

Proposal for an Undergraduate Program in Exercise Science

The Bachelor of Science in Exercise Science
Classification of Instructional Programs ([CIP user site](#)):
31.0505 - Kinesiology and Exercise Science

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A. Program Objectives

Exercise Science (also for this proposal referred to as Kinesiology) is the study of human movement and includes interdisciplinary training in academic areas such as biomechanics, exercise physiology, motor control, sports history and sports psychology. Graduates of an Exercise Science program can work in a variety of careers (some may require additional training) including: adapted physical activity, aquatics director, athletics administration, athletic trainer, biomechanist, cardiac rehab specialist, coaching at a school or college, director of youth camp/sports program, physical activity epidemiologist, exercise physiologist, fitness instructor or program director at commercial fitness center, massage therapist, personal trainer, physical education, program director of corporate fitness center, recreational therapist, respiration therapist, sports director at a resort, sports management, sport psychologist, sports information director, sports journalist, sports marketing, or a strength and conditioning coach. A description of each career can be found on the American Kinesiology Association website ([Careers in Kinesiology](#)).

Nature, Focus and Conceptual Framework: We are proposing to develop an undergraduate degree program in Exercise Science. The conceptual framework for this program is based upon that put forth by Gabriel et al.¹ and Antonucci et al.². Although the human body is designed for movement, population rates of physical activity in the US have declined over time³. Contributing factors may include a reduction in physically active occupations in the workplace, increasing use of labor-saving devices in the home and/or increasing use of cars for transportation. This trend is alarming because being physically active is an important factor in health promotion and disease prevention. Regular physical activity is associated with a reduced risk of developing adverse acute and chronic health conditions such as coronary heart disease, hypertension⁴, hypercholesterolemia, type 2 diabetes, cancer and musculoskeletal disorders⁵. Additionally, better cardiorespiratory fitness is associated with a lower risk of all cause mortality⁶. Currently, studies are targeting molecular mechanisms to try and elucidate the link between exercise and the immune system⁷. Chronic diseases are the most common cause of preventable death in the United States⁸. If worldwide physical inactivity were decreased by 25%, it was estimated that >1.3 million deaths each year could be averted⁹. Thus, it is clear to see that physical inactivity is a major public health problem.

Gabriel et al.¹ put forth a conceptual framework to define human movement as a behavior that is either active or sedentary. The complex and multidimensional factors that guide these behaviors include physiological, psychological, social and environmental influences. The B.S. in Exercise Science course of study will address each one of these factors and how they influence human movement behavior. Additionally, Antonucci et al.² proposed a model based upon an ecological systems framework to address declining levels of physical activity. This 7-Cs model (cell, creature, clan, community, corporation, country, culture) focuses on the interactions among these factors to influence whether an individual is active or sedentary. The B.S in Exercise Science curriculum will address these multidimensional factors, ranging from cells to culture, and address how increasing physical activity will improve health and well-being across the lifespan.

Objectives, Knowledge and Skills: The objective of the program we propose is to address the public health need of physical inactivity by equipping students with the knowledge, skills and abilities necessary for entry-level Exercise Science positions in public or private industries or future graduate study in related areas. Students will be prepared for success in select certification examinations such as the American College of Sports Medicine's (ACSM) Certified Exercise Physiologist (previously called ACSM Certified Health Fitness Specialist) and the National Strength and Conditioning Association's (NSCA) Certified Strength and Conditioning

Specialist. Students do not have to have graduated from an accredited program in order to be eligible to take the ACSM or NSCA certification exams.

The science-based curriculum will combine study of exercise testing and prescription, exercise physiology and research methodology with supervised practical experiences. Students will obtain the knowledge, skills and abilities necessary to conduct and evaluate health and fitness assessments, design and implement exercise programs based upon assessment findings, and to monitor health and fitness changes/progression over time. We will seek accreditation by the Commission on the Accreditation of Allied Health Education Programs (CAAHEP) through the Committee on the Accreditation for the Exercise Sciences (CoAES). If granted, then this would be the only CAAHEP accredited Exercise Science program in the state of New Jersey. For Stockton University, the Middle States Association of Colleges and Schools is the regional accreditation body.

CAAHEP is the gold standard for Exercise Science accreditation. There are ~2000 CAAHEP accredited programs that prepare entry level practitioners in 25 health sciences professions. There are 44 Exercise Science programs across the US that have obtained CAAHEP accreditation through the CoAES. The CAAHEP accreditation process is rigorous and is based upon nationally-recognized Standards which contain specific requirements for training entry level practitioners in Exercise Science. These standards are reviewed and updated every 5 years. The American College of Sports Medicine (ACSM) or National Strength and Conditioning Association (NSCA) certifications are the most highly desired by employers in the field. Both ACSM and NSCA back the CAAHEP / CoAES accreditation process and are member organizations.

Cooperative Arrangements and Programmatic Mission: At this time, there are no cooperative arrangements with other institutions or external agencies to offer the program. Initially off-campus affiliations will be limited to the sites needed to complete the internship for the B.S in Exercise Science. We anticipate 20 to 30 initial sites needed for internship completion. We have had preliminary talks with a few sites which have indicated that they can take more than one student at time. The proposed program does not exceed the programmatic mission of the institution as listed in Appendix C of the Academic Issues Committee Manual (2014-2015). Stockton University (listed as Richard Stockton College of New Jersey in manual due to recent name change) is identified as a master's level institution and we are seeking permission to offer an undergraduate degree.

B. Evaluation and Learning Outcomes Assessment Plan

Program Level Goals / Learning Outcomes: In 2009, the American Kinesiology Association hosted a national workshop with leading experts in the field to develop a core curriculum and associated learning outcomes for undergraduate education in Exercise Science ([The Undergraduate Core in Kinesiology](#)). For this proposal, the core elements and associated learning outcomes described below were based upon this expert consensus.

This program will prepare competent entry-level Exercise Science professionals in the cognitive (knowledge), psychomotor (skills) and affective (abilities) learning domains. Upon completion of the B.S in Exercise Science program, students will possess the knowledge, skills and abilities to:

Core Element: Physical Activity in Health, Wellness, and Quality of Life

- 1) Describe the relationship between physical activity participation and health, wellness, and quality of life, including a detailed explanation of current physical activity guidelines and recommendations
- 2) Critically evaluate research related to physical activity and its impact on health and chronic disease
- 3) Design and evaluate physical activity programs that promote health and improve quality of life

Core Element: Scientific Foundations of Physical Activity

- 4) Explain how the scientific process informs our understanding of physical activity
- 5) Describe the underlying scientific foundations of physical activity
- 6) Critically evaluate information about physical activity from a scientific basis

Core Element: Cultural, Historical and Philosophical Dimensions of Physical Activity

- 7) Describe the socio-cultural and historical factors that influence physical activity
- 8) Demonstrate an appreciation of cultural diversity and make ethical decisions
- 9) Critically evaluate scholarly work related to cultural, historical and philosophical dimensions of physical activity

Core Element: The Practice of Physical Activity

- 10) Demonstrate an appreciation and commitment to physical activity practice

Institutional and Program Level Learning Goals: Institutional level learning goals, called essential learning outcomes (ELOs), are incorporated into these proposed Exercise Science program level learning goals. Stockton's 10 ELOs emphasizing outcomes-focused and competence-based student learning are: 1) Adapting to Change; 2) Communication Skills; 3) Creativity & Innovation; 4) Critical Thinking; 5) Ethical Reasoning; 6) Global Awareness; 7) Information Literacy & Research Skills; 8) Program Competence; 9) Quantitative Reasoning; 10) Teamwork & Collaboration ([ELO - Essential Learning Outcomes](#)). These outcomes summarize the knowledge and skills that every Stockton student should have acquired prior to graduation and are a combination of Stockton University's distinctive liberal arts education with real-world, practical skills. To support students' acquisition of ELOs the proposed learning outcomes for the B.S in Exercise Science are consistent with these institutional outcomes, emphasizing communication, critical thinking, ethics, research, program competence, quantitative reasoning, and teamwork. Thus, the proposed learning outcomes for the B.S. in Exercise Science program will be consistent with all 10 ELOs but will emphasize the seven listed. As one example, students in the class "Fitness Assessment and Exercise Prescription with Lab" will learn to work with the healthcare provider (teamwork/communication) to write an appropriate (program competence) evidence-based (research) exercise prescription that addresses the client's current health status (critical thinking) and future fitness goals (quantitative reasoning).

Achievement of Program Goals / Learning Outcomes Assessment and Program Review: The assessment process at Stockton University is continuous and complementary on all levels: institutional, divisional, school, department, program and course. Both direct and indirect measures will be used to assess achievement of the B.S in Exercise Science program goals and processes similar to other Stockton undergraduate programs will be used. At the Program level, the annual Program Coordinators' and Directors' report, which utilize a standardized university-wide template, will be completed for the B.S in Exercise Science program. This report lists the program's learning goals, collects and assesses performance measures and discusses actions taken based on results of the prior year's learning outcomes assessment cycle. A university-wide assessment committee comprised of Program Coordinators (including the Exercise Science Coordinator) and Directors from each program compiles assessment results and creates future action plans in these annual reports. Program Coordinators (including the

Exercise Science Coordinator) and Directors submit their annual reports to the Deans of their school, who review and discuss learning outcomes results, best practices and action plans with program faculty. Subsequently, reports are sent to the Office of the Provost, Office of Planning and Institutional Research and the Institute for Faculty Development for review. To disseminate learning outcome results, the Institute publishes a faculty authored newsletter called "Evidence". Per guidelines, after four successive annual reports, a Five Year Academic Program Review will be completed that utilizes a standardized template developed by the Office of the Provost that includes a synopsis of previous annual assessment plans and an external reviewer's evaluation of the extent to which the program acted upon results from those successive planning and assessment cycles. The B.S in Exercise Science program will complete each assessment outlined above per University policy and procedures.

Also at the Program level, the proposed B.S. in Exercise Science degree program will assess achievement of the program goals by conducting a longitudinal research study, similar to that currently being carried out in the B.S in Health Science degree program (P.I. Garcia; Title: Evaluation of the Bachelor of Science in Health Science Program Outcomes) using both qualitative and quantitative measures. The study will test cohorts of students prior to taking entry level classes, and then again at the end of upper level classes to assess knowledge of program core competencies. The results will be used to guide changes in the program and will be shared with the Stockton community via the "Evidence" newsletter.

Lastly on the program level, a curriculum map for each course will be developed which will list program outcomes and then show which course outcome(s) and ELO(s) align with each individual program outcome. Also, program faculty will review data collected on enrollment, attrition, certification results and student/alumni perceptions to assess qualifications and performance of program participants/graduates. Formative assessment procedures will include student coursework utilizing assignment completion submissions and test scores. For example, the Exercise Science coordinator along with program faculty will review test results from the previous year in various classes to address areas of weakness in student performance. Faculty will meet twice a year to review student progress related to program outcomes.

On the institutional level, the Collegiate Learning Assessment is administered during even numbered academic years to a sample of 100+ freshman and 100+ seniors to assess analytical reasoning, critical thinking and writing skills. The National Survey of Student Engagement is administered every two years to freshman and seniors to assess their engagement expectations and experiences at Stockton. The Individual Development and Educational Assessment (IDEA) student ratings are used to evaluate teaching based upon normative scores to adjust for student biases towards particular disciplines and perceptions of difficulty. IDEAs results will drive improvements in course delivery and student engagement within the proposed program. Additionally, peer observation to assess in class teaching will be completed and data from these observations will be used to assess the Exercise Science program.

Sustainability of Assessment Process: Stockton provides support for assessment of student learning through the Institute for Faculty Development, the Schools and directly from the Division of Academic Affairs by providing resources and financial support. Examples include sending faculty to assessment conferences, hiring outside evaluators, and purchasing assessment instruments. Thus, each assessment strategy outlined above is highly sustainable due to an institutional level commitment to improving student learning. Specifically, the Exercise Science program's assessment process will be supported and sustained by the University by providing access to the resources and financial support for the Program Coordinators report, five year academic review (including hiring external consultant) and administering the Collegiate

Learning Assessment, National Survey of Student Engagement, and Individual Development and Educational Assessment.

C. Relationship of the Program to the Institutional Strategic Plan and its Effect on Other Programs at the Same Institution

Proposed Program and Institutional Strategic Plan: The proposed program fits within the institutional mission, the strategic plan and the educational goals of Stockton University. The guiding principles of Stockton's Undergraduate Education Mission Statement are excellence in teaching and dedication to learning. ([Office of the President - Mission Statement](#)). Educational goals of the curriculum emphasize breadth, as well as depth. The B.S. in Exercise Science is consistent with this mission and goals, emphasizing academic excellence through teaching, creative inquiry and student engagement. Stockton's Mission Statement also asserts a "committed to the positive development of southern New Jersey". The proposed program will support this statement by assisting regional growth through the development of a cadre of skilled professionals that can contribute to both private and public business.

The proposed B.S in Exercise Science program is consistent with Stockton's strategic plan titled "Stockton University 2020". The themes included in the 2020 Strategy Map are: Learning, Engagement, Global Perspectives and Sustainability ([Office of the President - 2020 Strategic Planning](#)). Specifically, two objectives listed in the 2020 Strategy Map call upon the University to "deliver high value-added learning experiences" and "promote liberal arts ideals to develop lifelong learners", both of which are supported by the proposed B.S in Exercise Science program. The University will "deliver high value-added learning experiences" by launching a new program for students interested in a course of study that it has not been previously addressed. Additionally, the University will "promote liberal arts ideals to develop lifelong learners" by focusing on broad learning in multiple disciplines (General Studies curriculum) as well as in-depth study in a specific area of interest (Exercise Science). Exercise Science students will understand the importance of exercise to promote a healthy lifestyle and become lifelong learners of this discipline.

Proposed Program's Effect on Other Programs at Same Institution: The proposed program will train the next generation of exercise science professionals. This requires a curriculum with a strong science foundation, including coursework in Biology, Chemistry, Physics and Anatomy and Physiology. We are working with our colleagues in the School of Natural Sciences and Mathematics (NAMS) to address any concerns regarding the increased demand for coursework in these areas. Peter Straub, PhD, Interim Dean of NAMS is on the Exercise Science Proposal Committee and is supportive of the B.S in Exercise Science program. The Dean of Health Sciences, Dr Bartolotta met with Dr. Straub to discuss additional NAMS lab sections needed to accommodate the Exercise Science curriculum (see "Program Resources" section below for a detailed discussion of additional NAMS resources needed and **Appendix 1** for letter of support from NAMS). Dr. Straub said he is confident that these additional sections can be added.

D. Provide Justification of the Need for this Program

We put forth this proposal in response to student interest, the needs of our region and favorable trends in the industry. Student Demand: At Stockton University, an increasing number of students are interested in pursuing careers in health-related fields. This is evidenced by the rapid growth of the Bachelor of Science in Health Science (BSHS) degree program, which prepares students for a variety of positions in healthcare or for future Professional/Graduate education. Program tracks include pre-communication disorders, pre-physical therapy and pre-

occupational therapy. According to Institutional Research since the program's inception, BSHS Fall enrollment numbers have increased by 125% in the first year (2012: 305; 2013: 685) and 48% in the second year (2014: 1011; [Institutional Research - Enrollment Reports](#)). The proposed B.S in Exercise Science program will meet the need for students who desire a career in the allied healthcare field related to the exercise/sport sciences and the fitness/wellness industry.

Student demand is also demonstrated by results of an online survey using both qualitative and quantitative methods which was sent to all currently enrolled students in the BSHS degree program during the Fall 2015 semester. The responding sample was fairly evenly distributed among all academic standings (**Table 1**) and ~75% indicated that they were somewhat likely, likely, very likely or extremely likely to have pursued an Exercise Science degree at Stockton University (**Table 2**). Lastly, **Table 3** (next page) breaks down responses in **Table 2** by academic standing.

Student comments included:

- "I transferred to Stockton from Montclair State where I was an Exercise Science major. However, I wanted to be closer to home which is why I chose Stockton. I was extremely disappointed when I realized Stockton did not offer Exercise Science which is why I settled for Health Science."
- "It sounds very interesting! Something I would consider!"
- "I really wanted to get my bachelor's degree in Exercise Science or Athletic Training, and that almost made me decide to choose a different school other than Stockton. I ultimately came here because of the physical therapy program, but this would be an excellent program to offer."
- "That is a great idea!"
- "I definitely would have majored in Exercise Science if it was a major when I first enrolled!"
- "Good idea. I hope you follow through with it."
- "While Exercise Science isn't necessarily what I would choose to pursue, I know plenty of my friends decided not to attend Stockton because of the lack of an Exercise Science/ Sports Medicine program. The addition of this program would be a positive one, I'm sure."
- "This is what I wanted to go to school for originally. So if this was an option it would be great."
- "I wish this had been available it would've been my first choice!"

Table 1. Response to Question 1: What is your current academic standing at Stockton University?

Answer Choices	Number	Percentage
Freshman	69	17
Sophomore	112	28
Junior	95	23
Senior	130	32
Total	406	100

Table 2. Response to Question 2: Stockton University is considering offering a Bachelor of Science in Exercise Science degree program. If this option was available to you when you enrolled first semester freshman year, would you have considered pursuing this undergraduate degree?

Answer Choices	Number	Percentage
Not at all likely	101	25
Somewhat likely	102	25
Likely	71	17
Very likely	44	11
Extremely likely	88	22
Total	406	100

Needs of the Region: Stockton University is located in Atlantic County, Southern New Jersey. An annual national report by the Robert Wood Johnson Foundation and the University of Wisconsin's Population Health Institute showed that in 2015 Southern New Jersey was once again the least healthy region in the state ([Health Rankings | County Health Rankings & Roadmaps](#)). Atlantic County's ranking continues to decline, dropping from 17th in 2013 to 19th in 2014 to 20th in 2015. For the 6th consecutive year, Atlantic County's neighbor to the west, Cumberland County, has been ranked the least healthy of New Jersey's 21 counties. This illustrates the present need in our region for health and fitness professionals equipped with the knowledge, skill and abilities to take the lead in developing programs which will result in improved health and quality of life.

Labor Market Need: The health and fitness field is growing fast, with national, state and local career opportunities. As businesses, government, and insurance organizations continue to recognize the benefits of health and fitness programs for their employees, incentives to join gyms or engage in other types of health promotion activities is expected to increase the need for health and fitness professionals. *National labor market need*, assessed by the United States Bureau of Labor Statistics *Occupational Outlook Handbook*, ([Home : Occupational Outlook Handbook: : U.S. Bureau of Labor Statistics](#)) is strong. From 2012 to 2022, faster than average growth in employment is predicted for athletics administrators (15%), athletic trainers (19%), cardiac rehab specialist (39%), coaches at the high school and college levels (15%), directors of community centers / parks and recreation (14%), exercise physiologists (19%), fitness instructors (13%), massage therapists (23%), personal trainers (13%), physical educators (19%), recreational therapists (13%) and respiration therapists (19%). *State labor market need* was determined by the New Jersey Department of Labor and Workforce Development, Division of Labor Market and Demographic Research ([Department of Labor and Workforce Development | INDUSTRY & OCCUPATIONAL EMPLOYMENT PROJECTIONS](#)). Long-term occupational employment projections from 2012-2022 predict growth for the following New Jersey labor areas pertinent to this proposal: athletic trainers (6.9%), biomechanists (13.8%), cardiovascular technologists (22%), clinical laboratory technologists (7.7%), coaches (6.9%), exercise physiologists (4.3%), fitness trainers (7%), health technologists (17.4%), recreation workers (8.4%), recreational therapists (4.7%), respiratory therapists (11.9%) and strength and conditioning coaches (6.8%). As New Jersey's population continues to age, the elderly population (65 and over) is projected to grow by 68.7% between 2012 and 2032 ([Department of Labor and Workforce Development | Population & Labor Force Projections](#)). Physical health is an important predictor of overall well being, especially in later life. In the aged population, sarcopenia, defined as the age-related loss of

Table 3. Response to Question 2 by academic standing

Answer Choices	Number	Percentage
Freshman		
Not at all likely	22	32
Somewhat likely	22	32
Likely	7	10
Very likely	9	13
Extremely likely	9	13
Total	69	100
Sophomore		
Not at all likely	29	26
Somewhat likely	34	30
Likely	13	12
Very likely	8	7
Extremely likely	28	25
Total	112	100
Junior		
Not at all likely	15	16
Somewhat likely	19	20
Likely	28	29
Very likely	13	14
Extremely likely	20	21
Total	95	100
Senior		
Not at all likely	35	27
Somewhat likely	27	21
Likely	23	17
Very likely	14	11
Extremely likely	31	24
Total	130	100

skeletal muscle, is prevalent and exercise interventions have been shown to increase muscle strength and improve physical performance, reducing the risk of falls¹⁰. Thus, it is clear to see the need for exercise professionals to implement these interventions to promote successful aging. *Local labor market need*, evaluated using the same data source for state labor market need above but limiting the search criteria to Atlantic County, forecasts growth in the following career opportunities through 2022: coaches (9.3%), cardiovascular technologists (17.7%), clinical laboratory technicians (12.4%), fitness trainers (9.7%), health educators (7.8%), health specialties teachers (28.6%), health technologists (28.1%), massage therapists (5.1%), recreation workers (9.5%), recreational therapists (20%) and respiratory therapists (8.6%).

Favorable Trends in the Industry: Recognizing the importance of exercise in disease prevention, the American Medical Association and American College of Sports Medicine co-launched the “[Exercise is Medicine](#)” initiative in 2007. The goals were for healthcare providers to: 1) assess every patient's physical activity level at every visit; 2) determine if the patient is meeting the U.S. National Physical Activity Guidelines; and 3) provide counseling and/or refer patients to community-based resources to help meet the guidelines.

Included in this approach is the exercise “vital sign” which is incorporated into patients’ routine health screening and kept as a health indicator in their medical record. If the patient is not meeting the recommend guidelines of 150 min/wk of moderate-to-vigorous intensity physical activity, then the physician will “prescribe” exercise¹¹ (**Figure 1**) and refer the patient to community based resources to fulfill their prescription. Collection of the exercise “vital sign” is gaining momentum in the US and has demonstrated good face and discriminant validity¹², supporting its use as an assessment tool in diverse patient populations in clinical practice. Since its US-based inception, the Exercise is Medicine initiative has expanded globally to 39 countries with Regional Centers in North America, Latin America, Europe, Africa, Southeast Asia, China and Australia¹³. Continued expansion of this initiative requires properly trained and credentialed Exercise Science professionals to work as part of the community care team to support patients in increasing their levels of physical activity.



Figure 1. Exercise Prescription
(<http://www.transcriptionoutsourcing.net/2013/10/physicians-now-writing-exercise-prescriptions/>)

Prospective Employer Surveys: Prospective employers were surveyed during the summer of 2015 to assess: 1) demand for the proposed program; 2) which groups may be interested; and 3) to provide any additional comments / insight. Results from the interviews can be found in **Appendix 2**, representing diverse career opportunities such as athletics administration, athletic trainer, coaching, director of youth camp/sports program, fitness instructor, personal trainer, sports information director, strength and conditioning coach, exercise physiologists, cardiac rehab specialist, aquatics director, sports information director, sports journalist, and sports marketing. There was overwhelming support for the B.S in Exercise Science program. Prospective employers confirmed the demand for workers with an undergraduate Exercise Science degree. A curriculum which included the core classes in addition to addressing topics such as basic business skills, management, communication and leadership training was suggested.

Entry-Level Positions and Opportunities for Additional Studies : Examples of settings in which graduates of a B.S in Exercise Science program could seek entry-level employment include: cardiopulmonary rehabilitation (hospitals, clinics), corporate fitness, worksite wellness, health promotion, private/commercial fitness, community fitness/wellness, personal fitness training, sports performance, strength and conditioning (Source: University at Buffalo: [Exercise Science](#) :

[Careers | UB Undergraduate Catalog 2015-2016](#)). Associated job titles are listed in the first paragraph of this proposal. Graduates of the proposed program would also have the prerequisite coursework for application to a graduate program in fields such as: exercise physiology, biomechanics, management, special education, business administration, medicine, public health, chiropractic, podiatry, nutrition, dentistry, and physician assistant programs (Source: University at Buffalo: [Exercise Science : Careers | UB Undergraduate Catalog 2015-2016](#)).

Program’s Relationship to Institutional Master Plans and Priorities: As part of Stockton’s master plan ([Facilities and Construction - Master Plan](#)), the proposed B.S in Exercise Science program will have classroom and laboratory space on the Galloway campus as part of the future Classroom Building (number 5 on **Figure 2: 2014-2015 Campus Construction Map**). Construction is scheduled to begin in the Fall of 2015 and be completed by the Fall of 2017.

Comparison with Similar Programs in New Jersey and Neighboring States:

A search of the Inventory of Degree and Certificate Program Offerings at New Jersey Institutions of Higher Education ([State of NJ - Program Inventory - Office of the Secretary of Higher Education](#)) using the term “exercise science” shows 16

programs meeting this criteria (see **Appendix 3** for a summary). Among programs offered in New Jersey, 3 are certificate (2 pre-associate and 1 post-baccalaureate) and degree programs include 5 associate, 6 bachelors and 2 master level. Schools offering a 4-year bachelor’s degree are primarily located in central and northern New Jersey. The closest school to Stockton is Rowan University, which offers a B.A and not a B.S degree. None of these 16 schools are CAAHEP accredited. We will seek accreditation by the Commission on the Accreditation of Allied Health Education Programs (CAAHEP) through the Committee on the Accreditation for the Exercise Sciences (CoAES). If granted, then this would be the only CAAHEP accredited Exercise Science program in the state of New Jersey. As with any accreditation process, certain standards need to be met and there is no guarantee that accreditation will be obtained.

Exercise Science programs offered in neighboring states (Delaware, Maryland, Pennsylvania and New York) were identified using the 32nd edition of *Barron’s Profiles of American Colleges 2016* (see footnote in **Appendix 3** for listing). Of those programs, only Salisbury University, Slippery Rock University, Bloomsburg University of Pennsylvania, Eastern University, Grove City College, West Chester University of Pennsylvania, and The SUNY / College at Brockport are CAAHEP accredited. However, no program offered in a neighboring state would be feasible to commute from Southern New Jersey.

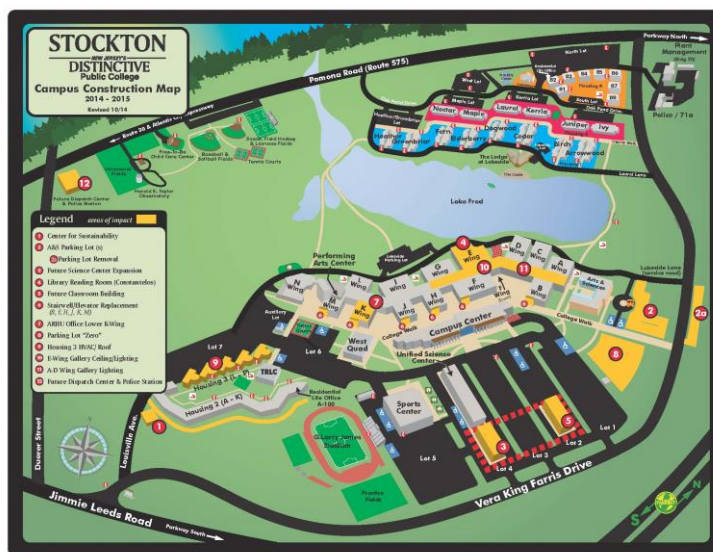


Figure 2. 2014-2015 Campus Construction Map

E. Students

Anticipated Enrollments from Inception Until Steady State: The projected launch of the B.S. in Exercise Science program is the Fall of 2016. Based upon student interest, current admission data and current enrollment in Health Science programs, initial enrollment is projected to be 50 incoming students. Continuing this enrollment trend, total enrollment could exceed 200 students by the Fall of 2020. National, state and local labor market need discussed above provide support for these projections. Students would declare the major. We are anticipating that the numbers would likely be limited to 50 students per year due to the rigorous science-focused curriculum.

Students enrolled in other programs at the University may choose to transfer into the B.S. in Exercise Science program and will be advised to meet with their preceptor prior to changing majors. Since Stockton is a public institution in the State of New Jersey Higher Education System, preference would be given to: 1) residents of the State of New Jersey; 2) prospective applicants from New Jersey High Schools; and 3) transfers from New Jersey Community Colleges. The proposed program will recruit a diverse population of students by working with the Office of Admission and networking with professional organizations such as the American College of Sports Medicine and the National Strength and Conditioning Association to promote the program.

F. Program Resources

During the program's first five years, the following additional resources will be needed.

Faculty: Based upon initial enrollment projection of 50 students for the program's launch, one tenure track faculty line beginning Fall 2016 is requested. If that enrollment trend continues, one additional tenure track faculty line per year is requested for Year 2, 3 and 4, resulting in 200 students and 4 program faculty by the Fall of 2020. Newly hired tenure track faculty would be expected to hold a terminal degree in Exercise Science or a related field and to engage in teaching, research and service requirements per University policies. If enrollment exceeds these projections, then adjunct faculty who are current leaders in the field would be hired in response to enrollment growth. The School of Health Sciences will also continue to engage in co-planning with the NAMS to address the impact of program growth on science courses that service this proposed degree program (see below, and Appendix 1).

Budget to Support the Program: There will be an initial expenditure of ~\$100,000 for equipment in the Exercise Science laboratory. Ongoing budgetary expenses of ~\$10,000 will be used for items such as replacement, upgrades and maintenance of existing equipment. Additionally, support for professional development for faculty in the program will be consistent with funding afforded to faculty in other programs in the School and University.

Additional Resources: Newly hired faculty will require an office and a computer. Exercise Science curriculum will be taught in electronic classrooms and the newly built laboratory space (see **Figure 2** above), all of which will be accessible in accordance with the Americans with Disabilities Act (ADA). Per CAAHEP/CoAES standards the following equipment is considered pertinent for programs seeking accreditation in Exercise Science: cycle ergometer, treadmill, skinfold caliper, "other" body composition assessment tools such as a bioelectrical impedance scale, tape measures, anthropometric tools such as digital scale and stadiometer, blood pressure cuffs, stethoscopes, heart rate monitors, step test box, sit and reach, stop watches, spirometer to measure pulmonary function, strength training equipment such as free weights or universal machine, CPR mannequins, ECG simulator and electrocardiograph. Prior to applying for accreditation, we will obtain all required equipment.

Regarding the library, we do not anticipate any significant additional resources needed to support the proposed program. Current School of Health Science library resources for faculty and staff will be adequate. Relevant databases currently available include: CINHALL Complete, JSTOR, Evidence-Based Medicine Reviews, MEDLINE with Full Text and ScienceDirect. The current book and video library collection will meet the initial needs of faculty and students in the proposed program and will be sufficient to meet CAAHEP/CoAES accreditation standards. Suggestions for additions to the collection will be communicated via the assigned library liaison. Interlibrary loan, which is currently available through the Library, will also be needed by the Exercise Science faculty and students.

Stockton University has a strong technological infrastructure. The proposed program will be supported by the current Office of Computer and Telecommunication Services and the Office of eLearning. Regarding staffing, CAAHEP/CoAES accreditation standards require sufficient support staff to ensure achievement of the program's goals and outcomes. The Exercise Science program will be adequately supported by clerical personnel in the School of Health Sciences who will oversee the coordination of print and non-print material. Regarding administration, the B.S. in Exercise Science program will be housed in the School of Health Science, under the direction of the Dean, Dr. Theresa Bartolotta.

The Exercise Science curriculum requires the following coursework offered by NAMS (maximum number of students per section indicated in parentheses): BIOL 1200/05: Cells and Molecules w/ Lab (37), BIOL 1400/05: Biodiversity and Evolution w/ Lab (36), CHEM 2110/15: Chemistry I: General Principles w/ Lab (40), CHEM 2120/25: Chemistry II: Organic Structure w/ Lab (40), BIOL 2180/85: Human Anatomy w/ Lab (18), BIOL 2150/51: Principles of Physiology w/Lab (18), Physics 2110/15: Physics for Life Sciences I (2110: 35, 2115: 20). If, given the projected enrollment of 50 incoming students and following the example sequence of courses listed in **Appendix 4**, then 8 additional sections will be needed in Year 1 (2 BIOL 1200/05, 2 BIOL 1400/05, 2 CHEM 2110/15 and 2 CHEM 2120/25) and increasing to 19 additional sections in Year 2 (8 sections as outlined in Year 1 plus 3 BIOL 2180/85, 3 BIOL 2150/51, 2 PHYS 2110 and 3 PHYS 2115). From Year 3 and beyond, a steady state of 19 additional sections will be needed (per outline in Year 2). A meeting between Health Science and NAMS was held on October 20, 2015. In attendance were the Dean of Health Science, Exercise Science Proposal Coordinator, the Interim Dean of NAMS, Assistant Dean of NAMS and faculty from the Biology, Chemistry and Physics programs. After taking into consideration the curriculum sequence and proposed initial cohort of 50 students, it was stated that the impact on NAMS will be an additional 1.75 FTE in academic year 2016-2017 with an additional 1.25 for the second year (academic year 2017-2018). Net total impact on NAMS will be an increased faculty FTE of 3.0. Dr Straub said that adding these additional sections will be able to be accommodated. Please see **Appendix 1** for letter of support from NAMS.

The classes for the first year of the program (See **Appendix 4** for example sequence of courses: EXSC 1XXXX: Principles of Health Behaviors (4) and EXSC 1XXXX: First Aid, CPR and Athletic Training (4)) do not require lab space. Thus we can launch the B.S. in Exercise Science program in the Fall of 2016. If there are delays in the construction of the academic building the School of Health Science will plan for alternate spaces that will likely be off campus where the students can engage in lab experiences on a temporary basis. For example we will contract with local gyms, or work with our partners at Bacharach or AtlantiCare. The lab space that is being built will mainly be utilized by Exercise Science, but could also be utilized by other programs as needed.

G. Degree Requirements

The BS in Exercise Science degree requires 128 total credits to graduate. The breakdown of curriculum and credit requirements is listed in **Figure 3**. Students must maintain at least a 2.0 GPA (C average). A curriculum outline, including a list of proposed courses, credits per course and example sequence of courses is listed in **Appendix 4**. The Exercise Science curriculum will consist of 48 program and 32 complementary cognate credits. Students will consult with their preceptor to pick cognate(s). Practical experience will be obtained through a senior internship. This culminating experience will link classroom learning with knowledge application in a professional setting. This internship experience is required for CAAHEP/CoAES accreditation. A strength of the Exercise Science degree is the variety of jobs that can be obtained as outlined in the proposal. We anticipate 50 students per year will complete an internship, starting with the Spring 2020 semester. We have already had preliminary talks with internship sites which have indicated that they can take more than one student at time. There are no competing Exercise Science programs in our geographic area. The Exercise Science internship is different from Physical Therapy or Occupation Therapy and thus, this will be a different placement with no competition among these fields. Also, the School of Health Science currently has over 300 active clinical contracts for Physical Therapy, Occupational Therapy, Nursing, etc. These sites may also have opportunities for Exercise Science students. Therefore, we have full confidence that students in the Exercise Science program will be able to successfully complete their internship requirement. Minors in closely related areas such as Biology, Chemistry, Public Health, Holistic Health, Behavioral Neuroscience, Gerontology, or Childhood Studies are available and may be earned within the four years of study.

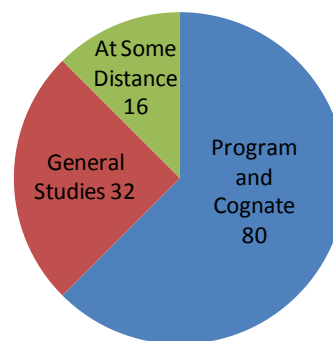


Figure 3. Pie chart of curriculum and credits for the B.S in Exercise Science

We will seek accreditation by the Commission on the Accreditation of Allied Health Education Programs (CAAHEP) through the Committee on the Accreditation for the Exercise Sciences (CoAES). If granted, then this would be the only CAAHEP accredited Exercise Science program in New Jersey. The proposed program and curriculum was built based upon the CAAHEP/CoAES standards. Those accreditation standards are based upon the Job Task Analysis¹⁴ performance domains and associated job tasks for the American College of Sports Medicine's Certified Exercise Physiologist (previously called Certified Health Fitness Specialist). The Job Task Analysis defines the major areas of professional practice (domains), describes the tasks performed "on-the-job", and identifies the knowledge and skills required for safe and competent practice¹⁵. The curriculum for the proposed program has been mapped to the Job Task analysis, identifying the specific course within the curriculum that covers the particular task statement listed (see **Appendix 5**). Thus, the proposed curriculum is based upon what the professional does on a day to day basis and we are confident that the proposed program will meet the accreditation standards. State licensure is not required for this degree program.

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APPENDIX 1

Letter of Support from the School of Natural Sciences and Mathematics
(NAMS)



School of Natural Sciences and Mathematics

P: 609.652.4546 • F: 609.826.5515

101 Vera King Farris Drive | Galloway NJ 08205-9441
stockton.edu

Peter F. Straub PhD
609-652-4556
Peter.straub@stockton.edu
10/27/2015

Dr. Kelly Dougherty
Assistant Professor
School of Health Science
Stockton University

Dear Dr. Dougherty:

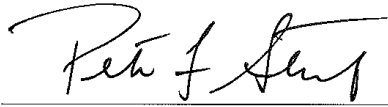
Thank you and Dean Bartolotta for meeting with me, Assistant Dean Vaughn –Jones, Coordinator David Burleigh (BIOL), Coordinator Marc Richard (CHEM) and Dr. Joseph Trout (Physics representative) about the Exercise Physiology program proposal that is in review with the Academic Programs and planning committee of the Stockton Senate. As you know, we have reviewed the proposal and made some helpful suggestions, including the addition of Physics in the curriculum. We were glad to see this addition in the revised proposal. We also welcomed the expanded opportunity to discuss the projected effects of an incoming class of 50 students on the proposed NAMS service courses linked to the Exercise Physiology curriculum.

The projected effect of a class of fifty students in Exercise Physiology would stage over the first two years of the program. In the first year, Cells and Molecules and Biodiversity and Evolution with laboratories (BIOL 1200/1205 and BIOL 1400/1405), General Chemistry 1 with laboratory (CHEM 2110/2115) and Organic Chemistry (CHEM 2120/2125) with laboratory would be affected. In the second year, the additional effect would be on Human Anatomy with laboratory (BIOL 2180), Principles of Physiology with laboratory (2150) and Physics for Life Scientists I with laboratory (PHYS 2110/2115).

Given that all of these classes have integral laboratory components and further that the laboratories are limited in the number of seats and instructors available to staff them, we estimate that the first year will require approximately 1.75 FTE staffing in Biology and Chemistry. The effects in year 2 would require approximately 1.25 FTE in Biology and Physics. While there might be certain ameliorating situations such as new students choosing Exercise Physiology over the more general BS in Health Science (BSHS), the two majors do diverge substantially as the BSHS students, depending on track, take Anatomy and Physiology for Health Science I&II and do not take Physics.

Thank you again for the opportunity to have input into the development of the Exercise Physiology Program proposal. We wish you luck with the approval process and look forward to collaborating with you in the future to develop a robust and academically challenging program.

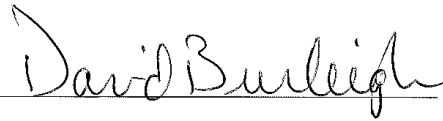
Regards.



Dr. Peter F. Straub, Dean, Natural Sciences & Mathematics



Dr. Neil Aaronson, Coordinator of the Physics Program



Dr. David Burleigh, Coordinator of the Biology Program



Dr. Marc Richard, Coordinator of the Chemistry Program

APPENDIX 2

Prospective Employer Interviews

- a. Bruce Heon, Executive Director, AtlantiCare LifeCenter
- b. Dave O'Sullivan, Founder and Publisher, Glory Days Magazine
- c. Jeff Rubenstein, Director, Future Fitness, Corporate Wellness Program
- d. Julianne Dods, Vice President/COO, Tilton Fitness & Wellness, Meridian Fitness & Wellness
- e. Lisa Scheetz, Executive Director of Partnerships and Community Development; Director of Operations/COO, Cumberland, Cape, Atlantic YMCA
- f. Lonnie Folks, Director of Athletics, Stockton University
- g. Ron Franceschini, Director of Cardiac Services, Bacharach Institute for Rehabilitation

Interview Notes: Proposal for a B.S in Exercise Science Program at Stockton University

Interviewer	
Name: <u>Kelly Dougherty, M.S., Ph.D., M.T.R.</u>	Date: <u>7/30/15</u>
Title: <u>Assistant Professor</u>	Phone Number: <u>(609) 652-4279</u>
Interviewee	
Name: <u>Bruce Heon</u>	Company Name: <u>AtlantiCare LifeCenter</u> <u>(2 locations: EHT and AC)</u>
Title: <u>Executive Director</u>	Phone Number: <u>(609) 677-LIFE</u>
Questions	
Question: Is there a demand for someone with this degree?	Notes: <u>Yes, particularly in Southeastern NJ.</u>
Question: Which groups should be targeted / which groups may be interested?	Notes: <u>I think the 40+ age group is a market that appreciates the exercise professional most. Exercise science professionals provide educated prescriptions for those who have graduated from the intense requirements on the field/court, provide services to start those who have not exercised in 25 years (or ever) and those who may be returning from (or in the midst of) medical treatment. Large companies who provide medical insurance may also be looking for wellness partners to help reduce their medical spend on employees each year.</u>
Question: What other suggestions do you have for us?	Notes: <u>Educating those in the program about how our Health Care system is changing from a reactive (treat people in the hospital) to a proactive model (keep people out of the hospital) and linking this to opportunities in the exercise field. Exercise (memberships, personal training and special programs) are a relatively inexpensive modality for prevention of disease, or part of a patients care plan (more and more). The more that graduates can understand this expanding role (to medicine) and be able to communicate with the medical community, the better equipped they will be when entering the job market. Understanding psychology, health behavior change models and participating in (medical) research projects that incorporate exercise and behavior change would be valuable. Those entering the program are most likely passionate about exercise, but we will need professionals who are skilled at motivating others (coaching) and using their education to back up their message (separating the really good certified personal trainer from the really good exercise specialists).</u>

Additional Notes

Examples of Employment Opportunities: fitness instructor or program director at a fitness center, exercise physiologist, personal trainer, etc.

Interview Notes: Proposal for a B.S in Exercise Science Program at Stockton University

Interviewer	
Name: <u>Kelly Dougherty, M.S., Ph.D., M.T.R.</u>	Date: <u>7/28/15</u>
Title: <u>Assistant Professor</u>	Phone Number: <u>(609) 652-4279</u>
Interviewee	
Name: <u>Dave O'Sullivan</u>	Company Name: <u>Glory Days Magazine</u>
Title: <u>Founder and Publisher</u>	Phone Number: <u>(609) 788-4294</u>
Questions	
Question: Is there a demand for someone with this degree?	
Notes:	<u>Yes. With the emergence of crossfit training and personal training I think there is a need for people well schooled in exercise science. Plus, most professional sports teams now employ several strength and conditioning programs, and many athletes have their own personal trainers who work with them full time. In addition, many people want to live healthier lifestyles, and if they are going to be paying good money to people to get them healthier, they want to be sure those people have not only knowledge of exercise science, but have applied that knowledge in their personal lives through various competitions, showing the ability to translate what they have learned into practice.</u>
Question: Which groups should be targeted / which groups may be interested?	
Notes:	<u>I would say such places as larger workout facilities (such as Tilton Fitness or Island Gym, locally). Nowadays many high school athletic trainers need to have backgrounds in exercise science, strength and conditioning coaches for sports teams. And even a lot of major businesses now have exercise programs for their employees, the premise being that healthier employees lowers the cost of health insurance the business has to pay out.</u>
Question: What other suggestions do you have for us?	
Notes:	<u>I think the focus should be on practicality. A degree is only worth as much as it can be transferred to real world activities. If I were starting an exercise science degree program I would do as much research as possible to determine how many - and of what quality -- the opportunities would be for someone who holds this type of degree. i.e., how likely is it for them to land a good paying job in their field once they have graduated? What projections are there for employment in this field? years? If I were a student considering this program, my first question would be, what are my prospects for landing a job in this field after investing four years studying this subject?</u>

Additional Notes

Examples of Employment Opportunities: sports information director, sports journalist, sports marketing, etc.

Interview Notes: Proposal for a B.S in Exercise Science Program at Stockton University

Interviewer	
Name: <u>Kelly Dougherty, M.S., Ph.D., M.T.R.</u>	Date: <u>7/26/15</u>
Title: <u>Assistant Professor</u>	Phone Number: <u>(609) 652-4279</u>
Interviewee	
Name: <u>Jeff Rubenstein</u>	Company Name: <u>Future Fitness Corporate Wellness Program</u>
Title: <u>Director</u>	Phone Number: <u>(856) 478-6449</u>
Questions	
Question: Is there a demand for someone with this degree?	Notes: <u>Yes – when hiring a manager, this qualification is required</u>
Question: Which groups should be targeted / which groups may be interested?	Notes: <u>Individuals interested in leading a healthy lifestyle, who enjoy helping others. Also, those who enjoy helping clients acheive a fitness goal.</u>
Question: What other suggestions do you have for us?	Notes: <u>One suggestion is for the last project / assignment of senior year to be how to run a fitness center, including developing a business model, creating a budget, doing payroll, how to staff internships, how to educate staff, etc.</u>
Additional Notes	
Examples of Employment Opportunities: <u>fitness instructor, personal trainer, exercise physiologist, program director of corporate fitness center, etc.</u>	

Interview Notes: Proposal for a B.S in Exercise Science Program at Stockton University

Interviewer	
Name: <u>Kelly Dougherty, M.S., Ph.D., M.T.R.</u>	Date: <u>7/26/15</u>
Title: <u>Assistant Professor</u>	Phone Number: <u>(609) 652-4279</u>
Interviewee	
Name: <u>Julianne Dods</u>	Company Name: <u>Tilton Fitness & Wellness</u> <u>Meridian Fitness & Wellness</u>
Title: <u>Vice President/COO</u>	Phone Number: <u>(609) 646-2590</u>
Questions	
Question: Is there a demand for someone with this degree?	Notes: <u>YES!</u>
Question: Which groups should be targeted / which groups may be interested?	Notes: <u>Individuals with a desire to help others are the most important. Knowledge of human movement (dance, sports, exercise) is a plus. Specialties within the field are vast (weight loss, sports-specific, rehabilitation, cardiac therapy, pre- and post-natal, etc.)</u>
Question: What other suggestions do you have for us?	Notes: <u>Within the degree, include basic business skills (basic business plans, excel) and marketing (social media, included). Also communication (writing skills) and leadership courses. Many trainers want to assume management roles and we find many are just not prepared to take this on.</u>
Additional Notes	
Examples of Employment Opportunities: <u>fitness instructor or program director at commercial fitness center, exercise physiologist, personal trainer, aquatics director, etc.</u>	

Interview Notes: Proposal for a B.S in Exercise Science Program at Stockton University

Interviewer	
Name: <u>Kelly Dougherty, M.S., Ph.D., M.T.R.</u>	Date: <u>7/23/15</u>
Title: <u>Assistant Professor</u>	Phone Number: <u>(609) 652-4279</u>
Interviewee	
Name: <u>Lisa Scheetz</u>	Company Name: <u>Cumberland, Cape, Atlantic YMCA</u>
Title: <u>Executive Director of Partnerships and Community Development; Director of Operations/COO</u>	Phone Number: <u>(856) 691-0030 ext. 125</u>
Questions	
Question: Is there a demand for someone with this degree?	Notes: <u>Yes!</u>
Question: Which groups should be targeted / which groups may be interested?	Notes: <u>Future employees of Health Promotion/YMCA's/JCC's and Medical Fitness Centers</u>
Question: What other suggestions do you have for us?	Notes: <u>Make sure some business classes are included with the program- Accounting, Management and Supervision, etc.</u>
Additional Notes	
Examples of Employment Opportunities: <u>aquatics director, director of youth camp/sports program, fitness instructor or program director at a fitness center and personal trainer.</u>	

Interview Notes: Proposal for a B.S in Exercise Science Program at Stockton University

Interviewer	
Name: <u>Kelly Dougherty, M.S., Ph.D., M.T.R.</u>	Date: <u>7/27/15</u>
Title: <u>Assistant Professor</u>	Phone Number: <u>(609) 652-4279</u>
Interviewee	
Name: <u>Lonnie Folks</u>	Company Name: <u>Stockton University</u>
Title: <u>Director of Athletics</u>	Phone Number: <u>(609) 652-4877</u>
Questions	
Question: Is there a demand for someone with this degree?	Notes: <u>YES!</u>
Question: Which groups should be targeted / which groups may be interested?	Notes: <u>Overall undeclared students, prospective enrollees currently in high school and community college, student-athletes interested in another avenue to athletics administration and students interested in lifelong fitness.</u>
Question: What other suggestions do you have for us?	Notes: <u>If you haven't already done so, I would recommend surveying the interest via our current student population.</u>
Additional Notes	
Examples of Employment Opportunities: <u>athletics administration, athletic trainer, coaching, director of youth camp/sports program, fitness instructor, personal trainer, sports information director and strength and conditioning coach.</u>	

Interview Notes: Proposal for a B.S in Exercise Science Program at Stockton University

Interviewer	
Name: <u>Kelly Dougherty, M.S., Ph.D., M.T.R.</u>	Date: <u>7/24/15</u>
Title: <u>Assistant Professor</u>	Phone Number: <u>(609) 652-4279</u>
Interviewee	
Name: <u>Ron Franceschini</u>	Company Name: <u>Bacharach Institute for Rehabilitation</u>
Title: <u>Director of Cardiac Services</u>	Phone Number: <u>(609) 748-2091</u>
Questions	
Question: Is there a demand for someone with this degree?	Notes: <u>Yes</u>
Question: Which groups should be targeted / which groups may be interested?	Notes: <u>Outpatient Cardiac Rehab ,Wellness center, School or College Strength and Conditioning Specialist</u>
Question: What other suggestions do you have for us?	Notes: <u>I would build up their skills to make them marketable as possible in case for some reason the student does not initially find employment in their chosen allied specialty.</u>
Additional Notes	
Examples of Employment Opportunities: <u>cardiac rehab specialist / exercise physiologists, etc.</u>	

APPENDIX 3

Exercise Science Programs in New Jersey and Neighboring States

Table 4. Exercise Science Programs in New Jersey (n=16)

Name of College / University	Degree	Sector	CIP Code	Tracks Offered
Bergen Community College	Certificate [pre-associate certificate]	Community College	3105 - Health and Physical Education / Fitness	<ul style="list-style-type: none"> • Exercise Science (Certificate) • Sports Management (Certificate)
County College of Morris	A.S. [associate degree]	Community College	3105 - Health and Physical Education / Fitness	None
Georgian Court University	B.S. [bachelor's degree]	Independent College or University	3105 - Health and Physical Education / Fitness	<ul style="list-style-type: none"> • Exercise Science • Pre-Physical Therapy • Coaching
Kean University	M.S. [master's degree]	State College or University	3105 - Health and Physical Education / Fitness	<ul style="list-style-type: none"> • Exercise Physiology • Athletic Training
Mercer County Community College	A.S. [associate degree]	Community College	3105 - Health and Physical Education / Fitness	None
Montclair State University	B.S. [bachelor's degree]	State College or University	3105 - Health and Physical Education / Fitness	None
Montclair State University	Graduate Certificate [post-baccalaureate certificate]	State College or University	3099 – Multi / Interdisciplinary Studies	None
Montclair State University	M.S. [master's degree]	State College or University	1313 - Teacher Education and Professional Development	<ul style="list-style-type: none"> • Exercise Science • Sports Administration and Coaching • Teaching and Supervision in Physical Education
Ocean County College	Certificate [pre-associate certificate]	Community College	3105 - Health and Physical Education / Fitness	None
Raritan Valley Community College	A.S. [associate degree]	Community College	3105 - Health and Physical Education / Fitness	<ul style="list-style-type: none"> • Exercise Science • Sports Management
Rowan College at Gloucester County	A.S. [associate degree]	Community College	3105 - Health and Physical Education / Fitness	None

Rowan University	B.A. [bachelor's degree]	State College or University	1313 - Teacher Education and Professional Development	<ul style="list-style-type: none"> • Athletic Training • Health and Physical Education • Health Promotion and Wellness Management
Rutgers University / New Brunswick	B.S. [bachelor's degree]	Public Research University	3105 - Health and Physical Education / Fitness	<ul style="list-style-type: none"> • Exercise Science • Applied Kinesiology • Sports Management • Exercise Physiology
Salem Community College	A.S. [associate degree]	Community College	3105 - Health and Physical Education / Fitness	None
The College of New Jersey	B.S. [bachelor's degree]	State College or University	1313 - Teacher Education and Professional Development	<ul style="list-style-type: none"> • Exercise Science • Teaching Certification
William Paterson University of New Jersey	B.S. [bachelor's degree]	State College or University	3105 - Health and Physical Education / Fitness	None

Exercise Science Programs In Neighboring States:

- Delaware: University of Delaware, Wesley College
- Maryland: Frostburg State University, Salisbury University, Townson University and Washington Adventist University
- Pennsylvania: Bloomsburg University of Pennsylvania, Cabrini College, Chatham University, DeSales University, Eastern University, Grove City College, King's College, Messiah College, Pennsylvania College of Technology, Shippensburg University of Pennsylvania, Slippery Rock University, Temple University, University of Scranton, Ursinus College, Waynesburg University, West Chester University of Pennsylvania and Wilson College
- New York: Adelphia University, D'Youville College Hofstra University, Ithaca College, Long Island University, Mercy College, Queens College / The CUNY, Skidmore College, The SUNY / College at Brockport, The SUNY / Cortland, and University of Buffalo / The SUNY

APPENDIX 4

Curriculum for B.S in Exercise Science

- a. Curriculum Worksheet

- b. Example Sequence of Courses

****All Bachelor of Science programs require a minimum of 128 credits and a 2.00 cumulative average**

B.S. Exercise Science		Fall 2016 – Spring 2017	
**All program and cognate courses must be completed with a minimum grade of C or better			
Program and Cognate Requirements			80 Credits
Program		Cognates	
EXSC 1XXXX: Principles of Health Behaviors	(4)	Note: MATH is a prerequisite to BIOL/CHEM courses	
EXSC 1XXXX: First Aid, CPR and Athletic Training	(4)	BIOL 1200/05: Cells and Molecules w/Lab	(5)
EXSC 2XXX: Biomechanics and Motor Learning	(4)	BIOL 1400/05: Biodiversity and Evolution w/Lab	(5)
EXSC 2XXXX: Principles of Strength Training and Conditioning	(4)	CHEM 2110/15: Chemistry I: General Principles w/Lab	(5)
EXSC 2XXXX: Exercise Nutrition and Weight Management	(4)	CHEM 2120/25: Chemistry II: Organic Structure w/Lab	(5)
EXSC 3XXXX: Exercise Physiology	(4)	BIOL 2180/85: Human Anatomy w/ Lab	(4)
EXSC 3XXXX: Fitness Assessment and Exercise Prescription with Lab	(4)	BIOL 2150/51: Principles of Physiology w/Lab	(4)
EXSC 3XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science	(4)	PHYS 2110/15: Physics I for Life Science w/Lab	(5)
EXSC 4XXXX: Exercise Prescription for Special Populations	(4)	EXSC or Cognate if needed	
EXSC 4XXXX: Research in Exercise Science	(4)		
EXSC 4XXXX: Internship	(8)		
General Studies Requirements			48 Credits
G Courses (32 credits): No more than 12 credits in any "G" category may be applied towards the BS degree			
GEN General Interdisciplinary	(4)	GNM General Natural Science & Math	(4)
GIS-General Integration & Synthesis (Junior Year)	(4)	GNM General Natural Science & Math	(4)
GAH General Arts & Humanities	(4)	GSS General Social Science	(4)
GAH General Arts & Humanities	(4)	GSS General Social Science	(4)
At Some Distance Electives (16 credits): Courses unrelated to your major			
	(4)		(4)
	(4)		(4)
General Studies Outcome Requirements: These course attributes should be completed within the 128 credits needed to graduate			
(A) Arts		(V) Values/Ethics	
(H) Historical Consciousness		(I) International/Multicultural	
General Studies Writing Requirement (4 courses): Two W1 courses may be in transfer. W2 courses must be taken at Stockton.			
W1		W1/W2	
W1/W2		W1/W2 at 3000 level	
General Studies Quantitative Reasoning Requirement (3 courses): Two Q1 courses may be in transfer. Q2 courses must be taken at Stockton.			
Q1		Q1 or Q2	
Q2			

Prerequisites must be met, check course description on the web.

"The student is responsible for insuring that all graduation requirements are met" (Bulletin). Consult with your preceptor and/or the Center for Academic Advising on a regular basis.

Example Sequence of Courses:

Freshman Year

- EXSC 1XXXX: Principles of Health Behaviors (4)
- BIOL 1200/05: Cells and Molecules w/ Lab (5)
- BIOL 1400/05: Biodiversity and Evolution w/ Lab (5)
- CHEM 2110/15 - Chemistry I: General Principles w/ Lab (5)
- CHEM 2120/25 - Chemistry II: Organic Structure w/ Lab (5)
- GXX General Studies Course (4) Freshman Seminar
- GXX General Studies Course (4) Q1**
- GXX General Studies Course (4) W1**

Sophomore Year

- EXSC 2XXX: Biomechanics and Motor Learning (4)
- EXSC 2XXXX: Principles of Strength Training and Conditioning (4)
- EXSC 2XXXX: Exercise Nutrition and Weight Management (4)
- EXSC 1XXXX: First Aid, CPR and Athletic Training (4)
- BIOL 2180/85 - Human Anatomy w/ Lab (4)
- BIOL 2150/51 - Principles of Physiology w/Lab (4)
- PHYS 2110/15: Physics I for Life Science w/Lab (5)
- At Some Distance Course (4)

Junior Year

- EXSC 3XXXX: Exercise Physiology (4)
- EXSC 3XXXX: Fitness Assessment and Exercise Prescription with Lab (4)
- EXSC 3XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science (4)
- EXSC or Cognate Course (4)
- At Some Distance Course (4)
- GXX General Studies Course (4)
- GXX General Studies Course (4)
- At Some Distance Course (4)

Senior Year

- EXSC 4XXXX: Exercise Prescription for Special Populations (4)
- EXSC 4XXXX: Research in Exercise Science (4); Q2 and W2
- EXSC 4XXXX: Internship (8)
- At Some Distance Course (4)
- GXX General Studies Course (4)
- GXX General Studies Course (4)
- GXX General Studies Course (4)

** All students are required to complete the General Studies Outcomes through study in Arts (A), Historical Consciousness (H), Values/Ethics (V) and International/Multicultural (I) within the 128 credits needed to graduate. Also, the Writing and Quantitative Reasoning Requirements must be completed prior to graduation.

APPENDIX 5

B.S. in Exercise Science Curriculum Mapped to
CAAHEP/CoAES Accreditation Standards
(based upon Job Task Analysis for ACSM's Certified Exercise Physiologist)

STOCKTON UNIVERSITY
B.S. IN EXERCISE SCIENCE JOB TASK ANALYSIS MATCHING FORM

	Performance Domains and Associated Job Tasks	Course prefix, number and name
	DOMAIN I: HEALTH AND FITNESS ASSESSMENT A. Implement assessment protocols and pre-participation health screening procedures to maximize participant safety and minimize risk.	
I.A.1.a	Knowledge of pre-activity screening procedures and tools that provide accurate information about the individual's health/medical history, current medical conditions, risk factors, sign/symptoms of disease, current physical activity habits, and medications.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
I.A.1.b	Knowledge of the key components included in informed consent and health/medical history.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
I.A.1.c	Knowledge of the limitations of informed consent and health/medical history.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
	DOMAIN I: HEALTH AND FITNESS ASSESSMENT B. Determine participant's readiness to take part in a health-related physical fitness assessment and exercise program.	
I.B.1.a	Knowledge of risk factor thresholds for ACSM risk stratification including genetic and lifestyle factors related to the development of CVD.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Physiology
I.B.1.b	Knowledge of the major signs or symptoms suggestive of cardiovascular, pulmonary and metabolic disease.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Prescription for Special Populations EXSC XXXX: First Aid, CPR and Athletic Training
I.B.1.c	Knowledge of cardiovascular risk factors or conditions that may require consultation with medical personnel prior to exercise testing or training (e.g., inappropriate changes in resting heart rate and/or blood pressure, new onset discomfort in chest, neck, shoulder, or arm, changes in the pattern of discomfort during rest or exercise, fainting, dizzy spells, claudication).	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Prescription for Special Populations EXSC XXXX: First Aid, CPR and Athletic Training
I.B.1.d	Knowledge of the pulmonary risk factors or conditions than may require consultation with medical personnel prior to exercise testing or training (e.g., asthma, exercise-induced asthma/bronchospasm, extreme breathlessness at rest or during exercise, chronic bronchitis, emphysema).	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Prescription for Special Populations EXSC XXXX: First Aid, CPR and Athletic Training
I.B.1.e	Knowledge of the metabolic risk factors or conditions than may require consultation with medical personnel prior to exercise testing or training (e.g., obesity, metabolic syndrome, diabetes or glucose intolerance, hypoglycemia).	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Prescription for Special Populations EXSC XXXX: First Aid, CPR and Athletic Training
I.B.1.f	Knowledge of the musculoskeletal risk factors or conditions than may require consultation with medical personnel prior to exercise testing or training (e.g., acute or chronic pain, osteoarthritis, rheumatoid arthritis, osteoporosis, inflammation/pain, low back pain).	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Prescription for Special Populations EXSC XXXX: First Aid, CPR and Athletic Training
I.B.1.g	Knowledge of ACSM risk stratification categories and their implications for medical clearance before administration of an exercise test or participation in an exercise program.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Physiology

I.B.1.h	Knowledge of risk factors that may be favorably modified by physical activity habits.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Physiology EXSC XXXX: Exercise Nutrition and Weight Management
I.B.1.i	Knowledge of medical terminology including, but not limited to, total cholesterol (TC), high-density lipoprotein cholesterol (HDL-C), low-density lipoprotein cholesterol (LDL-C), triglycerides, impaired fasting glucose, impaired glucose tolerance, hypertension, atherosclerosis, myocardial infarction, dyspnea, tachycardia, claudication, syncope and ischemia.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Prescription for Special Populations EXSC XXXX: First Aid, CPR and Athletic Training
I.B.1.j	Knowledge of recommended plasma cholesterol levels for adults based on National Cholesterol Education Program/ATP Guidelines.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Prescription for Special Populations EXSC XXXX: First Aid, CPR and Athletic Training
I.B.1.k	Knowledge of recommended blood pressure levels for adults based on National High Blood Pressure Education Program Guidelines.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Physiology EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Prescription for Special Populations EXSC XXXX: First Aid, CPR and Athletic Training
I.B.1.l	Knowledge of medical supervision recommendations for cardiorespiratory fitness testing.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Physiology EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
I.B.1.m	Knowledge of the components of a health-history questionnaire (e.g., past and current medical history, family history of cardiac disease, orthopedic limitations, prescribed medications, activity patterns, nutritional habits, stress and anxiety levels, and smoking and alcohol use).	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
I.B.2.a	Skill in the risk stratification of participants using CVD risk factor thresholds, major signs or symptoms suggestive of cardiovascular, pulmonary, or metabolic disease, and/or the presence of known cardiovascular, pulmonary, and metabolic disease status.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Physiology EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Prescription for Special Populations EXSC XXXX: First Aid, CPR and Athletic Training
I.B.2.b	Skill in reviewing pre-activity screening documents to determine the need for medical clearance prior to exercise and to select appropriate physical fitness assessment protocols.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Physiology EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Prescription for Special Populations
DOMAIN I: HEALTH AND FITNESS ASSESSMENT		
C. Select and prepare physical fitness assessments for healthy participants and those with controlled disease.		
I.C.1.a	Knowledge of the physiological basis of the major components of physical fitness: cardiorespiratory fitness, body composition, flexibility, muscular strength, and muscular endurance.	<ul style="list-style-type: none"> BIOL 2150/51 - Principles of Physiology w/Lab EXSC XXXX: Exercise Physiology EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
I.C.1.b	Knowledge of selecting the most appropriate testing protocols for each participant based on preliminary screening data.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
I.C.1.c	Knowledge of calibration techniques and proper use of fitness testing equipment.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
I.C.1.d	Knowledge of the purpose and procedures of fitness testing protocols for the components of health related fitness.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
I.C.1.e	Knowledge of test termination criteria and proper procedures to be followed after discontinuing health fitness tests.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
I.C.1.f	Knowledge of fitness assessment sequencing.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab

I.C.1.g	Knowledge of the effects of common medications and substances on exercise testing (e.g., antianginals, antihypertensives, antiarrhythmics, bronchodilators, hypoglycemics, psychotropics, alcohol, diet pills, cold tablets, caffeine, nicotine).	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Physiology
I.C.1.h	Knowledge of the physiologic and metabolic responses to exercise testing associated with chronic diseases and conditions (e.g., heart disease, hypertension, diabetes mellitus, obesity, pulmonary disease).	<ul style="list-style-type: none"> EXSC XXXX: Exercise Physiology EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Prescription for Special Populations
I.C.2.a	Skill in analyzing and interpreting information obtained from assessment of the components of health related fitness.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
I.C.2.b	Skill in modifying protocols and procedures for testing children, adolescents, older adults and individuals with special considerations.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Prescription for Special Populations
DOMAIN I: HEALTH AND FITNESS ASSESSMENT		
D. Conduct and interpret cardiorespiratory fitness assessments.		
I.D.1.a	Knowledge of common submaximal and maximal cardiorespiratory fitness assessment protocols.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
I.D.1.b	Knowledge of blood pressure measurement techniques.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
I.D.1.c	Knowledge of Korotkoff sounds for determining systolic and diastolic blood pressure.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
I.D.1.d	Knowledge of the blood pressure response to exercise.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Physiology
I.D.1.e	Knowledge of techniques of measuring heart rate and heart rate response to exercise.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
I.D.1.f	Knowledge of the rating of perceived exertion (RPE).	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Physiology
I.D.1.g	Knowledge of heart rate, blood pressure and RPE monitoring techniques before, during, and after cardiorespiratory fitness testing.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Physiology
I.D.1.h	Knowledge of the anatomy and physiology of the cardiovascular and pulmonary systems.	<ul style="list-style-type: none"> BIOL 2180/85 - Human Anatomy w/ Lab BIOL 2150/51 - Principles of Physiology w/Lab
I.D.1.i	Knowledge of cardiorespiratory terminology including angina pectoris, tachycardia, bradycardia, arrhythmia, and hyperventilation.	<ul style="list-style-type: none"> BIOL 2180/85 - Human Anatomy w/ Lab EXSC XXXX: Exercise Physiology
I.D.1.j	Knowledge of the pathophysiology of myocardial ischemia, myocardial infarction, stroke, hypertension, and hyperlipidemia.	<ul style="list-style-type: none"> BIOL 2180/85 - Human Anatomy w/ Lab EXSC XXXX: Exercise Physiology
I.D.1.k	Knowledge of the effects of myocardial ischemia, myocardial infarction, hypertension, claudication, and dyspnea on cardiorespiratory responses during exercise.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Physiology
I.D.1.l	Knowledge of oxygen consumption dynamics during exercise (e.g., heart rate, stroke volume, cardiac output, ventilation, ventilatory threshold).	<ul style="list-style-type: none"> EXSC XXXX: Exercise Physiology
I.D.1.m	Knowledge of methods of calculating VO_{2max} .	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Physiology
I.D.1.n	Knowledge of cardiorespiratory responses to acute graded exercise of conditioned and unconditioned participants.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Physiology

I.D.2.a	Skill in interpreting cardiorespiratory fitness test results.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Physiology
I.D.2.b	Skill in locating anatomic landmarks for palpation of peripheral pulses and blood pressure.	<ul style="list-style-type: none"> BIOL 2180/85 - Human Anatomy w/ Lab EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
I.D.2.c	Skill in measuring heart rate, blood pressure, and RPE at rest and during exercise.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
I.D.2.d	Skill in conducting submaximal exercise tests (e.g., cycle ergometer, treadmill, field testing, step test).	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
I.D.2.e	Skill in determining cardiorespiratory fitness based on submaximal exercise test results.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
<p>DOMAIN I: HEALTH AND FITNESS ASSESSMENT E. Conduct assessments of muscular strength, muscular endurance and flexibility.</p>		
I.E.1.a	Knowledge of common muscular strength, muscular endurance, and flexibility assessment protocols.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
I.E.1.b	Knowledge of interpreting muscular strength, muscular endurance, and flexibility assessments.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
I.E.1.c	Knowledge of relative strength, absolute strength, and repetition maximum (1-RM) estimation.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Physiology
I.E.1.d	Knowledge of the anatomy of bone, skeletal muscle, and connective tissues.	<ul style="list-style-type: none"> BIOL 2180/85 - Human Anatomy w/ Lab
I.E.1.e	Knowledge muscle action terms including anterior, posterior, inferior, superior, medial, lateral, supination, pronation, flexion, extension, adduction, abduction, hyperextension, rotation, circumduction, agonist, antagonist, and stabilizer.	<ul style="list-style-type: none"> BIOL 2180/85 - Human Anatomy w/ Lab
I.E.1.f	Knowledge of the planes and axes in which each movement action occurs.	<ul style="list-style-type: none"> BIOL 2180/85 - Human Anatomy w/ Lab EXSC XXXX: Biomechanics and Motor Learning
I.E.1.g	Knowledge of the interrelationships among center of gravity, base of support, balance, stability, posture, and proper spinal alignment.	<ul style="list-style-type: none"> EXSC XXXX: Biomechanics and Motor Learning EXSC XXXX: Principles of Strength Training and Conditioning BIOL 2180/85 - Human Anatomy w/ Lab
I.E.1.h	Knowledge of the normal curvatures of the spine and common assessments of postural alignment.	<ul style="list-style-type: none"> EXSC XXXX: First Aid, CPR and Athletic Training
I.E.1.i	Knowledge of the location and function of the major muscles (e.g., pectoralis major, trapezius, latissimus dorsi, biceps, triceps, rectus abdominus, internal and external obliques, erector spinae, gluteus maximus, quadriceps, hamstrings, adductors, abductors, and gastrocnemius).	<ul style="list-style-type: none"> BIOL 2180/85 - Human Anatomy w/ Lab BIOL 2150/51 - Principles of Physiology w/Lab
I.E.1.j	Knowledge of the major joints and their associated movement.	<ul style="list-style-type: none"> BIOL 2180/85 - Human Anatomy w/ Lab BIOL 2150/51 - Principles of Physiology w/Lab
I.E.2.a	Skill in identifying the major bones, muscles, and joints.	<ul style="list-style-type: none"> BIOL 2180/85 - Human Anatomy w/ Lab
I.E.2.b	Skill in conducting assessments of muscular strength, muscular endurance and flexibility (e.g., 1-RM, hand grip dynamometer, push-ups, curl-ups, sit-and-reach).	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab

I.E.2.c	Skill in estimating 1-RM using lower resistance (2-10 RM).	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
I.E.2.d	Skill in interpreting results of muscular strength, muscular endurance and flexibility assessments.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
DOMAIN I: HEALTH AND FITNESS ASSESSMENT F. Conduct anthropometric and body composition assessments.		
I.F.1.a	Knowledge of the advantages, disadvantages and limitations of body composition techniques (e.g., air displacement plethysmography (BOD POD®), dual-energy x-ray absorptiometry (DEXA), hydrostatic weighing, skinfolds, and bioelectrical impedance).	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Physiology
I.F.1.b	Knowledge of the standardized descriptions of circumference and skinfold sites.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
I.F.1.c	Knowledge of procedures for determining BMI and taking skinfold and circumference measurements.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
I.F.1.d	Knowledge of the health implications of variation in body fat distribution patterns and the significance of BMI, waist circumference, and waist-to-hip ratio.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Nutrition and Weight Management EXSC XXXX: Exercise Prescription for Special Populations
I.F.2.a	Skill in locating anatomic landmarks for skinfold and circumference measurements.	<ul style="list-style-type: none"> BIOL 2180/85 - Human Anatomy w/ Lab EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
I.F.2.b	Skill in interpreting the results of anthropometric and body composition assessments.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
Domain II: Exercise Prescription and Implementation A. Review preparticipation health screening including self-guided health questionnaires and appraisals, exercise history and fitness assessments		
II.A.1.a	Skill in synthesizing pre-screening results and reviewing them with participants	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Prescription for Special Populations
Domain II: Exercise Prescription and Implementation B. Determine safe and effective exercise programs to achieve desired outcomes and goals.		
II.B.1.a	Knowledge of strength, aerobic, and flexibility based exercise.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
II.B.1.b	Knowledge of the benefits and precautions associated with exercise training in apparently healthy participants and those with controlled disease.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Prescription for Special Populations

II.B.1.c	Knowledge of program development for specific client needs (e.g., sport specific training, performance, health, lifestyle, functional ability, balance, agility, aerobic, anaerobic).	<ul style="list-style-type: none"> • EXSC XXXX: Principles of Strength Training and Conditioning • EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab • EXSC XXXX: Exercise Prescription for Special Populations • EXSC XXXX: Exercise Nutrition and Weight Management • EXSC XXXX: Principles of Health Behaviors
II.B.1.d	Knowledge of the six motor skill related physical fitness components; agility, balance, coordination, reaction time, speed, and power.	<ul style="list-style-type: none"> • EXSC XXXX: Principles of Strength Training and Conditioning • EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab • EXSC XXXX: Exercise Physiology • EXSC XXXX: Biomechanics and Motor Learning
II.B.1.e	Knowledge of the physiologic changes associated with an acute bout of exercise.	<ul style="list-style-type: none"> • EXSC XXXX: Exercise Physiology
II.B.1.f	Knowledge of the physiologic adaptations following chronic exercise training.	<ul style="list-style-type: none"> • EXSC XXXX: Exercise Physiology
II.B.1.g	Knowledge of ACSM exercise prescription guidelines for strength, aerobic, and flexibility based exercise for apparently healthy clients, clients with increased risk, and clients with controlled disease.	<ul style="list-style-type: none"> • EXSC XXXX: Principles of Strength Training and Conditioning • EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab • EXSC XXXX: Exercise Prescription for Special Populations
II.B.1.h	Knowledge of the components and sequencing incorporated into an exercise session (e.g., warm-up, stretching, conditioning or sports related exercise, cool-down).	<ul style="list-style-type: none"> • EXSC XXXX: Principles of Strength Training and Conditioning • EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab • EXSC XXXX: Exercise Prescription for Special Populations • EXSC XXXX: Exercise Physiology
II.B.1.i	Knowledge of the physiological principles related to warm-up and cool-down.	<ul style="list-style-type: none"> • EXSC XXXX: Principles of Strength Training and Conditioning • EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab • EXSC XXXX: Exercise Prescription for Special Populations • EXSC XXXX: Exercise Physiology
II.B.1.j	Knowledge of the principles of reversibility, progressive overload, individual differences and specificity of training, and how they relate to exercise prescription.	<ul style="list-style-type: none"> • EXSC XXXX: Principles of Strength Training and Conditioning • EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab • EXSC XXXX: Exercise Prescription for Special Populations • EXSC XXXX: Exercise Physiology

II.B.1.k	Knowledge the role of aerobic and anaerobic energy systems in the performance of various physical activities.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Prescription for Special Populations EXSC XXXX: Exercise Physiology EXSC XXXX: Exercise Nutrition and Weight Management
II.B.1.l	Knowledge of the basic biomechanical principles of human movement.	<ul style="list-style-type: none"> EXSC XXXX: Biomechanics and Motor Learning
II.B.1.m	Knowledge of the psychological and physiological signs and symptoms of overtraining.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Physiology
II.B.1.n	Knowledge of the signs and symptoms of common musculoskeletal injuries associated with exercise (e.g., sprain, strain, bursitis, tendonitis).	<ul style="list-style-type: none"> EXSC XXXX: First Aid, CPR and Athletic Training
II.B.1.o	Knowledge of the advantages and disadvantages of exercise equipment (e.g., free weights, selectorized machines, aerobic equipment).	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
II.B.2.a	Skill in teaching and demonstrating exercises.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
II.B.2.b	Skill in designing safe and effective training programs.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
II.B.2.c	Skill in implementing exercise prescription guidelines for apparently healthy clients, clients with increased risk, and clients with controlled disease.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Prescription for Special Populations
Domain II: Exercise Prescription and Implementation C. Implement cardiorespiratory exercise prescriptions using the FITT principle (frequency, intensity, time, and type) for apparently healthy participants based on current health status, fitness goals and availability of time.		
II.C.1.a	Knowledge of the recommended FITT framework for the development of cardiorespiratory fitness.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Prescription for Special Populations EXSC XXXX: Exercise Physiology
II.C.1.b	Knowledge of the benefits, risks and contraindications of a wide variety of cardiovascular training exercises based on client experience, skill level, current fitness level and goals.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Prescription for Special Populations
II.C.1.c	Knowledge of the minimal threshold of physical activity required for health benefits and/or fitness development.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Prescription for Special Populations EXSC XXXX: Exercise Physiology

II.C.1.d	Knowledge of determining exercise intensity using HRR, VO ₂ R, peak HR method, peak VO ₂ method, peak METs method, and the RPE Scale.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Prescription for Special Populations EXSC XXXX: Exercise Physiology
II.C.1.e	Knowledge of the accuracy of HRR, VO ₂ R, peak HR method, peak VO ₂ method, peak METs method, and the RPE Scale.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Physiology
II.C.1.f	Knowledge of abnormal responses to exercise (e.g., hemodynamic, cardiac, ventilatory).	<ul style="list-style-type: none"> EXSC XXXX: Exercise Physiology
II.C.1.g	Knowledge of metabolic calculations (e.g., unit conversions, deriving energy cost of exercise, caloric expenditure).	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
II.C.1.h	Knowledge of calculating the caloric expenditure of an exercise session (kcal·session ⁻¹).	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
II.C.1.i	Knowledge of methods for establishing and monitoring levels of exercise intensity, including heart rate, RPE, and METs.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Prescription for Special Populations EXSC XXXX: Exercise Physiology
II.C.1.j	Knowledge of the applications of anaerobic training principles.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Physiology
II.C.1.k	Knowledge of the anatomy and physiology of the cardiovascular and pulmonary systems including the basic properties of cardiac muscle.	<ul style="list-style-type: none"> BIOL 2180/85 - Human Anatomy w/ Lab BIOL 2150/51 - Principles of Physiology w/Lab EXSC XXXX: Exercise Physiology
II.C.1.l	Knowledge of the basic principles of gas exchange.	<ul style="list-style-type: none"> BIOL 2180/85 - Human Anatomy w/ Lab BIOL 2150/51 - Principles of Physiology w/Lab EXSC XXXX: Exercise Physiology
II.C.2.a	Skill in determining appropriate exercise frequency, intensity, time and type for clients with various fitness levels.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
II.C.2.b	Skill in determining the energy cost, absolute and relative oxygen costs (VO ₂), and MET levels of various activities and applying the information to an exercise prescription.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
II.C.2.c	Skill in identifying improper technique in the use of cardiovascular equipment.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
II.C.2.d	Skill in teaching and demonstrating the use of a variety of cardiovascular exercise equipment.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
<p>Domain II: Exercise Prescription and Implementation D. Implement exercise prescriptions using the FITT principle (frequency, intensity, time, and type) for flexibility, muscular strength, and muscular endurance for apparently healthy participants based on current health status, fitness goals and availability of time.</p>		
II.D.1.a	Knowledge of the recommended FITT framework for the development of muscular strength, muscular endurance and flexibility.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Exercise Prescription for Special Populations EXSC XXXX: Exercise Physiology
II.D.1.b	Knowledge of the minimal threshold of physical activity required for health benefits and/or fitness development.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Prescription for Special Populations EXSC XXXX: Exercise Physiology

II.D.1.c	Knowledge of safe and effective exercises designed to enhance muscular strength and/or endurance of major muscle groups.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Exercise Prescription for Special Populations EXSC XXXX: Exercise Physiology
II.D.1.d	Knowledge of safe and effective stretches that enhance flexibility.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Prescription for Special Populations
II.D.1.e	Knowledge of indications for water based exercise (e.g., arthritis, obesity).	<ul style="list-style-type: none"> EXSC XXXX: Exercise Prescription for Special Populations
II.D.1.f	Knowledge of the types of resistance training programs (e.g., total body, split routine) and modalities (e.g., free weights, variable resistance equipment, pneumatic machines, bands).	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning
II.D.1.g	Knowledge of acute (e.g., load, volume, sets, repetitions, rest periods, order of exercises) and chronic training variables (e.g., periodization).	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning
II.D.1.h	Knowledge of the types of muscle contractions (e.g., eccentric, concentric, isometric).	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Exercise Physiology
II.D.1.i	Knowledge of joint movements (e.g., flexion, extension, adduction, abduction) and the muscles responsible for them.	<ul style="list-style-type: none"> BIOL 2180/85 - Human Anatomy w/ Lab EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Exercise Physiology
II.D.1.j	Knowledge of acute and delayed onset muscle soreness (DOMS).	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Exercise Physiology
II.D.1.k	Knowledge of the anatomy and physiology of skeletal muscle fiber, the characteristics of fast-and slow-twitch muscle fibers, and the sliding filament theory of muscle contraction.	<ul style="list-style-type: none"> BIOL 2180/85 - Human Anatomy w/ Lab BIOL 2150/51 - Principles of Physiology w/Lab EXSC XXXX: Exercise Physiology
II.D.1.l	Knowledge of the stretch reflex, proprioceptors, golgi tendon organ (GTO), muscle spindles, and how they relate to flexibility.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Physiology
II.D.1.m	Knowledge of muscle-related terminology including atrophy, hyperplasia, hypertrophy.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Physiology EXSC XXXX: Principles of Strength Training and Conditioning
II.D.1.n	Knowledge of the Valsalva maneuver and its implications during exercise.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Exercise Physiology
II.D.1.o	Knowledge of the physiology underlying plyometric training and common plyometric exercises (e.g., box jumps, leaps, bounds).	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
II.D.1.p	Knowledge of the contraindications and potential risks associated with muscular conditioning activities (e.g., straight-leg sit-ups, double leg raises, squats, hurdler's stretch, yoga plough, forceful back hyperextension, and standing bent-over toe touch, behind neck press/lat pull-down).	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning
II.D.1.q	Knowledge of prescribing exercise using the calculated %1-RM.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning
II.D.1.r	Knowledge of spotting positions and techniques for injury prevention and exercise assistance.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning
II.D.1.s	Knowledge of periodization (e.g., macro, micro, mesocycles) and associated theories.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning

II.D.1.t	Knowledge of safe and effective Olympic weight lifting exercises.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning
II.D.1.u	Knowledge of safe and effective core stability exercises (e.g., planks, crunches, bridges, cable twists).	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning
II.D.2.a	Skill in identifying improper technique in the use of resistive equipment (e.g., stability balls, weights, bands, resistance bars, and water exercise equipment).	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning
II.D.2.b	Skill in teaching and demonstrating appropriate exercises for enhancing musculoskeletal flexibility.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning
II.D.2.c	Skill in teaching and demonstrating safe and effective muscular strength and endurance exercises (e.g., free weights, weight machines, resistive bands, Swiss balls, body weight and all other major fitness equipment).	<ul style="list-style-type: none"> EXSC XXXX: Principles of Strength Training and Conditioning
<p>Domain II: Exercise Prescription and Implementation E. Establish exercise progression guidelines for resistance, aerobic and flexibility activity to achieve the goals of apparently healthy participants.</p>		
II.E.1.a	Knowledge of the basic principles of exercise progression.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Principles of Strength Training and Conditioning
II.E.1.b	Knowledge of adjusting the FITT framework in response to individual changes in conditioning.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Principles of Strength Training and Conditioning
II.E.1.c	Knowledge of the importance of performing periodic reevaluations to assess changes in fitness status.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Principles of Strength Training and Conditioning
II.E.1.d	Knowledge of the training principles that promote improvements in muscular strength, muscular endurance, cardiorespiratory fitness, and flexibility.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Principles of Strength Training and Conditioning
II.E.2.a	Skill in recognizing the need for progression and communicating updates to exercise prescriptions.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Principles of Strength Training and Conditioning
<p>Domain II: Exercise Prescription and Implementation F. Implement a weight management program as indicated by personal goals that are supported by preparticipation health screening, health history, and body composition/anthropometrics.</p>		
II.F.1.a	Knowledge of exercise prescriptions for achieving weight management, including weight loss, weight maintenance and weight gain goals.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Nutrition and Weight Management
II.F.1.b	Knowledge of energy balance and basic nutritional guidelines (e.g., MyPyramid, USDA Dietary Guidelines for Americans).	<ul style="list-style-type: none"> EXSC XXXX: Exercise Nutrition and Weight Management
II.F.1.c	Knowledge of weight management terminology including, but not limited to, obesity, overweight, percent fat, BMI, lean body mass (LBM), anorexia nervosa, bulimia, binge eating, metabolic syndrome, body fat distribution, adipocyte, bariatrics, ergogenic aid, fat-free mass (FFM), resting metabolic rate (RMR) and thermogenesis.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Nutrition and Weight Management
II.F.1.d	Knowledge of the relationship between body composition and health.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Nutrition and Weight Management

II.F.1.e	Knowledge of the unique dietary needs of participant populations (e.g., women, children, older adults, pregnant women).	<ul style="list-style-type: none"> EXSC XXXX: Exercise Nutrition and Weight Management
II.F.1.f	Knowledge of common nutritional ergogenic aids, their purported mechanisms of action, and associated risks and benefits (e.g., protein/amino acids, vitamins, minerals, herbal products, creatine, steroids, caffeine).	<ul style="list-style-type: none"> EXSC XXXX: Exercise Nutrition and Weight Management
II.F.1.g	Knowledge of methods for modifying body composition including diet, exercise, and behavior modification.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Nutrition and Weight Management EXSC XXXX: Principles of Health Behaviors
II.F.1.h	Knowledge of fuel sources for aerobic and anaerobic metabolism including carbohydrates, fats and proteins.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Nutrition and Weight Management EXSC XXXX: Exercise Physiology
II.F.1.i	Knowledge of the effects of overall dietary composition on healthy weight management.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Nutrition and Weight Management
II.F.1.j	Knowledge of the importance of maintaining normal hydration before, during and after exercise.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Nutrition and Weight Management EXSC XXXX: Exercise Physiology
II.F.1.k	Knowledge of the consequences of inappropriate weight loss methods (e.g., saunas, dietary supplements, vibrating belts, body wraps, over exercising, very low calorie diets, electric stimulators, sweat suits, fad diets).	<ul style="list-style-type: none"> EXSC XXXX: Exercise Nutrition and Weight Management
II.F.1.l	Knowledge of the kilocalorie levels of carbohydrate, fat, protein, and alcohol.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Nutrition and Weight Management
II.F.1.m	Knowledge of the relationship between kilocalorie expenditures and weight loss.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Nutrition and Weight Management
II.F.1.n	Knowledge of published position statements on obesity and the risks associated with it (e.g., National Institutes of Health, American Dietetic Association, ACSM).	<ul style="list-style-type: none"> EXSC XXXX: Exercise Nutrition and Weight Management
II.F.1.o	Knowledge of the relationship between body fat distribution patterns and health.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Nutrition and Weight Management
II.F.1.p	Knowledge of the physiology and pathophysiology of overweight and obese participants.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Nutrition and Weight Management EXSC XXXX: Exercise Prescription for Special Populations
II.F.1.q	Knowledge of the recommended FITT framework for participants who are overweight or obese.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Prescription for Special Populations
II.F.1.r	Knowledge of comorbidities and musculoskeletal conditions associated with overweight and obesity that may require medical clearance and/or modifications to exercise testing and prescription.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Prescription for Special Populations
II.F.2.a	Skill in applying behavioral strategies (e.g., exercise, diet, behavioral modification strategies) for weight management.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Nutrition and Weight Management EXSC XXXX: Principles of Health Behaviors
II.F.2.b	Skill in modifying exercises for individuals limited by body size.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Prescription for Special Populations
II.F.2.c	Skill in calculating the volume of exercise in terms of kcal-session ⁻¹ .	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
<p>Domain II: Exercise Prescription and Implementation G. Prescribe and implement exercise programs for participants with controlled cardiovascular, pulmonary, and metabolic diseases and other clinical populations.</p>		
II.G.1.a	Knowledge of ACSM risk stratification and exercise prescription guidelines for participants with cardiovascular, pulmonary, and metabolic diseases and other clinical populations.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Prescription for Special Populations

II.G.1.b	Knowledge of ACSM relative and absolute contraindications for initiating exercise sessions or exercise testing, and indications for terminating exercise sessions and exercise testing.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Physiology
II.G.1.c	Knowledge of physiology and pathophysiology of cardiac disease, arthritis, diabetes mellitus, dyslipidemia, hypertension, metabolic syndrome, musculoskeletal injuries, overweight and obesity, osteoporosis, peripheral artery disease, and pulmonary disease.	<ul style="list-style-type: none"> BIOL 2150/51 - Principles of Physiology w/Lab EXSC XXXX: Exercise Prescription for Special Populations EXSC XXXX: Exercise Physiology
II.G.1.d	Knowledge of the effects of diet and exercise on blood glucose levels in diabetics.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Prescription for Special Populations
II.G.1.e	Knowledge of the recommended FITT principle for the development of cardiorespiratory fitness, muscular fitness and flexibility for participants with cardiac disease, arthritis, diabetes mellitus, dyslipidemia, hypertension, metabolic syndrome, musculoskeletal injuries, overweight and obesity, osteoporosis, peripheral artery disease, and pulmonary disease.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Prescription for Special Populations
II.G.2.a	Skill in progressing exercise programs, according to the FITT principle, in a safe and effective manner.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Prescription for Special Populations
II.G.2.b	Skill in modifying the exercise prescription and/or exercise choice for individuals with cardiac disease, arthritis, diabetes mellitus, dyslipidemia, hypertension, metabolic syndrome, musculoskeletal injuries, overweight and obesity, osteoporosis, peripheral artery disease, and pulmonary disease.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Prescription for Special Populations
II.G.2.c	Skill in identifying improper exercise techniques and modifying exercise programs for participants with low back, neck, shoulder, elbow, wrist, hip, knee and/or ankle pain.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Prescription for Special Populations
	Domain II: Exercise Prescription and Implementation H. Prescribe and implement exercise programs for healthy special populations (i.e., older adults, youth, pregnant women).	
II.H.1.a	Knowledge of normal maturational changes, from childhood to old age, and their effects on the skeletal muscle, bone, reaction time, coordination, posture, heat and cold tolerance, maximal oxygen consumption, strength, flexibility, body composition, resting and maximal heart rate, and resting and maximal blood pressure.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Prescription for Special Populations BIOL 2150/51 - Principles of Physiology w/Lab
II.H.1.b	Knowledge of techniques for the modification of cardiovascular, flexibility, and resistance exercises based on age, functional capacity and physical condition.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Exercise Prescription for Special Populations
II.H.1.c	Knowledge of techniques for the development of exercise prescriptions for children, adolescents and older adults with regard to strength, functional capacity, and motor skills.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Prescription for Special Populations
II.H.1.d	Knowledge of the unique adaptations to exercise training in children, adolescents, and older participants with regard to strength, functional capacity, and motor skills.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Prescription for Special Populations
II.H.1.e	Knowledge of the benefits and precautions associated with exercise training across the lifespan.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Physiology
II.H.1.f	Knowledge of the recommended FITT framework for the development of cardiorespiratory fitness, muscular fitness and flexibility in apparently healthy children and adolescents.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Prescription for Special Populations

II.H.1.g	Knowledge of the effects of the aging process on the musculoskeletal and cardiovascular structures and functions during rest, exercise, and recovery.	<ul style="list-style-type: none"> • BIOL 2150/51 - Principles of Physiology w/Lab • EXSC XXXX: Exercise Prescription for Special Populations
II.H.1.h	Knowledge of the recommended FITT framework necessary for the development of cardiorespiratory fitness, muscular fitness, balance, and flexibility in apparently healthy, older adults.	<ul style="list-style-type: none"> • EXSC XXXX: Exercise Prescription for Special Populations
II.H.1.i	Knowledge of common orthopedic and cardiovascular exercise considerations for older adults.	<ul style="list-style-type: none"> • EXSC XXXX: Exercise Prescription for Special Populations
II.H.1.j	Knowledge of the relationship between regular physical activity and the successful performance of activities of daily living (ADLs) for older adults.	<ul style="list-style-type: none"> • EXSC XXXX: Exercise Prescription for Special Populations
II.H.1.k	Knowledge of the recommended frequency, intensity, type, and duration of physical activity necessary for the development of cardiorespiratory fitness, muscular fitness and flexibility in apparently healthy pregnant women.	<ul style="list-style-type: none"> • EXSC XXXX: Exercise Prescription for Special Populations
II.H.2.a	Skill in teaching and demonstrating appropriate exercises for healthy populations with special considerations.	<ul style="list-style-type: none"> • EXSC XXXX: Exercise Prescription for Special Populations
II.H.2.b	Skill in modifying exercises based on age, physical condition, and current health status.	<ul style="list-style-type: none"> • EXSC XXXX: Exercise Prescription for Special Populations
	Domain II: Exercise Prescription and Implementation I. Modify exercise prescriptions based on environmental conditions.	
II.I.1.a	Knowledge of the effects of a hot, cold, or high altitude environment on the physiologic response to exercise.	<ul style="list-style-type: none"> • EXSC XXXX: Exercise Physiology
II.I.1.b	Knowledge of special precautions and program modifications for exercise in a hot, cold, or high altitude environment.	<ul style="list-style-type: none"> • EXSC XXXX: Exercise Physiology • EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
II.I.1.c	Knowledge of the role of acclimatization when exercising in a hot or high altitude environment.	<ul style="list-style-type: none"> • EXSC XXXX: Exercise Physiology • EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
II.I.1.d	Knowledge of appropriate fluid intake during exercise in a hot, humid environments as well as cold, and altitude.	<ul style="list-style-type: none"> • EXSC XXXX: Exercise Physiology
	Domain III: Exercise Counseling and Behavioral Strategies A. Optimize adoption and adherence to exercise programs and other healthy behaviors by applying effective communication techniques.	
III.A.1.a	Knowledge of the effective and timely uses of communication modes (e.g., email, telephone, web site, newsletters).	<ul style="list-style-type: none"> • EXSC XXXX: Principles of Health Behaviors
III.A.1.b	Knowledge of verbal and non-verbal behaviors that communicate positive reinforcement and encouragement (e.g., eye contact, targeted praise, empathy).	<ul style="list-style-type: none"> • EXSC XXXX: Principles of Health Behaviors
III.A.1.c	Knowledge of group leadership techniques for working with participants of all ages.	<ul style="list-style-type: none"> • EXSC XXXX: Principles of Health Behaviors
III.A.1.d	Knowledge of active listening techniques.	<ul style="list-style-type: none"> • EXSC XXXX: Principles of Health Behaviors
III.A.1.e	Knowledge of learning modes (auditory, visual, kinesthetic).	<ul style="list-style-type: none"> • EXSC XXXX: Principles of Health Behaviors
III.A.1.f	Knowledge of types of feedback (e.g., evaluative, supportive, descriptive).	<ul style="list-style-type: none"> • EXSC XXXX: Principles of Health Behaviors
III.A.2.a	Skill in using active listening techniques.	<ul style="list-style-type: none"> • EXSC XXXX: Principles of Health Behaviors
III.A.2.b	Skill in applying teaching and training techniques to optimize participant training sessions.	<ul style="list-style-type: none"> • EXSC XXXX: Principles of Health Behaviors
III.A.2.c	Skill in using feedback to optimize participant training sessions.	<ul style="list-style-type: none"> • EXSC XXXX: Principles of Health Behaviors
III.A.2.d	Skill in applying verbal and non-verbal communications with diverse participant populations.	<ul style="list-style-type: none"> • EXSC XXXX: Principles of Health Behaviors

	Domain III: Exercise Counseling and Behavioral Strategies B. Optimize adoption of and adherence to exercise programs and other healthy behaviors by applying effective behavioral and motivational strategies.	
III.B.1.a	Knowledge of behavior change models and theories (e.g., health belief model, theory of planned behavior, socio-ecological model, transtheoretical model, social cognitive theory, cognitive evaluation theory).	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors
III.B.1.b	Knowledge of the basic principles involved in Motivational Interviewing.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors
III.B.1.c	Knowledge of intervention strategies and stress management techniques.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors
III.B.1.d	Knowledge of the stages of motivational readiness (e.g., Transtheoretical model).	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors
III.B.1.e	Knowledge of behavioral strategies for enhancing exercise and health behavior change (e.g., reinforcement, S.M.A.R.T. goal setting, social support).	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors
III.B.1.f	Knowledge of behavior modification terminology including, but not limited to, self-esteem, self-efficacy, antecedents, cues to action, behavioral beliefs, behavioral intentions, and reinforcing factors.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors
III.B.1.g	Knowledge of behavioral strategies (e.g., exercise, diet, behavioral modification strategies) for weight management.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors EXSC XXXX: Exercise Nutrition and Weight Management
III.B.1.h	Knowledge of the role that affect, mood and emotion play in exercise adherence.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors
III.B.1.i	Knowledge of common barriers to exercise initiation and compliance (e.g., time management, injury, fear, lack of knowledge, weather).	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors
III.B.1.j	Knowledge of techniques that facilitate motivation (e.g., goal setting, incentive programs, achievement recognition, social support).	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors
III.B.1.k	Knowledge of the role extrinsic and intrinsic motivation plays in the adoption and maintenance of behavior change.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors
III.B.1.l	Knowledge of relapse prevention strategies and plans of action.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors
III.B.1.m	Knowledge of applying health coaching principles and lifestyle management techniques related to behavior change.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors
III.B.1.n	Knowledge of strategies that increase non-structured physical activity levels (e.g., stair walking, parking farther away, bike to work).	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors EXSC XXXX: Exercise Nutrition and Weight Management
III.B.2.a	Skill in explaining the purpose and value of understanding perceived exertion.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Exercise Physiology
III.B.2.b	Skill in using imagery as a motivational tool.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors
III.B.2.c	Skill in evaluating behavioral readiness to optimize exercise adherence.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
III.B.2.d	Skill in applying the theories related to behavior change to diverse populations.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors EXSC XXXX: Exercise Prescription for Special Populations
III.B.2.e	Skill in developing intervention strategies to increase self-efficacy and self-confidence.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors
III.B.2.f	Skill in developing reward systems that support and maintain program adherence.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab

III.B.2.g	Skill in setting effective behavioral goals.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors
	Domain III: Exercise Counseling and Behavioral Strategies C. Provide educational resources to support clients in the adoption and maintenance of healthy lifestyle behaviors.	
III.C.1.a	Knowledge of the relationship between physical inactivity and common chronic diseases (e.g., Atherosclerosis, type II diabetes, obesity, dyslipidemia, arthritis, low back pain, hypertension).	<ul style="list-style-type: none"> EXSC XXXX: Exercise Physiology
III.C.1.b	Knowledge of the dynamic inter-relationship between fitness level, body composition, stress and overall health.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Exercise Nutrition and Weight Management EXSC XXXX: Exercise Physiology
III.C.1.c	Knowledge of modifications necessary to promote healthy lifestyle behaviors for diverse populations.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors
III.C.1.d	Knowledge of stress management techniques and relaxation techniques (e.g., progressive relaxation, guided imagery, massage therapy).	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors
III.C.1.e	Knowledge of the activities of daily living (ADLs) and how they relate to overall health.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Physiology
III.C.1.f	Knowledge in accessing and disseminating scientifically-based, relevant health, exercise, nutrition, and wellness-related resources and information.	<ul style="list-style-type: none"> EXSC XXXX: Research in Exercise Science
III.C.1.g	Knowledge of specific, age-appropriate leadership techniques and educational methods to increase client engagement.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors
III.C.1.h	Knowledge of community-based exercise programs that provide social support and structured activities (e.g., walking clubs, intramural sports, golf leagues, cycling clubs).	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors
III.C.2.a	Skill in accessing and delivering health, exercise, and wellness-related information.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Exercise Nutrition and Weight Management EXSC XXXX: Principles of Health Behaviors
III.C.2.b	Skill in educating clients about benefits and risks of exercise and the risks of sedentary behavior.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Principles of Health Behaviors
	Domain III: Exercise Counseling and Behavioral Strategies D. Provide support within the scope of practice of a Health Fitness Specialist and refer to other health professionals as indicated.	
III.D.1.a	Knowledge of the side effects of common over-the-counter and prescription drugs that may impact a client's ability to exercise.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Physiology
III.D.1.b	Knowledge of signs and symptoms of mental health states (e.g., anxiety, depression, eating disorders) that may necessitate referral to a medical or mental health professional.	<ul style="list-style-type: none"> EXSC XXXX: Exercise Prescription for Special Populations
III.D.1.c	Knowledge of symptoms and causal factors of test anxiety (i.e., performance, appraisal threat during exercise testing) and how they may affect physiological responses to testing.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
III.D.1.d	Knowledge of client needs and learning styles that may impact exercise sessions and exercise testing procedures.	<ul style="list-style-type: none"> EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab

III.D.1.e	Knowledge of conflict resolution techniques that facilitate communication among exercise cohorts.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors
III.D.2.a	Skill in communicating the need for medical, nutritional, or mental health intervention.	<ul style="list-style-type: none"> EXSC XXXX: Principles of Health Behaviors
Domain IV: Legal/Professional A. Create and disseminate risk management guidelines for a health/fitness facility, department or organization to reduce member, employee and business risk.		
IV.A.1.a	Knowledge of employee criminal background checks, child abuse clearances and drug and alcohol screenings.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
IV.A.1.b	Knowledge of employment verification requirements mandated by state and federal laws.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
IV.A.1.c	Knowledge of safe handling and disposal of body fluids and employee safety (OSHA guidelines).	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
IV.A.1.d	Knowledge of insurance coverage common to the health/fitness industry including general liability, professional liability, workers' compensation, property, and business interruption.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
IV.A.1.e	Knowledge of sexual harassment policies and procedures.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
IV.A.1.f	Knowledge of interviewing techniques.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science EXSC XXXX: Principles of Health Behaviors
IV.A.1.g	Knowledge of basic precautions taken in an exercise setting to ensure participant safety.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab
IV.A.1.h	Knowledge of pre-activity screening, medical release and waiver of liability for normal and at-risk participants.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Exercise Prescription for Special Populations
IV.A.1.i	Knowledge of emergency response systems and procedures (EAP).	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
IV.A.1.j	Knowledge of the use of signage.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
IV.A.1.k	Knowledge of preventive maintenance schedules and audit	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
IV.A.1.l	Knowledge of techniques and methods of evaluating the condition of exercise equipment to reduce the potential risk of injury.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science

IV.A.1.m	Knowledge of the legal implications of documented safety procedures, the use of incident documents, and ongoing safety training documentation for the purpose of safety and risk management	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
IV.A.1.n	Knowledge of documentation procedures for CPR and AED certification for employees.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
IV.A.1.o	Knowledge of AED guidelines for implementation.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science EXSC XXXX: First Aid, CPR and Athletic Training
IV.A.1.p	Knowledge of the components of the ACSM Code of Ethics and the ACSM Certified Health Fitness Specialist scope of practice.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
IV.A.2.a	Skill in developing and disseminating a policy and procedures manual.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
IV.A.2.b	Skill in developing and implementing confidentiality policies.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
IV.A.2.c	Skill in maintenance of a safe exercise environment (e.g., equipment operation, proper sanitation, safety and maintenance of exercise areas, and overall facility maintenance).	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science EXSC XXXX: Fitness Assessment and Exercise Prescription with Lab EXSC XXXX: Principles of Strength Training and Conditioning EXSC XXXX: Exercise Prescription for Special Populations
IV.A.2.d	Skill in the organization, communication, and human resource management required to implement risk management policies and procedures.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
IV.A.2.e	Skill in training employees to identify high risk situations.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
Domain IV: Legal/Professional		
B. Create an effective injury prevention program and ensure that emergency policies and procedures are in place.		
IV.B.1.a	Knowledge of emergency procedures (i.e., telephone procedures, written emergency procedures (EAP), personnel responsibilities) in a health and fitness setting	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science EXSC XXXX: First Aid, CPR and Athletic Training
IV.B.1.b	Knowledge of basic first-aid procedures for exercise-related injuries, such as bleeding, strains/sprains, fractures, and exercise intolerance (dizziness, syncope, heat and cold injuries).	<ul style="list-style-type: none"> EXSC XXXX: First Aid, CPR and Athletic Training
IV.B.1.c	Knowledge of the Health Fitness Specialist's responsibilities and limitations, and the legal implications of carrying out emergency procedures.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science EXSC XXXX: First Aid, CPR and Athletic Training
IV.B.1.d	Knowledge of safety plans, emergency procedures and first-aid techniques needed during fitness evaluations, exercise testing, and exercise training	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science EXSC XXXX: First Aid, CPR and Athletic Training

IV.B.1.e	Knowledge of potential musculoskeletal injuries (e.g., contusions, sprains, strains, fractures), cardiovascular/pulmonary complications (e.g., tachycardia, bradycardia, hypotension/hypertension, dyspnea) and metabolic abnormalities (e.g., fainting/syncope, hypoglycemia/hyperglycemia, hypothermia/hyperthermia).	<ul style="list-style-type: none"> EXSC XXXX: First Aid, CPR and Athletic Training
IV.B.1.f	Knowledge of the initial management and first-aid techniques associated with open wounds, musculoskeletal injuries, cardiovascular/pulmonary complications, and metabolic disorders.	<ul style="list-style-type: none"> EXSC XXXX: First Aid, CPR and Athletic Training
IV.B.1.g	Knowledge of emergency documentation and appropriate document utilization.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
IV.B.2.a	Skill in applying basic first-aid procedures for exercise-related injuries, such as bleeding, strains/sprains, fractures, and exercise intolerance (dizziness, syncope, heat and cold injuries).	<ul style="list-style-type: none"> EXSC XXXX: First Aid, CPR and Athletic Training
IV.B.2.b	Skill in applying basic life support, first aid, cardiopulmonary resuscitation, and automated external defibrillator techniques.	<ul style="list-style-type: none"> EXSC XXXX: First Aid, CPR and Athletic Training
IV.B.2.c	Skill in designing an evacuation plan.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
IV.B.2.d	Skill in demonstrating emergency procedures during exercise testing and/or training.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science EXSC XXXX: First Aid, CPR and Athletic Training
Domain V: Management A. Manage human resources in accordance with leadership, organization, and management techniques.		
V.A.1.a	Knowledge of industry benchmark compensation and employee benefit guidelines.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
V.A.1.b	Knowledge of federal, state and local laws pertaining to staff qualifications and credentialing requirements.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
V.A.1.c	Knowledge of techniques for tracking and evaluating member retention.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
V.A.2.a	Skill in applying policies, practices and guidelines to efficiently hire, train, supervise, schedule and evaluate employees.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
V.A.2.b	Skill in applying conflict resolution techniques.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
Domain V: Management B. Manage fiscal resources in accordance with leadership, organization, and management techniques.		
V.B.1.a	Knowledge of fiduciary roles and responsibilities inherent in managing an exercise and health promotion program.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
V.B.1.b	Knowledge of principles of financial planning and goal setting, institutional budgeting processes, forecasting, and allocation of resources.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
V.B.1.c	Knowledge of basic software systems that facilitate accounting (e.g., Excel).	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science

V.B.1.d	Knowledge of industry benchmarks for budgeting and finance.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
V.B.1.e	Knowledge of basic sales techniques that promote health, fitness, and wellness services.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
V.B.2.a	Skill in efficiently managing financial resources and performing related tasks (e.g., planning, budgeting, resource allocation, revenue generation).	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
V.B.2.b	Skill in administering fitness- and wellness-related programs within established budgetary guidelines.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
Domain V: Management C. Establish policies and procedures for the management of health fitness facilities based on accepted safety and legal guidelines, standards and regulations.		
V.C.1.a	Knowledge of accepted guidelines, standards, and regulations used to establish policies and procedures for the management of health fitness facilities.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
V.C.1.b	Knowledge of facility design and operation principles.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
V.C.1.c	Knowledge of facility and equipment maintenance guidelines.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
V.C.1.d	Knowledge of documentation techniques for health fitness facility management.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
V.C.1.e	Knowledge of federal, state, and local laws as they relate to health fitness facility management.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
Domain V: Management D. Develop and execute a marketing plan to promote programs, services and facilities.		
V.D.1.a	Knowledge of lead generation techniques.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
V.D.1.b	Knowledge of the four Ps of marketing: product, price, placement, and promotion.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
V.D.1.c	Knowledge of public relations, community awareness, and sponsorship and their relationship to branding initiatives.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
V.D.1.d	Knowledge of advertising techniques.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
V.D.1.e	Knowledge of target market (internal) assessment techniques.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
V.D.1.f	Knowledge of target market (external) assessment techniques.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
V.D.2.a	Skill in applying marketing techniques that promote client retention.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science

V.D.2.b	Skill in applying marketing techniques that attract new clients.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
V.D.2.c	Skill in designing and writing promotional materials	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
V.D.2.d	Skill in collaborating with community and governmental agencies and organizations.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
V.D.2.e	Skill in providing customer service.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
	Domain V: Management E. Use effective communication techniques to develop professional relationships with other allied health professionals (e.g., nutritionists, physical therapists, physicians, nurses).	
V.E.1.a	Knowledge of communication styles and techniques.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science EXSC XXXX: Principles of Health Behaviors
V.E.1.b	Knowledge of networking techniques.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science
V.E.2.a	Skill in planning meetings.	<ul style="list-style-type: none"> EXSC XXXX: Facilities Management, Administrative and Legal Topics in Exercise Science