Central Washington University
Assessment of Student Learning
Department and Program Report

Please enter the appropriate information concerning your student learning assessment activities for this year.

Academic Year of Report: 2012-2013 College: CEPS
Department Nutrition, Exercise and Health Sciences (NEHS)
Program: Master of Science Exercise Science

1. What student learning outcomes were assessed this year, and why?
In answering this question, please identify the specific student learning outcomes you assessed this year, reasons for assessing these outcomes, with the outcomes written in clear, measurable terms, and note how the outcomes are linked to department, college and university mission and goals.

The program assessed the following student learning outcome (SLO):

“Students will demonstrate effective application of technology skills in the acquisition of exercise physiology data, and effective communication skills using oral, print and visual formats”

This SLO is an essential component for all graduate level students and is presently linked to department Program Goal 3 “Academic resources will be readily available and used by faculty and students.”, College Goal 5 “Provide professional, high quality staffing, facilities, technologies and appropriate resources to ensure the highest levels of academic and professional development”, and related to University Goal 1 “Maintain and strengthen an outstanding academic and student life”, and Goal 3 “Strengthen and further diversify our funding base to support academic and student programs.

2. How were they assessed?
In answering these questions, please concisely describe the specific methods used in assessing student learning. Please also specify the population assessed, when the assessment took place, and the standard of mastery (criterion) against which you will compare your assessment results. If appropriate, please list survey or questionnaire response rate from total population.

A) What methods were used?

Graduate Director requested a reporting from faculty teaching select graduate courses and engaging students in a final culminating graduate experience such as a thesis or project during the 2012-2013 academic year. A-priori criteria related to SLO is that 90% of graduate students will successfully incorporate the use of technology as related to measurements of human performance and in the preparation and delivery of research presentations. Designated courses to assess SLO of interest included the following:

EXSC 551, Advanced Physiology of Exercise: Metabolism and Skeletal Muscle, Application of physiological principles to the regulation of cellular and organic processes during exercise. Regulation, control, and adaptation of metabolic pathways. Response and adaptation of
metabolic pathways. Response and adaptation of skeletal muscle to both acute and chronic exercise.

EXSC 552, Advanced Physiology of Exercise: Pulmonary and Cardiovascular Systems, Responses and adaptations of cardiovascular and pulmonary systems to acute and chronic exercise. Neural and humoral mechanisms of control during exercise.

EXSC 553: Laboratory Techniques in Stress Physiology, Techniques for the assessment of human physiological characteristics during rest and exercise stress.

EXSC 557: Research Methods and Design in Exercise and Nutritional Science, Concepts of the scientific research process including selection of a research process including selection of a research topic, literature review, project methods and design, hypothesis testing, and research proposals for exercise and nutritional science.

EXSC 560: Inferential Statistics in Exercise and Nutritional Sciences, Concepts of quantitative procedures including correlation, regression, t-tests, and ANOVA’s up to two-way will be studied with results statements generated using data sets drawn from research in these disciplines.

EXSC 700: Thesis/Project/Examination

B) Who was assessed?

Graduate students – Exercise Science

C) When was it assessed?

Throughout the 2012-2013 academic year. Graduate faculty submitted pertinent information during Fall quarter 2013 to address aforementioned SLO for 2012-2013 academic year.

3. What was learned?

In answering this question, please report results in specific qualitative or quantitative terms, with the results linked to the outcomes you assessed, and compared to the standard of mastery (criterion) you noted above. Please also include a concise interpretation or analysis of the results.

Faculty reported that 100% of the exercise science graduate students demonstrated effective application of technology skills in the acquisition of exercise physiology data, and effective communication skills using oral, print, and visual format.

Graduate students employed a variety of computer related software and laboratory instrumentation to study aspects of advanced exercise physiology, methods/design and statistics as applied to exercise science/applied physiology. For example, in EXSC 553 (Laboratory Techniques in Stress Physiology) students utilized medical equipment to measure body composition characteristics and physiological responses of the human at rest and under the stress of exercise. Faculty report that the results from the laboratory measurements provided the
students with a better understanding of the physiological responses to exercise and the potential mechanisms for adaptation to exercise. Effective (successful) utilization of laboratory equipment resulted in the collection of valid and reliable data. Subsequently, statistics were employed (SPSS & Excel) to apply appropriate test statistic, generate manuscript ready tables, figures and a hard copy report (Microsoft Word) for assessment purposes. Faculty reported the use of the following technology utilized in the laboratory class: students used plethysmography (air displacement using high tech BOD POD) to assess body composition, automated and dry spirometry to assess pulmonary volumes and capacities, and open-circuit spirometry and pneumotachometer to assess the metabolic responses (oxygen uptake, carbon dioxide production) during rest and exercise, to name a few.

The laboratory technique class highlighted above required that students bring together their fund of knowledge and skills acquired from EXSC 551, 552, 557 and 560. The advanced exercise physiology classes (551 & 552) required that students utilize search engines to retrieve literature (original investigations, review articles) in order to address (research) a topic (s) of interest. Students utilized Power Point and Excel to put together an oral presentation and Microsoft Word to prepare a hard copy report. Oral presentations and research reports were assessed to determine if the student successfully accomplished the intended purpose of the class assignments. EXSC 560 required that students employ SPSS Stat Package and Excel to work with research data sets and prepare reports for grading to assess if the students successfully accomplished the intended purpose of the assignments. EXSC 557 required the use of SPSS Stat Package, Powerpoint, and Microsoft word for the preparation of oral presentations and research proposal reports.

As a final culminating experience, students have the option of a thesis, project or examination. The thesis and project options have been the most popular. Faculty believe that the experiences gained in the aforementioned graduate courses helped prepare students for the final culminating experience. Five graduate students (100%) successfully completed their final culminating experience. Of the five students, one has recently submitted an abstract for the National American College of Sports Medicine meeting in June 2014, with a manuscript recently prepared by the student in collaboration with three professors. It is anticipated that the research manuscript will be submitted to a peer reviewed journal by January 2014. In addition, a second graduate student presented her work at the North West American College of Sports Medicine (ACSM) and the national ACSM meetings 2013. Presently, this student is preparing a manuscript of her research work in collaboration with a faculty member.

4. What will the department or program do as a result of that information?
In answering this question, please note specific changes to your program as they affect student learning, and as they are related to results from the assessment process. If no changes are planned, please describe why no changes are needed. In addition, how will the department report the results and changes to internal and external constituents (e.g., advisory groups, newsletters, forums, etc.).

In general, NEHS faculty are pleased with the formal opportunities provided to graduate students leading to the application of computer related software technology and laboratory instrumentation for the purpose of researching topics in advanced exercise physiology, delivering information via oral presentations, in visual and hard copy format, in addition to the employment of laboratory equipment to better understand human functioning at rest and during an exercise
state. No changes at this time are planned since there is a general agreement that classroom assignments and laboratory experiences are academically robust, appropriately assessed and collectively provide the student with an opportunity to collect sufficient exercise physiology data, in addition to providing the students with an opportunity to demonstrate their communication skills using oral, print and visual formats. Faculty believe that the knowledge and experiences gained in EXSC 551, 552, 553, 557 and 560 help prepare students satisfactorily to successfully complete their final culminating experience.

A major concern expressed by faculty is that we are in drastic need of laboratory space and equipment to enhance the overall laboratory experience for our students. The lab is congested most times with multiple student groups. Presently, we have a curtain to give some suggestion of a separation between a lab assignment being conducted by our graduate students while an undergraduate lab class is meeting on the other side of the partition.

The department is grateful for the current equipment in the physiology lab and is appreciative of support over the years to realize such equipment. However, the current presentation of the laboratory (i.e. amount of usable space, available equipment) is certainly not ideal and does not line up favorably with College Goal 5 “Provide professional, high quality staffing, facilities, technologies and appropriate resources to ensure the highest levels of academic and professional development”, and University Goal 1 “Maintain and strengthen an outstanding academic and student life”. A realization of University Goal 3, “Strengthen and further diversify our funding base to support academic and student programs”, is needed in order to develop the laboratory environment necessary that will help facilitate graduate students expanding on their technology skills. There is also a realization that a new “Health Sciences” building may bring with it the much needed laboratory environment to help optimize the technology skills of our students. The availability of such building may not be realized until 2019, thus, in the meantime, we believe the University needs to help us realize our current laboratory equipment needs. Again, this would benefit us in better preparing our students.

5. What did the department or program do in response to last year’s assessment information?
In answering this question, please describe any changes that have been made to improve student learning based on previous assessment results. Please also discuss any changes you have made to your assessment plan or assessment methods.

Last year’s assessment information was specific to the following SLO: “Students will demonstrate the ability to effectively assist professors in the classroom or lab setting and collaboration on research” The assessment report indicated we were below the target score of “2” on components #4 -- What will the department or program do as a result of that information (feedback/program improvement)?... score of “1”; and, #5 -- How did the department or program make use of the feedback from last year’s assessment”…. Score of “1”.

Regarding component #4 above……. the 2011-2012 report indicated that faculty members in clinical physiology and exercise science were satisfied with the graduate students’ ability to effectively assist professors in the classroom or lab setting and collaborate on research. It was reported that the exercise science GAs satisfactorily executed their assigned responsibilities in
teaching related tasks and research. GAs were very busy with relevant assignments (responsibilities) as related to the clinical physiology and exercise science programs. Regarding component #5 above……. the department indicated that “most recent change has included a more robust admission criteria into the MS Exercise Science program…..” and that “……. the newly adopted changes in the admission criteria has yielded more talented graduate students” which…….”the faculty believe has resulted in an academically stronger cohort”. Thus, information for #5 component was provided, although only receiving a score of “1”. Please note that we continue to utilize our current Admission Requirements into the MS Exercise Science program. I cannot predict what will happen in the long run. The faculty, for now, believe that the Admission Requirements work well for our program.

6. Questions or suggestions concerning Assessment of Student Learning at Central Washington University:

None at this time. Thank you.