Department\* 

Program Type: 

Degree Type: 

Program Name:\* 

Clinical Exercise Physiology

Provide a brief summary of the proposed program changes and describe the rationale for the change(s):

 According to the Center for Disease Control and Prevention, approximately half of US adults have a least one chronic health condition such as cardiovascular disease, chronic pulmonary disease, arthritis, cancer, or obesity. Additionally, 1 in 5 Americans have more than two of these illnesses, resulting in a condition labeled as Multiple Chronic Conditions (MCC). These chronic diseases make up seven out of the top 10 causes of death among US adults, as well as the number one cause of disability. Furthermore, it is estimated that medical care costs for individuals with at least one chronic illness contributes to 78% of the overall $1.7 trillion dollars of health care expenditures in the US, while care for individuals with more than one chronic condition makes up 95% of these costs. Sadly, two thirds of the health care expenditure costs are made up by individuals who present with five or more chronic illnesses. In particular, the state of Delaware is challenged with high prevalence of such chronic illnesses, ranking 23rd in the nation for heart disease, 34th in the nation for chronic pulmonary disease, and 27th in the nation for kidney disease.

Recently, there have been great efforts to develop disease management programs in order to help ease the burden of current health care costs. Unfortunately, such efforts have been largely unsuccessful in reducing this burden or providing adequate care management for individuals. Additionally, research suggests that persons with MCC are more vulnerable to care programs of lower quality as coordination of care tends to be more difficult given the increased number of professionals and resources required to meet their medical needs. Thus, in order to enhance patient care, a more comprehensive approach to care coordination must be established, bringing the necessity of effective, multidisciplinary medical care teams to a critical point.

As part of such multidisciplinary teams, a Clinical Exercise Physiologist (CEP) works with patients and clients with chronic illnesses as well as with apparently healthy populations. CEPs are trained to apply efficacy-based exercise/physical activity programs and behavioral interventions to almost every chronic illness to help improve patient outcomes and quality of life. Regular participation in exercise and physical activity has been associated with health outcomes such as reductions in all-cause mortality and morbidity, cardiovascular disease, metabolic diseases (e.g. diabetes, obesity, hypertension) and even some cancers. As exercise specialists, CEPs prescribe the most appropriate dose, type, frequency and intensity of exercise and physical activity in order maximize such benefits while also reducing potential risks. More recently, the role of a CEP has expanded as growing evidence supports the need for professionals to focus on reducing negative psychological experiences during exercise in order to promote adherence to programs, a critical component to achieving the accumulative benefits of exercise. A CEP can work in preventative and rehabilitation settings as they uphold the highest professional guidelines and ethical standards in order to provide exceptional care to individuals and enhance communication between patients and their medical care coordination team.

Given that Clinical Exercise Physiology is a relatively new field (having only been around since the 1960s), there is a need for professional graduate programs that promote the published professional guidelines and ethical standards and prepare students to sit and pass the American College of Sport Medicine’s certification examination in order to enter the workforce as the top qualified professionals. This is the impetus for the creation of the M.S. in Clinical Exercise Physiology program.

Currently, within the Kinesiology and Applied Physiology Department, the M.S. in Exercise Science program has a concentration in Clinical Exercise Physiology. The existing concentration is different from the other concentrations in the M.S. in Exercise Science program in that it is a non-thesis, professional graduate program and students must be full-time, moving through the program in cohorts. Making this a free-standing master’s program will also provide greater visibility to the program for purposes of recruiting students. This change is also in line with the missions of the College and University to provide outstanding, targeted professional education to our students so they will be prepared to serve our local Delaware community as well as global society by becoming health care advocates and part of interdisciplinary teams that enhance the health and wellbeing of our society.

This new program draws from the existing graduate courses in the current academic concentration and will provide a fundamental foundation for future accreditation and recruitment efforts which contribute to fulfilling the mission of the University of Delaware by supporting its path to prominence. The plan for administration of the program is further detailed in the Program Policy Statement.

Clinical Exercise Physiology is currently a concentration under the M.S. in Exercise Science program. In June 2016, the concentration accepted eight students for its inaugural class and as of summer 2017, all eight graduated. Of the eight students, two went on to pursue their PhDs and another is pursuing a second Master’s degree to aid in the development of his own fitness business. Several of our recent graduates are applying to Physical Therapy or Physician Assistant programs and are currently waiting on their acceptance status. Other graduates have accepted positions as a Clinical Exercise Physiology research assistant and assistant coach for premier Universities. In June 2017, seven more students were enrolled under the concentration and are currently active students who are anticipated to graduate in May 2018. Given the proposed changes, the M.S. in Clinical Exercise Physiology program would be eligible for permanent status in 2023.

**List new courses required for the new curriculum**. How do they support the overall program objectives of the major/ minor/ concentrations)?

The following courses have already been approved by the faculty senate and are currently taken by students enrolled in the M.S. Exercise Science with a concentration in Clinical Exercise Physiology. The M.S. Clinical Exercise Physiology program with utilize these same courses during the designated semesters for the credits noted below:

KAAP 665: 12 Lead ECG Interpretation (Fall) 3 Credits

This course is designed to train students to interpret 12-lead ECG tracings and identify various cardiac arrhythmias. Students will utilize these skills in a number of clinical internship sites including exercise counseling and cardiac rehabilitation. Students will apply these skills throughout the entire program and demonstrate their competency in this area not only in class and in the field but also on the American College of Sports Medicine's certification exam.

KAAP 675: Clinical Exercise Physiology I (Summer I) 4 Credits

This course prepares students with an advanced foundation of Cardiovascular physiology and an introduction to disease pathology. Students utilize these concepts each day in clinical sites in order to assess patient's cardiovascular, pulmonary, and metabolic responses before, during and after exercise.

KAAP 676: Clinical Exercise Physiology II (Summer II) 4 Credits

This course prepares students to develop effective and safe exercise prescriptions for healthy adults and adults with chronic illnesses. Students will develop exercise programs and determine contraindications to exercise testing and participation in all clinical sites. This course is the foundation of Clinical Exercise Physiology and provides students with essential skills for being part of a multidisciplinary health care team.

KAAP 677: Administration and Organization of Cardiopulmonary and Wellness Programs (Fall) 3 Credits

In this course students learn the organization and legal requirements of developing effective clinical organizations and the application of these principles in rehabilitation settings they will be working in.

KAAP 678: Cardiopulmonary Pathophysiology &Pharmacology (Spring) 3 Credits

Students will gain an advanced understanding of cardiac, pulmonary and metabolic disease pathology and how common drugs and exercise prescriptions affect chronic disease progression. Students will directly apply these concepts in clinical rotations as they demonstrate a strong understanding for altered cardiovascular, pulmonary and metabolic responses during rest and exercise due to disease and drugs to ensure the safety of patients and clients and how to best prescribe exercise intensities.

KAAP 679: Primary Preventive Medicine Strategies (Winter) 3 Credits

This course stresses the importance of preventative medicine and the extent that exercise provides preventative benefits to common chronic illnesses. These concepts help students address additional, assumingly healthy populations in efforts to modify or reduce cardiovascular risk factors.

KAAP 680: Clinical Exercise Physiology Comprehensives (Spring) 3 Credits

This course reviews all essential components of the American College of Sports Medicine's certification exam, which they will take during the final weeks of the spring semester. Successful completion of this certification makes students one of the highest qualified clinical exercise professionals in the field.

KAAP 681: Clinical Exercise Physiology Competencies Portfolio (Spring) 1 Credit

Throughout the 12-month program, students are provided a portfolio template to document and record all clinical and service efforts related to the program. These documents are used to assist in the preparation of job market materials including resumes, cover letters, curriculum vitaes and acts as an official record of clinical participation to qualify for the American College of Sports Medicine's certification exam.

KAAP 671: Clinical Exercise Physiology Internship (Summer II, Fall, Winter, Spring) 12 Credits

Student's participation in KAAP 671 accumulates to >500 hours of hands on, clinical experience with a variety of patient populations including assumingly healthy adults as well as those with cardiovascular, pulmonary, metabolic and neurological conditions. These hours not only qualify students for the American College of Sports Medicine's certification exam, but may also qualify as valid clinical hours for other medical programs including physical therapy, medical school, or physician's assistant programs. Furthermore, these experiences provide students with the opportunity to practice and become proficient in clinical measurements and assessments which prepare them for a variety of career opportunities.

**Identify other units affected by the proposed changes** and provide letters of support from those units. :

The M.S. in Exercise Science within the Department of Kinesiology and Applied Physiology will be effected as there will no longer be a concentration in Clinical Exercise Physiology given that this program will stand alone. However, the M.S. in Exercise Science program will continue to be offered as is under the supervior of the current program director Dr. Thomas Buckley. Dr. Buckley has provided a letter of support for this proposal as we feel it will increase exposure for this professional program and fulfilling the mission of the University of Delaware and supports its path to prominence as well as the efforts of the University of Delaware to provide outstanding, targeted professional education to our students.

Courses

KAAP 665 12 Lead ECG Interpretation (3cr.)

KAAP 671 Clinical Exercise Physiology Internship (1 to 12cr.)

KAAP 675 Clinical Exercise Physiology (4cr.)

KAAP 676 Clinical Exercise Physiology II (4cr.)

KAAP 677 Administration and Organization of Cardiopulmonary and Wellness Programs (3cr.)

KAAP 678 Cardiopulmonary Pathophysiology and Pharmacology (3cr.)

KAAP 679 Primary Preventive Medicine Strategies (3cr.)

KAAP 680 Capstone: Clinical Exercise Physiology Comprehensives (3cr.)

KAAP 681 Exercise Testing and Prescription Clinical Competencies Portfolio (1cr.)

KAAP - 665 - 12 Lead ECG Interpretation (3cr.)

KAAP - 671 - Clinical Exercise Physiology Internship (1 to 12cr.)

KAAP - 675 - Clinical Exercise Physiology (4cr.)

KAAP - 676 - Clinical Exercise Physiology II (4cr.)

KAAP - 677 - Administration and Organization of Cardiopulmonary and Wellness Programs (3cr.)

KAAP - 678 - Cardiopulmonary Pathophysiology and Pharmacology (3cr.)

KAAP - 679 - Primary Preventive Medicine Strategies (3cr.)

KAAP - 680 - Capstone: Clinical Exercise Physiology Comprehensives (3cr.)

KAAP - 681 - Exercise Testing and Prescription Clinical Competencies Portfolio (1cr.)