

QUINCY UNIVERSITY EXERCISE SCIENCE ANNUAL REPORT 2014-2015

Report Summary

The annual Exercise Science report will address Goals 2 and 5 for the 2014-2015 year. Goal 2 addresses the students' abilities to analyze how exercise and physical activity affects the body. The students are assessed in PED 345 Physiology of Exercise through written exams, laboratory activities, and term papers. Goal 5 addresses the students' abilities to analyze the effects of nutrition on sport and exercise performance.

Quincy University's Mission Statement:

Quincy University stands as a Catholic, independent, liberal arts institution of higher learning in the Franciscan tradition. Inspired by the spirit of Francis and Clare of Assisi, we respect each person as a sister or brother with dignity, value, and worth. We work for justice, peace and the integrity of creation. We prepare men and women for leadership and for the transformation of the world by educating them to seek knowledge that leads to wisdom. We welcome and invite all to share our spirit and our life.

Exercise Science Mission Statement:

The mission of the Quincy University Exercise Science Program is to provide students the opportunities to acquire the knowledge, skills, and values that are necessary to be competent and successful in the personal training field and for post-graduate study in exercise science or other health-related programs. Students experience a Franciscan-based liberal arts education that helps prepare them to take on leadership roles in promoting and training people for physically active lifestyles and to continue their journey for lifelong learning.

QU Exercise Science Program Goals and Outcomes	QU PE Courses	Assessments Within the Courses
1. Students will demonstrate an understanding of functional anatomy and biomechanics of the human body. (Assessed during even years)		
a. Students will articulate knowledge of the structures of the human body and locate anatomical landmarks.	PED/SCI 344	Written Exams
b. Students will describe movements of the major joints of the body and analyze the movement patterns and muscles involved in various physical activities.	PED/SCI 344	Written Exams Labs Sport Skill Presentation
c. Students will evaluate various sport skills through biomechanical principles, joint movements and muscle use, and error identification and correction through video analysis.	PED/SCI 344	Sport Skill Presentation
2. Students will demonstrate an understanding of physiology of the body in regards to physical activity and exercise. (Assessed during odd years)		
a. Students will explain the basic metabolic, cardiovascular, and neuromuscular responses to physical activity and exercise and relate how exercise affects each.	PED/SCI 345	Written Exams Labs Term Paper

b. Students will analyze how to improve physical performance and the physiological effects from performing various types of exercises.	PED/SCI 345	Written Exams Term Paper
c. Students will compare physiological differences between males and females and children and adults and how they relate to physical performance.	PED/SCI 345	Written Exams
3. Students will demonstrate the ability to assess health status and conduct fitness testing. (Assessed during even years)		
a. Students will demonstrate various methods of assessing health status and interpreting the results.	PED 454	Performance Lab Case Studies
b. Students will apply the guidelines and principles of fitness testing through their ability to conduct appropriate fitness testing.	PED/SCI 345 PED 454	Performance Lab
c. Students will interpret fitness testing results to make appropriate exercise recommendations.	PED 454	Performance Lab Case Studies
4. Students will demonstrate the ability to develop appropriate exercise programs. (Assessed during even years)		
a. Students will correctly demonstrate and explain various exercise techniques.	PED 106 PED 152 PED 355 PED 380	Strength Training Program Written Exam
b. Students will design appropriate exercise programs based off of client's needs and goals.	PED 355 PED 380	Training Program
c. Students will modify exercise programs for children, older adults, and individuals with special needs.	PED 355 PED 444	Training Program
5. Students will demonstrate an understanding of the principles of nutrition and its role in exercise and weight management. (Assessed during odd years)		
a. Students will compare each nutrient group and explain its role in the bioenergetic processes.	PED 301 PED/SCI 345	Food/Activity Log Case Study Written Exams
b. Students will perform nutritional assessment and interpret the results in regards to weight control and nutritional health.	PED 301	Food/Activity Log Case Study
c. Students will analyze appropriate nutritional guidelines related to physical activity and alterations in body composition.	PED 301	Food/Activity Log Case Study

Goal 2: Students will demonstrate an understanding of physiology of the body in regards to physical activity and exercise.

I. Learning Outcomes Assessed during 2014-2015

- a. Students will explain the basic metabolic, cardiovascular, and neuromuscular responses to physical activity and exercise and relate how exercise affects each.

- b. Students will analyze how to improve physical performance and the physiological effects from performing various types of exercises.
- c. Students will compare physiological differences between males and females and children and adults and how they relate to physical performance.

II. Assessment Descriptions

- a. **Written Exams:** Each written exam covered two to three topics (2-3 chapters) and consisted of multiple choice, essay, and fill-in questions. Each test had approximately 20-25% worth of essay questions.
- b. **Laboratory Activities:** Lab activities were done in small groups with several group members performing various physical activities and tests with results recorded. Several labs required various calculations and classifying performance results. Each group member would have their own question that they would have to answer. Each question required 1-2 page answers. The labs were graded with a rubric evaluating completion of the lab activities and correct calculations, addressing lab questions with correct responses in physiological terms, and proper writing. Each group member would receive an overall group score for the labs. The laboratory activities involved analyzing energy systems, measuring and calculating body composition, and measuring and calculating maximal aerobic capacity (VO₂max). There was to be a muscular fitness lab, but the equipment malfunctioned the day of the lab and the lab had to be discontinued.
- c. **Term Papers:** For the 2013 school year students wrote a ten-page term paper on a topic relating to exercise physiology, with an opportunity to revise it. Papers were graded using a rubric that incorporated the Quincy University Writing Rubric for Writing Enriched Courses. Elements evaluated with the rubric included: context of and purpose of writing, content development, genre and disciplinary conventions, sources and evidence, and control of syntax and mechanics. The paper was worth 140 points. If students received an A or B on their first draft, they had the option to revise their paper. If students achieved a C grade or lower, they were required to revise their first draft. For the 2014 school year, the term paper had the same requirements, but the rubric was revised. Students had complained about the difficulty of understanding the rubric used in 2013 so the rubric was revised, but still included the same elements. The categories for the new rubric were: Introduction, Content Development, Conclusion, Organization, Mechanics and Usage, Bibliography and Citations, and Paper Format. With the changes to the rubric, the term paper score was increased to 160 points. The same revisions policies were still used.

III. ASSESSMENT RESULTS

a. WRITTEN EXAMS

Energy Systems	2013 (N=15)	2014 (N=17)
Class Average	75.3%	70%
Meets or Exceeds	12	12
Does Not Meet	3	5

Muscular, Nervous, Endocrine Systems	2013 (N=15)	2014 (N=17)
Class Average	66%	76.6%
Meets or Exceeds	7	13
Does Not Meet	9	4

Cardiovascular and Respiratory Systems	2013 (N=15)	2014 (N=17)
Class Average	60.5%	74.1%
Meets or Exceeds	4	15
Does Not Meet	11	2

Nutrition, Fluids, Body Composition	2013 (N=15)	2014 (N=17)
Class Average	67%	68.2%
Meets or Exceeds	10	10
Does Not Meet	5	7

Fitness Prescription and Special Populations	2013 (N=15)	2014 (N=17)
Class Average	77%	75.6%
Meets or Exceeds	12	13
Does Not Meet	3	4

b. LAB PROJECTS

Energy Systems Lab	2013 (N=15)	2014 (N=17)
Class Average	77.8%	81.3%
Meets or Exceeds	12	15
Does Not Meet	3	2

Cardiorespiratory Fitness Lab	2013 (N=15)	2014 (N=17)
Class Average	83.5%	87.5%
Meets or Exceeds	15	17
Does Not Meet	0	0

Body Composition Lab	2013 (N=15)	2014 (N=17)
Class Average	84%	87%
Meets or Exceeds	14	17
Does Not Meet	1	0

c. TERM PAPER

2013 Term Papers (N=13)	First Draft	Final Draft
Class Average	71%	77%
Meets or Exceeds	7	12
Does Not Meet	6	1

2014 Term Papers (N=17)	First Draft	Final Draft
Class Average	76.1%	82%
Meets or Exceeds	14	16
Does Not Meet	3	1

IV. ANALYSIS OF ASSESSMENT RESULTS

- a. **Test Results:** When comparing test results from the 2013 class to the 2014 class, several things were identified initially. The 2013 class was offered on a Monday, Wednesday, and Friday format with the class period lasting 50 minutes. The 2014 class met on Tuesdays and Thursdays with 75 minute class sessions. Another factor was the composition of students in each class. The 2013 class was composed predominantly with Physical Education and Exercise Science (personal training concentration) majors and also included Biology and Exercise Science Pre-Physical Therapy (Pre-PT) majors. The 2014 class had a majority of Pre-PT majors with some Physical Education and Exercise Science (personal training) majors. Although the composition of the class should not matter, Pre-PT majors tend to be stronger students, which may partially explain the differences in test scores between the years. The 2014 class went to a two-day per week schedule to allow more time for labs to be performed during the class sessions. This also caused a greater gap of when information was presented from a Thursday to a Tuesday. One of the more interesting possibilities for poor test scores could also be in the scheduling of the tests. For both years, Tests 3 and 4 occurred after several days of labs and a school break which caused at least a week between the last lecture and the test being taken. Although this gap may have provided more time for students to study, it is doubtful the students took advantage of this time and come test time, the material was not as fresh in their minds as was hoped. With the 2014 schedule, not as much material was covered as in the three-day schedule. This may have helped students prepare for the exams because they did not have as much information to be responsible for. Each year the instructor provided daily quizzes over material presented in the previous class lecture. With student complaints that the daily quiz was lowering their grade, the instructor stopped providing the quizzes and the test scores lowered. Also, on Test 3 during the 2013 year the instructor tried more group discussions instead of lecture, but the test scores were lower and students requested having the lectures again.
- b. **Laboratory Activities:** The schedule changes from 2013 to 2014 were primarily due to providing more time to complete lab activities during the class period. Although there was more time in the 2014 class, limited equipment and more groups still caused extra class days to complete the lab activities. Grades were good for the majority of groups, but there were still complaints that it wasn't fair that if one group member did a poor job on his/her section, it lowered the scores for all the other group members. Although this has been a continuing problem over the last several years, all students have been much more actively involved with lab activities and shown better accountability than in the past. Also, the part of the purpose for doing group activities was to get students to learn to work successfully in a group, but there became apparent issues when students would need to work together outside of the class time and their schedules were not compatible to meet. A solution needs to be determined to provide the students the opportunity to learn to work together, but so each student receives an individual grade that does not affect the other group members.
- c. **Term Paper:** After 2012, the term paper assignment went back to a single paper ten pages long on a single topic. First drafts were due two weeks sooner than in the past in order for to provide time for the instructor to grade them and to provide more time for students to make revisions if necessary. The first drafts did not utilize peer-reviewed research studies appropriately, but instead most of the papers relied on internet sites and articles. This was one of the same problems from the 2011-2012 courses. Adjustments that were to help improve this problem were providing students with recommended peer-reviewed journals and showing comparisons between peer-reviewed articles and magazine and internet articles. This problem resulted in the content of the paper not addressing the requirements. For the final drafts, most students did not want to completely change the content of their paper and mainly made syntax and mechanic corrections. The 2014 class of students were provided the same information, but did a much better job of utilizing peer-reviewed research studies to help develop the content of their paper. Various websites and videos discussing plagiarism were also provided for the students to read and watch,

which helped minimize this problem. Both the 2013 and 2014 class used TurnItIn.com to submit their papers and plagiarism was greatly reduced in the classes.

V. Planned program changes based on assessment results

- a. **Written Exams:** Adjustments that will be made in the upcoming classes will be to have the students take the written exams before the laboratory activities. The lab activities were to help students use the information covered in the course before taking the exams, but this has apparently not worked. Hopefully, by taking the written exams sooner, the information will stay “fresh” in the students’ minds. Also, the course will go back to a three-days per week schedule to keep the students focused on the material more days per week and not have as long a gap between classes. Also, by providing the three-days per week schedule, less content will have to be covered per week and more content over the semester can be covered. The instructor will also try to manage when the exams will be administered. Students in the course over the last several years have expressed their displeasure in having tests on the day right after a break or weekend. Although it does not always work out correctly in the schedule, attempts will be made to administer most tests during the middle of the week in an attempt to determine the success of this method. Lectures will still be incorporated based off of the students’ request and daily quizzes will be utilized, but not all of them will be used for grading purposes, but more so as a gauge to determine student understanding.
- b. **Laboratory Activities:** The main laboratory projects will still be used, but the activities will be modified and reduced to allow more partner activities instead of small groups. This is to alleviate the issue of single students affecting the grades of other group members. The instructor is not fond of this method, but until a better method of grading the labs is determined, the partner method will be used. The labs will also be monitored to determine if the partner method is efficient and effective due to the shorter class hours and lack of testing equipment for all groups.
- c. **Term Paper:** Continuation of the ten-page paper on a single topic will continue. The addition of an article-review assignment using a peer-reviewed research article using the format of the term paper will also be incorporated to make sure the students know what a peer-reviewed article is and for them to get a better understanding of how to write the paper.

Goal 5: Students will demonstrate an understanding of the principles of nutrition and its role in exercise and weight management.

I. Learning Outcomes Assessed during 2014-2015

- a. Students will compare each nutrient group and explain its role in the bioenergetic processes.
- b. Students will perform nutritional assessment and interpret the results in regards to weight control and nutritional health.
- c. Students will analyze appropriate nutritional guidelines related to physical activity and alterations in body composition.

II. A detailed description of the methods of program assessment used this year

Movie Reflection: The students watched a documentary called *Hungry For Change* and reflected on the video in class in small groups. After watching the documentary the students were to write a reflection on the video answering a couple questions. First question: In what way is this movie different than what they hear from other sources? The students must have at least three specific issues/topics that were challenged when watching the documentary. They must also describe how the issues/topics were challenged and give an explanation whether you agree or disagree with the documentary’s point of view. Second question: What questions do you have about nutrition now that you have watched this documentary?

Food Logs: This project was a two week long journaling of food and liquid intake. After each week the students had to write a reflection and observation of their food log. Throughout the class the students used their individual food log for several assessments. Assessments included analysis of the food log, which included calorie intake and breakdown of protein, carbohydrates, and fats.

Paper: Each student was given an individual vitamin and mineral that they were to research. The students were to share with the class; the major roll of the mineral and vitamin in the body, popular food sources and common deficiencies symptoms.

Test: Each exam included one major subject. The exams were in a fill in the blank and short answers format.

Projects: Throughout the semester the students had to complete 3 projects that consisted of a presentation, visual, and/or paper. First small project was to create a story board of three electronic billboards that rotated every eight seconds. The story board had to encourage college students on QU's campus to make healthy food choices. The students worked in groups of 3-4 and had to have a print out to share with the class and present on it as well. Second project was a brochure on specific controversial topics that I gave the groups. Each group had to do research to form an opinion about their topic and then create a brochure. The brochure had to support the groups' opinion by using reputable sources as well as inform college students about the topic. The third project, the students were paired up and were given topics dealing with the digestion and absorption process. The students had to use reputable resources when researching the different topics. Students had to present and turn in a paper.

Athlete Project: This project for the class was a food log analysis of a high school athlete with specific recommendation and supporting references. The project included a detailed dietary analysis with a breakdown of the individual's macronutrients and micronutrients, along with specific questions on the dietary analysis. The student had to choose two items and/or topic to educate their high school client on accompanied by a detailed paragraph on each item. Also the student had to pick a current snack item from your client's food log and choose a healthier version and compare the two items. Finally, the student had to include one sample meals for breakfast, lunch and dinner.

Final Project: The final project was an ongoing project for the last three weeks of the semester. The students were partnered up and were assigned specific times to meet with me as a pair. The students were to be each other's nutrition coach. Each student had to fill out a health history and nutrition analysis to give to each other so they could review it and come up with any additional questions. As well as recording their daily food intake throughout the three weeks. Each student had to make weekly observations and recommendations for their partner from the weekly food log. During our individual partner meetings the students were to share their observations and the recommendations with detailed a plan to help their partner be successful with their recommendations. Along with four topics to educate their partner on accompanied by a detailed paragraph on each topics and share during the meetings.

III. Results of this year's assessment

Movie Reflection	2013 (N=19)	2015 (N=15)
Exceeds		10
Meets		5
Does Not Meet		0
Class Average		95%

2 week Food Log	2013 (N=19)	2015 (N=15)
Exceeds	10	12
Meets	9	3
Does Not Meet	0	0

Class Average	100%	98%
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Observations of Food log	2013 (N=19)	2015 (N=15)
Exceeds	13	9
Meets	4	4
Does Not Meet	2	2
Class Average	88.5%	86.5%

Food log Analysis	2013 (N=19)	2015 (N=15)
Exceeds	16	10
Meets	3	3
Does Not Meet	0	2
Class Average	95%	92%

Paper	2013 (N=19)	2015 (N=15)
Exceeds		8
Meets		7
Does Not Meet		0
Class Average		95%

Test 1:	2013 (N=19)	2015 (N=15)
Exceeds	5	3
Meets	14	9
Does Not Meet	0	3
Class Average	87.8%	85%

Storyboard Project	2013 (N=19)	2015 (N=15)
Exceeds		12
Meets		3
Does Not Meet		0
Class Average		99.5%

Brochure Project	2013 (N=19)	2015 (N=15)
Exceeds		14
Meets		0
Does Not Meet		1
Class Average		94%

Digestion Project	2013 (N=19)	2015 (N=15)
Exceeds	19	5
Meets		8
Does Not Meet		2
Class Average	100%	89.7%

Athlete Project	2013 (N=19)	2015 (N=15)
Exceeds		6
Meets		7
Does Not Meet		2

Class Average		92.5%
Final Project	2013 (N=19)	2015 (N=15)
Exceeds	5	3
Meets	10	9
Does Not Meet	4	3
Class Average	83.5%	86.3%

IV. Analysis of assessment result

- a. Movie Reflection: All students were very successful on reflecting on the documentary we watched in class. The reflection was a good way for me to see previous knowledge and their personal views on nutrition. The students did a great job sharing challenges the video brought to their attention as well as made them think of some great questions for the class discuss.
- b. Food Logs: All the students were very successful at journaling their food intake for two weeks, which allowed the students to use their food logs for further assignments. The observation of the food log was a little more difficult for the students. The students overall did well, but the students were new to sports nutrition and just learning what to look for in the food log. The food log analysis was rudimentary for the students therefore they were more successful with that assignment.
- c. Projects: The students were very successful with all three projects. The students seemed to enjoy the small group projects. They performed better on the projects compared to the test. I also observed they learned more and enjoyed it more compared to the test. I thought the storyboard and brochure were very successful because the students took more initiative and made the project their own while incorporating their new knowledge.
- d. Test: The students earned average grades on the test, but there were a few that did not do as well at all. I believe the testing format was harder for the students; also it was the first test in the class. The few students that did not perform well on the test did not prepare for the test. Those same few students showed the same readiness in other assignments as well.
- e. Athlete Project: Overall, the students did well on this project. It was a learning project because it was to prepare them for the final project. At first I had to encourage the students to think critically on their observations and recommendations. But after we had several in-class discussions about how to make thoughtful observations, the majority of them made improvements. They shared their individual work on this project with small groups so they not only got my feedback they also received peer feedback. In the end I was happy how they grew within this project.
- f. Final Project: Although, the final project average was acceptable it was not as good as expected. There were a few students that really brought the class average down. A couple of the students who were exceeding on most assignments did not excel as well as I

thought on the final project. The final project consisted of many items and majority of the students did a good job completing all of the items, but there were a few that did not take the final project very serious and that reflected in the students' grade.

V. Planned program changes

1. Provide additional formative assessment opportunities earlier in the course.
 - a. I thought the movie reflection in the beginning of the class was helpful in assessing their current knowledge on nutrition.
 - b. I would like to add a short evaluation first day of class to get the initial assessment of sports nutrition knowledge before watching the documentary.
2. Provide additional feedback following the formative assessments.
 - a. Provide a learning activity to analyze the class results of the survey to identify areas of strength and small group learning objectives.
 - b. Provide a learning activity to analyze personal results of the survey to identify areas of strength and needs for personal sports nutrition.
3. Utilize the early formative assessments to personalize student learning.
 - a. Provide learning activities following each formative assessment and align to overall sports nutrition learning outcomes.