### **Measures and Criteria**

Students will complete comprehensive exam questions in which they will explain, analyze and/or evaluate various relationships between physiological responses and adaptations, and environmental stressors. At least eighty percent of the students will pass the comprehensive exams. Due to the small size of the program, results from 2 or more consecutive academic years will be used to assess passing rates.

##### **Methods**

The comprehensive examination is conducted as a concluding portion of the student's program. Ungraded comprehensive exam questions will be turned into the Program Director in paper and electronic form. The Program Director will disseminate copies of the exams to two predetermined faculty members from the Applied Physiology Division, who will evaluate each question for completeness and accuracy. Responses that are judged as incomplete and/or inaccurate will be given a categorical rating of Fail. Responses that are judged to have some minor issues with completeness and/or accuracy will be given a categorical rating of Marginal. Responses that are judged as both complete and accurate will be given a categorical rating of Pass. Responses that are judged to go above and beyond expected completeness and accuracy will be given a categorical rating of Excellent. Ratings for each question will be converted to a numeric value where

Fail is scored as 1, Marginal is scored as 2, Pass is scored as 3 and Excellent is scored as 4. Scores from the two raters will be summed and a score of 5 or better will be deemed as a passing score for each question. If the scores for any question differ by more than 2 points, a third reader will be requested to evaluate the answer and the 2 closest scores will be used. Students who fail to obtain an overall score of 5 or better on any 1 question (thesis students) or any 2 questions (project students) will be allowed to a single attempt to rewrite the question(s) to obtain a score of 5 or better.

At the end of the spring semester, the EXSC MS Program Director will collect the data from the Coordinator of Graduate Programs, use the aggregate results from each particular question to identify any weaknesses in the curriculum, and determine what changes, if any, need to be made to the curriculum.

### **Results**

During the 2014-2015, 2015-2016, and 2016-2017 academic years, 13 MS students in Exercise Science specializing in Applied Physiology completed a comprehensive examination that included 3 questions (thesis students) or 6 questions (project students). Of the 13 students, 7 passed each question with a score of 5 or higher on the first attempt. Therefore, 54% of students passed the comprehensive exam on the first attempt. The remaining 6 students passed the rewrite. This criterion was not met.

### **Use of Results**

The MS program was revised to eliminate concentrations and the plan for 2017-2018 is being revised accordingly.

## **Goal 5.**

Health Aspects of Physical Activity Master of Science students are expected to gain the required knowledge of physical activity, behavior and measurement, and their relationships with health.

### **Curriculum**

EXSC 700, 710, 754, 882

#### **Learning Outcome 1.**

Health Aspects of Physical Activity Master of Science students will explain, analyze, and evaluate the relationships between physical activity, behavior and health.

#### **Measures and Criteria**

Students will complete comprehensive exam questions in which they will explain, analyze, and evaluate various relationships between physical activity, behavior and health. At least eighty percent of the students will pass this the comprehensive exams. Due to the small size of the program, results from 2 or more consecutive academic years will be used to assess passing rates.

#### **Methods**

The comprehensive examination is conducted as a concluding portion of the student's program. Ungraded comprehensive exam questions will be turned into the Program Director in paper and electronic form. The Program Director will disseminate copies of the exams to two predetermined faculty members from the Health Aspects of Physical Activity Division, who will evaluate each question for completeness and accuracy. Responses that are judged as incomplete and/or inaccurate will be given a categorical rating of Fail. Responses that are judged to have some minor issues with completeness and/or accuracy will be given a categorical rating of Marginal. Responses that are judged as both complete and accurate will be given a categorical rating of Pass. Responses that are judged to go above and beyond expected completeness and accuracy will be given a categorical rating of Excellent. Ratings for each question will be converted to a numeric value where Fail is scored as 1, Marginal is scored as 2, Pass is scored as 3 and Excellent is scored as 4. Scores from the two raters will be summed and a score of 5 or better will be deemed as a passing score for each question. If the scores for any question differ by more than 2 points, a third reader will be requested to evaluate the answer and the 2 closest scores will be used. Students who fail to obtain an overall score of 5 or better on any 1 question (thesis students) or any 2 questions (project students) will be allowed to a single attempt to rewrite the question(s) to obtain a score of 5 or better.

At the end of the spring semester, the EXSC MS Program Director will collect the data from the Coordinator of Graduate Programs, use the aggregate results from each particular question to identify any weaknesses in the curriculum, and determine what changes, if any, need to be made to the curriculum.

### **Results**

During the 2014-2015, 2015-2016, and 2016-2017 academic years, 4 MS students in Exercise Science specializing in Health Aspects of Physical Activity completed a comprehensive examination that included 3 questions (thesis students) or 6 questions (project students). Of the 4 students, 4 passed each question with a score of 5 or higher on the first attempt. Therefore, 100% of students passed the comprehensive exam on the first attempt, meeting this criterion.

#### **Use of Results**

The MS program was revised to eliminate concentrations and the plan for 2017-2018 is being revised accordingly.

### **Goal 6.**

Rehabilitation Science Master of Science students are expected to gain the required knowledge and theory of motor skill acquisition throughout the lifespan and the relationship of to rehabilitation and health.

#### **Curriculum**

EXSC 535, 563, 731, 808

#### **Learning Outcome 1.**

Rehabilitation Science Master of Science students will explain, analyze, and evaluate the relationships between biomechanical, physiological, psychological and neural factors that influence learning and performance of motor skills in healthy and disabled populations.

#### **Measures and Criteria**

Students complete comprehensive exam questions in which they will explain, analyze, and/or evaluate how biomechanical, physiological, psychological and/or neural factors influence learning and performance of motor skills in healthy and disabled populations. At least eighty percent of the students will pass this the comprehensive exams. Due to the small size of the program, results from 2 or more consecutive academic years will be used to assess passing rates.

#### **Methods**

The comprehensive examination is conducted as a concluding portion of the student's program. Ungraded comprehensive exam questions will be turned into the Program Director in paper and electronic form. The Program Director will disseminate copies of the exams to two predetermined faculty members from the Rehabilitation Sciences Division will evaluate each question for completeness and accuracy. Responses that are judged as incomplete and/or inaccurate will be given a categorical rating of Fail. Responses that are judged to have some minor issues with completeness and/or accuracy will be given a categorical rating of Marginal. Responses that are judged as both complete and accurate will be given a categorical rating of Pass. Responses that are judged to go above and beyond expected completeness and accuracy will be given a categorical rating of Excellent. Ratings for each question will be converted to a numeric value where Fail is scored as 1, Marginal is scored as 2, Pass is scored as 3 and Excellent is scored as 4. Scores from the two raters will be summed and a score of 5 or better will be deemed as a passing score for each question. If the scores for any question differ by more than 2 points, a third reader will be requested to evaluate the answer and the 2 closest scores will be used. Students who fail to obtain an overall score of 5 or better on any 1 question (thesis students) or any 2 questions (project students) will be allowed to a single attempt to rewrite the question(s) to obtain a score of 5 or better.

At the end of the spring semester, the EXSC MS Program Director will collect the data from the Coordinator of Graduate Programs, use the aggregate results from each particular question to identify any weaknesses in the curriculum, and determine what changes, if any, need to be made to the curriculum.

#### **Results**

During the 2014-2015, 2015-2016, and 2016-2017 academic years, 6 MS students in Exercise Science specializing in Rehabilitation Sciences completed a comprehensive examination that included 3 questions (thesis students) or 6 questions (project students). Of the 6 students, 1 student passed each question with a score of 5 or higher on the first attempt. Therefore, 17% of students passed the comprehensive exam on the first attempt. The remaining 5 students passed the rewrite. This criterion was not met.

#### **Use of Results**

The MS program was revised to eliminate concentrations and the plan for 2017-2018 is being revised accordingly.

## II. FUTURE ASSESSMENT PLAN FOR 2017 - 2018

### Mission Statement

The mission of the MS Program in Exercise Science at the University of South Carolina is to promote the interest in and the understanding of behavioral, physiological, and cellular mechanisms of exercise and physical activity and their relationship to health and rehabilitation through classroom, clinical, and research activities.

### Goal 1.

Master of Science students are expected to gain the required knowledge of research design and statistical procedures and to complete a project or thesis in agreement with their advisor on a topic in Exercise Science.

[curriculum map](#)

### Curriculum

EXSC 798, 799; BIOS 700, 701

See curriculum map

#### Learning Outcome 1.

Master of Science students will evaluate scientific literature, create a research plan and analyze and interpret research results.

#### Measures and Criteria

Thesis students will compose an inclusive paper containing an introduction, purpose, methods, results and discussion to address one or more research questions and synthesize an interpretation based on the findings. The Thesis Committee will assess the paper for completeness, accuracy, and interpretation of findings. At least 90% of thesis students will satisfy the project/thesis demands.

Project students will complete three comprehensive exam questions in which they will evaluate scientific literature, create a research plan, and analyze interpret research results. At least 80% of project students will pass the question on the first attempt.

#### Methods

For thesis students, the student's Thesis Committee will assess the completed document for thoroughness, accuracy and interpretation of the research. At least two out of three committee members must approve the document and the student's oral defense of the document for the student to pass.

For project students, the Coordinator of Graduate Programs disseminates copies of the exams to two predetermined faculty members who will evaluate the questions for completeness and accuracy. Responses that are judged as incomplete and/or inaccurate will be given a rating of Fail (score = 1). Responses that are judged to have some minor issues with completeness and/or accuracy will be given a rating of Marginal (score = 2). Responses that are judged as both complete and accurate will be given a rating of Pass (score = 3). Responses that are judged to go above and beyond expected completeness and accuracy will be given a rating of Excellent (score = 4). Scores from the two raters will be summed and a score of 5 or better will be deemed as a passing score for each question. If the scores for any question differ by more than 2 points, a third reader will be requested to evaluate the answer and the 2 closest scores will be used. In order to pass the comprehensive exam, the student must pass all questions. Students who fail to obtain an overall score of 5 or better will be allowed a single attempt to rewrite the question(s) to obtain a score of 5 or better.

At the end of the spring semester, the EXSC MS Graduate Director will collect the data from the Coordinator of Graduate Programs, use the data to identify any weaknesses in the curriculum, and determine what changes, if any, need to be made to the curriculum.

### Goal 2.

Master of Science students are expected to participate in classroom laboratory activities, clinical testing/evaluation programs, and research projects.

### Curriculum

### **Learning Outcome 1.**

Master of Science students will demonstrate proficiency in laboratory-based assessments through written and practical evaluations.

#### **Measures and Criteria**

Students will write lab reports that explain the methodology, analyze the data, and evaluate the results for each laboratory exercise. All lab reports will be evaluated with a rubric (see attachment); a passing grade will be set at 70%. Students who receive a grade below 70% on a lab report will be permitted a single resubmission to attain this standard on up to 30% of their lab reports. At least 80% of students will receive a score of 70% or higher on all their lab reports on the first attempt.

rubric for 742/743

#### **Methods**

At the end of the spring semester, the EXSC MS Graduate Director will collect the data from the Coordinator of Graduate Programs or the primary instructor for EXSC 742 and 743. The Graduate Director will then use the data to identify any weaknesses in the curriculum, and meet with the faculty teaching courses in the curriculum determine what changes, if any, need to be made to the curriculum.

### **Goal 3.**

Master of Science students are expected to gain the required knowledge of exercise physiology, physical activity, and motor skills acquisition and their relationships with health.

#### **Curriculum**

EXSC 780 or 781, 700, 710, and 731.

### **Learning Outcome 1.**

Master of Science students will explain, analyze and evaluate physiological changes that occur during exercise and how environmental conditions influence these responses.

#### **Measures and Criteria**

Students will be assessed on a paper or final exam for EXSC 780 (Physiology of Exercise) or EXSC 781 (Physiology, Exercise, and Disease). This course is usually taken in the students' first year of the program. At least 80% of students are expected to achieve a grade of "B" or greater on the paper or final exam for EXSC 780 or 781.

Both thesis and project students will complete a comprehensive exam question in which they will explain, analyze and evaluate physiological changes that occur during exercise and how environmental conditions influence these responses. At least 80% of students will pass the question on the first attempt.

#### **Methods**

The comprehensive examination is conducted as a concluding portion of the student's program. The Coordinator of Graduate Programs disseminates copies of the exams to two predetermined faculty members who will evaluate the question for completeness and accuracy. Responses that are judged as incomplete and/or inaccurate will be given a rating of Fail (score = 1). Responses that are judged to have some minor issues with completeness and/or accuracy will be given a rating of Marginal (score = 2). Responses that are judged as both complete and accurate will be given a rating of Pass (score = 3). Responses that are judged to go above and beyond expected completeness and accuracy will be given a rating of Excellent (score = 4). Scores from the two raters will be summed and a score of 5 or better will be deemed as a passing score for each question. If the scores for any question differ by more than 2 points, a third reader will be requested to evaluate the answer and the 2 closest scores will be used. In order to pass the comprehensive exam, the student must pass all questions. Students who fail to obtain an overall score of 5 or better will be allowed a single attempt to rewrite the question(s) to obtain a score of 5 or better.

At the end of the spring semester, the EXSC MS Graduate Director will collect the data from the Coordinator of Graduate Programs and the Primary Instructors of EXSC 780 and 781. The Graduate Director will then use the aggregate results to identify any weaknesses in the curriculum, and determine what changes, if any, need to be made to the curriculum.

## **Learning Outcome 2.**

Master of Science students will explain, analyze, and evaluate the relationships between physical activity, behavior, and health.

### **Measures and Criteria**

Students will be assessed on their paper for EXSC 700 Physical Activity and Health: Epidemiology, Research, and Practice. This course is usually taken at the end of the students' first year of the program. At least 80% of students are expected to achieve a grade of "B" or greater on the paper for EXSC 700.

Both thesis and project students will complete a comprehensive exam question in which they will explain, analyze and evaluate the relationships between physical activity, behavior, and health (content from EXSC 700 and EXSC 710). At least 80% of students will pass the question on the first attempt.

### **Methods**

The comprehensive examination is conducted as a concluding portion of the student's program. The Coordinator of Graduate Programs disseminates copies of the exams to two predetermined faculty members who will evaluate the question for completeness and accuracy. Responses that are judged as incomplete and/or inaccurate will be given a rating of Fail (score = 1). Responses that are judged to have some minor issues with completeness and/or accuracy will be given a rating of Marginal (score = 2). Responses that are judged as both complete and accurate will be given a rating of Pass (score = 3). Responses that are judged to go above and beyond expected completeness and accuracy will be given a rating of Excellent (score = 4). Scores from the two raters will be summed and a score of 5 or better will be deemed as a passing score for each question. If the scores for any question differ by more than 2 points, a third reader will be requested to evaluate the answer and the 2 closest scores will be used. In order to pass the comprehensive exam, the student must pass all questions. Students who fail to obtain an overall score of 5 or better will be allowed a single attempt to rewrite the question(s) to obtain a score of 5 or better.

At the end of the spring semester, the EXSC MS Graduate Director will collect the data from the Coordinator of Graduate Programs and the Primary Instructor of EXSC 700. The Graduate Director will then use the aggregate results to identify any weaknesses in the curriculum, and determine what changes, if any, need to be made to the curriculum.

## **Learning Outcome 3.**

Master of Science students will explain, analyze, and evaluate the relationships between biomechanical and neural factors that influence learning and performance of motor skills in healthy and disabled populations.

### **Measures and Criteria**

Students will be assessed on their paper or final exam for EXSC 731 Mechanisms of Motor Skill Acquisition. This course is usually taken in the middle of the program. At least 80% of students are expected to achieve a grade of "B" or greater on the paper or final exam for EXSC 731.

Both thesis and project students will complete a comprehensive exam question in which they will explain, analyze and evaluate the relationships between biomechanical and neural factors that influence learning and performance of motor skills in healthy and disabled populations. At least 80% of students will pass the question on the first attempt.

### **Methods**

The comprehensive examination is conducted as a concluding portion of the student's program. The Coordinator of Graduate Programs disseminates copies of the exams to two predetermined faculty members who will evaluate the question for completeness and accuracy. Responses that are judged as incomplete and/or inaccurate will be given a rating of Fail (score = 1). Responses that are judged to have some minor issues with completeness and/or accuracy will be given a rating of Marginal (score = 2). Responses that are judged as both complete and accurate will be given a rating of Pass (score = 3). Responses that are judged to go above and beyond expected completeness and accuracy will be given a rating of Excellent (score = 4). Scores from the two raters will be summed and a score of 5 or better will be deemed as a passing score for each question. If the scores for any question differ by more than 2 points, a third reader will be requested to evaluate the answer and the 2 closest scores will be used. In order to pass the comprehensive exam, the student must pass all questions. Students who fail to obtain an overall score of 5 or better will be allowed a single attempt to rewrite the question(s) to obtain a score of 5 or better.

At the end of the spring semester, the EXSC MS Graduate Director will collect the data from the Coordinator of Graduate Programs and the Primary Instructor of EXSC 731. The Graduate Director will then use the aggregate results to identify any weaknesses in the curriculum, and determine what changes, if any, need to be made to the curriculum.