Strength and Conditioning Minor - 42

G. Program - New Minor

General Catalog Information

Department* Kinesiology and Health Promotion

Exact title of new minor (e.g. Evolutionary Biology Minor)* Strength and Conditioning Minor

Program total units* 42

Description of Minor* The purpose of the Strength and Conditioning Minor is to prepare students for careers related to human performance such as strength and conditioning coaching and sports medicine. Students who complete this minor will be eligible to take the American College of Sports Medicine (ACSM) Certified Exercise Physiologist and Clinical Exercise Physiologist certifications. In addition, they will be eligible to earn certification as a strength coach (e.g., through the Certified Strength Coach program) or be prepared to pursue a Master's in Athletic Training (MSAT). The minor provides a solid foundation for further study in graduate-level programs or for pursuing professional certifications in the field.

Estimated number of students likely to enroll in this minor: 100 (non-KHP students can this minor as well)

List courses by subject area, catalog number, title, and units of credit to be required under the proposed aggregate.*

*The courses below meet the Sport Performance Accreditation requirements (*add on option).*

*KIN 2040/L: Biomechanics/Laboratory **(3+1)**

KIN 3030/L: Exercise Physiology/Laboratory **(3 + 1)**

KIN 3520/A: Exercise Prescription and Fitness Testing **(reduced to 2 + 1)**

KIN 4410: Internship **(2)**

*KIN 4530/A: Sport Injury and Illness **(reduced to 2 + 1)**

*KIN 4550: Principles of Strength and Conditioning **(reduced to 2 + 1)**

KIN 4580: Exercise Prescription and Fitness Testing for Diverse Populations **(2)**

MHR 3010: Principles of Management **(3)**

PSY 3326: Health Psychology **(3)**

*NUTR 3050: Nutrition, Science, and Health **(3)**

BIO 1150/L: Basic Biology **(3+1)**

BIO 2340/L: Human Anatomy/Laboratory **(2 + 2)**

BIO 2350/L: Human Physiology/Laboratory **(3 + 1)**

State the aims of the proposed aggregate of courses.*

The main aims of the proposed aggregate of courses for this minor include:

- Develop expertise in strength and conditioning
- Expand graduate school opportunities
- Meet accreditation requirements
- Professional certification preparation
- Increased exposure to Kinesiology and Health Promotion professions
- Promote interdisciplinary educational pursuits
- Extend reach to diverse student populations
- Promote scaffolding of knowledge

Justify the need for the proposed aggregate of courses.*

This minor requires 42 units based on the required courses to meet accreditation requirements for sport performance. The sport performance add-on to the accreditation prepares candidates for recognized certifications for various programs. More specifically, according to the Commission on Accreditation of Allied Health Education Programs (CAAHEP), below are the competency areas for exercise physiology and strength training professionals and how each course will fulfill this content.

Domain	Competency	Course	Related Course Learning Outcomes
Health and Fitness Assessment	Administer and interpret preparticipation health screening procedures to maximize client safety and minimize risk.	KIN 3520	Determine participants' readiness to take part in an exercise program based on preparticipation health screening questionnaires and assessments
		KIN 3520A	Implement assessment protocols and preparticipation health screening procedures Evaluate preparticipation health screening questionnaires and assessments
	Determine client's readiness to participate in a health-related physical fitness assessment and exercise program.	KIN 3520	Determine participants' readiness to take part in an exercise program based on preparticipation health screening questionnaires and assessments
	Determine and administer physical fitness assessments for apparently healthy clients and those with controlled disease	KIN 3520A	Select and prepare physical fitness assessment for healthy participants
	Conduct and interpret cardiorespiratory fitness assessments.	KIN 3520A	Conduct a pretest clinical evaluation and health-related fitness test by following the exercise test sequence: cardiorespiratory fitness, body composition, muscular strength and endurance, and flexibility
		KIN 3030L	Collect human physiological data including lactate threshold, muscular kinematics, cardiopulmonary variables, energy expenditure, and body composition Analyze data from cardiopulmonary assessments, such as anaerobic and aerobic capacity testing, blood pressure, heart rate, and ventilation
			Describe the fundamental processes that affect

		BIO 1150	Describe the fundamental processes that affect all living systems Articulate biological concepts clearly, accurately, and in relevant context
		BIO 1150L	Articulate biological concepts clearly, accurately, and in relevant context Analyze biological phenomena using analytical and problem-solving approaches Apply biological concepts to real world observations
		BIO 2340	Describe the gross anatomy of the organs that make up the body's eleven organ systems Explain the structural and functional subdivisions of the body's eleven organ systems and the basis for this classification
		BIO 2340L	Articulate an understanding of the structure and function of the human body Communicate using scientific terminology with regards to human anatomy
		BIO 2350L	Collect, analyze, interpret, and present (written and oral) physiological data
	Conduct and interpret assessments of muscular strength, muscular endurance, and flexibility	KIN 3520A	Conduct a pretest clinical evaluation and health-related fitness test by following the exercise test sequence: cardiorespiratory fitness, body composition, muscular strength and endurance, and flexibility
		KIN 3030L	Collect human physiological data including lactate threshold, muscular kinematics, cardiopulmonary variables, energy expenditure, and body composition
		BIO 1150	Describe the fundamental processes that affect all living systems Articulate biological concepts clearly, accurately, and in relevant context
		BIO 1150L	Articulate biological concepts clearly, accurately, and in relevant context

		Analyze biological phenomena using analytical and problem-solving approaches

			Apply biological concepts to real world observations
		BIO 2340	Describe the gross anatomy of the organs that make up the body's eleven organ systems Explain the structural and functional subdivisions of the body's eleven organ

			systems and the basis for this classification
		BIO 2340L	Articulate an understanding of the structure and function of the human body. Communicate using scientific terminology with regards to human anatomy.
		BIO 2350L	Collect, analyze, interpret, and present (written and oral) physiological data
		KIN 3520/A	Conduct a pretest clinical evaluation and health-related fitness test by following the exercise test sequence: cardiorespiratory fitness, body composition, muscular strength and endurance, and flexibility
		KIN 3030L	Collect human physiological data including lactate threshold, muscular kinematics, cardiopulmonary variables, energy expenditure, and body composition Analyze data associated with body composition testing
		BIO 1150	Describe the fundamental processes that affect all living systems Articulate biological concepts clearly, accurately, and in relevant context
	Conduct and interpret anthropometric and body composition assessments.	BIO 1150L	Articulate biological concepts clearly, accurately, and in relevant context Analyze biological phenomena using analytical and problem-solving approaches Apply biological concepts to real world observations
		BIO 2340	Describe the gross anatomy of the organs that make up the body's eleven organ systems Explain the structural and functional subdivisions of the body's eleven organ systems and the basis for this classification
		BIO 2340L	Articulate an understanding of the structure and function of the human body Communicate using scientific terminology with

			Communicate using scientific terminology with regards to human anatomy
		BIO 2350L	Collect, analyze, interpret, and present (written and oral) physiological data
Exercise Prescription and Implementation	Determine safe and effective exercise programs to achieve desired outcomes and goals and translate assessment results into appropriate exercise prescriptions.	KIN 3520	Determine safe and effective exercise programs to achieve desired outcomes and goals
		KIN 3520A	Create an exercise program using laboratory data and the FITT principle for a client
		KIN 4580	Determine safe and effective exercise programs to achieve desired outcomes and goals for diverse populations Use the FITT principle to modify an exercise program for diverse populations
	Implement cardiorespiratory exercise prescriptions for apparently healthy clients and those with controlled disease based on current health status, fitness goals and availability of time	KIN 3520	Implement exercise prescriptions using the FITT principle for cardiorespiratory fitness, flexibility, muscular strength, and muscular endurance for apparently healthy participants
		BIO 1150	Describe the fundamental processes that affect all living systems Articulate biological concepts clearly, accurately, and in relevant context
		BIO 1150L	Articulate biological concepts clearly, accurately, and in relevant context Analyze biological phenomena using analytical and problem-solving approaches Apply biological concepts to real world observations
		BIO 2350	Structure/function of the cardiovascular system, including the mechanical and electrical properties of cardiac muscle, as well as excitation-contraction coupling in cardiac muscle Structure/function of the respiratory system, including lung volumes, gas exchange, and gas transport in blood
	Implement exercise prescriptions for flexibility,	KIN 3520	Implement exercise prescriptions using the FITT principle for cardiorespiratory fitness, flexibility, muscular strength, and muscular endurance for apparently healthy participants

muscular strength, muscular endurance, balance, agility, and reaction time for apparently healthy clients and those with controlled disease based on current health status, fitness goals and availability of time.	BIO 1150	Describe the fundamental processes that affect all living systems Articulate biological concepts clearly, accurately, and in relevant context
	BIO 1150L	Articulate biological concepts clearly, accurately, and in relevant context Analyze biological phenomena using analytical and problem-solving approaches Apply biological concepts to real world observations
	BIO 2350	Structure and function of skeletal muscle, including excitation-contraction coupling, sliding filament mechanism, force generation, and isometric versus isotonic contractions
Establish exercise progression guidelines for flexibility, muscular strength, muscular endurance, balance, agility, and reaction time for apparently healthy clients and those with controlled disease based on current health status, fitness goals and availability of time.	KIN 3520	Examine exercise progression guidelines for resistance, aerobic, and flexibility activity to achieve the goals of apparently healthy participant
	KIN 3520A	Create an exercise program using laboratory data and the FITT principle for a client
	BIO 1150	Describe the fundamental processes that affect all living systems Articulate biological concepts clearly, accurately, and in relevant context
	BIO 1150L	Articulate biological concepts clearly, accurately, and in relevant context Analyze biological phenomena using analytical and problem-solving approaches Apply biological concepts to real world observations
	BIO 2350	Structure and function of skeletal muscle, including excitation-contraction coupling, sliding filament mechanism, force generation, and isometric versus isotonic contractions.
Implement a general weight	KIN 3520/A	Implement a weight management program as indicated by personal goals that are supported

general weight management program as indicated by personal goals, as needed.		Indicated by personal goals that are supported by preparticipation health screening, health history, and body composition
Prescribe and implement exercise programs for clients with controlled cardiovascular, pulmonary, and metabolic diseases and other clinical populations and work closely with clients' healthcare providers, as needed.	KIN 4580	Prescribe and implement exercise programs for diverse populations including participants with chronic diseases, healthy special populations, and individuals with disabilities
	BIO 1150	Describe the fundamental processes that affect all living systems Articulate biological concepts clearly, accurately, and in relevant context
	BIO 1150L	Articulate biological concepts clearly, accurately, and in relevant context Analyze biological phenomena using analytical and problem-solving approaches Apply biological concepts to real world observations
	BIO 2350	The various physiological organ-systems and their importance to the integrative functions of the human body
Prescribe and implement exercise programs for healthy special populations (i.e., older adults, youth, and pregnant women)	KIN 3520/A	Determine safe and effective exercise programs to achieve desired outcomes and goals
	KIN 4580	Prescribe and implement exercise programs for diverse populations including participants with chronic diseases, healthy special populations, and individuals with disabilities
	BIO 1150	Describe the fundamental processes that affect all living systems Articulate biological concepts clearly, accurately, and in relevant context
	BIO 1150L	Articulate biological concepts clearly, accurately, and in relevant context Analyze biological phenomena using analytical and problem-solving approaches Apply biological concepts to real world observations

		BIO 2350	The various physiological organ-systems and their importance to the integrative functions of the human body
	Modify exercise prescriptions based on various environmental conditions	KIN 3030	Describe the key principles of human metabolism and its response to environmental factors
Exercise Counseling and Behavior Modification	Optimize adoption and adherence of exercise and other healthy behaviors by applying effective communication techniques.	PSY 3326	Criticize and question the medical model and other limited perspectives in health psychology Use a biopsychosocial approach, apply an interdisciplinary perspective. Conceptualize and conduct a small research project in health psychology, such as a behavior analysis and intervention for Type A behaviors associated with hostility
	Optimize adoption and adherence of exercise and other healthy behaviors by applying effective behavioral strategies and motivational techniques	PSY 3326	Criticize and question the medical model and other limited perspectives in health psychology Use a biopsychosocial approach, apply an interdisciplinary perspective. Conceptualize and conduct a small research project in health psychology, such as a behavior analysis and intervention for Type A behaviors associated with hostility
	Provide educational resources to support clients in the adoption and maintenance of healthy lifestyle behaviors.	PSY 3326	Integrate the research findings to date with regard to the roles of social support and environmental factors on immunity and illness progression.
	Provide support within the scope of practice of a fitness professional and refer to other health professionals as indicated.	PSY 3326	Explain the role of mental health professionals in the health care setting and in promoting health in general Describe the management of chronic and acute pain
Risk Management and	Develop and disseminate risk management	MHR 3010	Describe the fundamental concepts and principles about management, managerial roles, skills, and functions and develop the

Professional Responsibilities	guidelines for a health/fitness	[illegible]	necessary skills to become a competent manager
	facility to reduce member, employee, and business risk		Describe management theories and models from historical developments to contemporary perspectives and their applications in an organizational setting Be able to make ethical decisions and formulate and implement plans to achieve organizational goals effectively and efficiently
	Ensure that emergency policies and procedures are in place	MHR 3010	Demonstrate familiarity with organizational structure and design, human resources management, and controlling systems and methods
Sport Performance add-on	Functional anatomy and Biomechanics	KIN 2040/L	Analyze human movement using kinematics and kinetics Identify basic neuromuscular mechanisms responsible for human movements
	Sports Metabolism	KIN 3030/L	Identify physiological adaptations to perform exercise and optimize performance Describe the key principles of human metabolism and its response to environmental factors Analyze data associated with energy expenditure and fat and carbohydrate metabolism during exercise
		BIO 2350	The various physiological organ-systems and their importance to the integrative functions of the human body.
	Performance Assessment and Evaluation	KIN 3520	Examine exercise progression guidelines for resistance, aerobic, and flexibility activity to achieve the goals of apparently healthy participants
		KIN 3520A	Conduct a pretest clinical evaluation and health-related fitness test by following the exercise test sequence: cardiorespiratory fitness, body composition, muscular strength and endurance, and flexibility
		BIO 2350L	Collect, analyze, interpret, and present (written and oral) physiological data.
	Nutrition and Ergogenic Aids	NUTR 3050	Critically discuss the role of nutrition in health and disease Discuss functions of vitamins and minerals and their role in health and disease

			their role in health and disease
			Apply nutrition standards and guidelines to select a healthy diet Discuss the impact of physical activity on nutrient utilization and requirements Apply nutritional knowledge obtained from this course to distinguish valid nutrition information from misinformation
	Advanced Programming for Sport	KIN 4550	Apply goal-specific training principles in the design of strength and conditioning programs Create a strength and conditioning program
	Training Techniques for Athletic Performance.	KIN 4550	Execute proper exercise techniques in strength and conditioning
	Injury prevention and Return to play	KIN 4530/A	Create an effective injury prevention program that ensure that emergency policies and procedures are followed
	Professionalism and Risk Management	MHR 3010	Describe the fundamental concepts and principles about management, managerial roles, skills, and functions and develop the necessary skills to become a competent manager Be able to make ethical decisions and formulate and implement plans to achieve organizational goals effectively and efficiently Describe issues of leadership, motivation and diversity in multicultural organizations

More generally, an undergraduate strength and conditioning minor can be a valuable addition to a student's academic program, providing specialized knowledge and skills in the field of sports performance. Here are some reasons why a strength and conditioning minor may be valuable:

1. **Specialized knowledge**: A strength and conditioning minor provides specialized knowledge and skills in the field of sports performance, including exercise prescription, program design, injury prevention and treatment, and training techniques. This knowledge is essential for professionals who work with athletes in various sports and can be applied in fields such as coaching, personal training, and physical therapy.
2. **Career opportunities**: The human performance industry is growing, and there is

2. **Career opportunities**: The human performance industry is growing, and there is an increasing demand for professionals with a background in strength and conditioning. A strength and conditioning minor can provide students with the knowledge and skills needed to pursue careers in fields such as coaching, personal training, sports medicine, and more.
3. **Interdisciplinary perspective**: Strength and conditioning draws on concepts from a variety of disciplines, including exercise science, biomechanics, and nutrition. A strength and conditioning minor can provide students with a broader perspective and a more interdisciplinary approach to understanding human performance.
4. **Personal benefits**: Studying strength and conditioning can also have personal benefits, as students learn about the importance of exercise for optimizing performance across various domains. This knowledge can help students make more informed decisions about their own exercise habits and promote a healthier lifestyle.
5. **Applied experience**: A strength and conditioning minor typically includes practical experience, such as internships, which allows students to apply their knowledge in real-world settings. This experience can provide valuable skills and knowledge that can be used in future careers.

Overall, a strength and conditioning minor can be a valuable addition to a student's academic program, providing specialized knowledge, career opportunities, interdisciplinary perspective, personal benefits, and applied experience.

List new courses to be developed. You will need to submit separate course proposals for each new course.

List all present faculty members with rank, appointment status, highest degree earned, date and field of highest degree, and professional experience, who would teach in the proposed aggregate of courses.*

Dr. Edward Jo

Rank: Professor

Appointment status: Full-time

Highest degree earned: Ph.D.

Date and field of highest degree: 2013; Exercise Science

Professional experience:

- Consulting

Dr. Minhyuk Kwon

Rank: Associate Professor

Appointment status: Full-time

Highest degree earned: Ph.D.

Date and field of highest degree: 2015; Neuromuscular Control of Human Movement

Professional experience:

- 2016-2019 Postdoctoral Research Associate in Neuromuscular Physiology lab, Marquette University, Milwaukee, WI
- 2015-2016 Postdoctoral Research Fellow in Kansas Center for Autism Research and Training, University of Kansas, Lawrence, KS

Dr. Zakkoyya Lewis-Trammell

Rank: Associate Professor

Appointment status: Full-time

Highest degree earned: Ph.D.

Date and field of highest degree: 2017; Rehabilitation Sciences

Professional experience:

- Certified athletic trainer with over 900 hours of field experience (certified in 2013)
- Certified exercise physiologist (2016)
- Credentialed in exercise is medicine (2020)
- From 2016-2018 worked with Beachbody, LLC as the Fitness Research Manager conducting fitness assessments for exercise test group

Dr. Michael Liang

Rank: Professor

Appointment status: FERP

Appointment status: FERP

Highest degree earned: Ph.D.

Date and field of highest degree: 1974; Exercise Physiology

Professional experience:

- Director Wellness Center and Human Performance Lab, UMDNJ New Jersey, 1989-1993)
- Cardiac Rehabilitation Internship supervisor, Aurora University, IL 1983-1986)
- Director, Cardiac Rehabilitation Clinic and Exercise Testing Lab, Divine Redeemer Memorial Hospital, St. Paul, Mn 1975-1980
- Associate editor of Journal of Exercise & Organ Cross Talk)2022-present)
- Editorial Consultant, Journal of American Osteopathic Association (1991-1992)

Describe instructional resources (faculty, space, equipment, library volumes, etc.) needed to implement and sustain the proposed aggregate of courses.*

- Standard smart classrooms; audiovisual equipment, computer, and software
- KHP inventory equipment room
- KHP exercise physiology and biomechanics laboratory
- Scientific databases (e.g., SPORTDiscus, Web of Science, PubMed, ERIC)

List all additional resources needed including specific resource, cost, and source of funding.

- No additional resources are needed to support the launch of this minor.

The following fields are for integration purposes with the University Catalog (i.e. Acalog e-catalog). Please select Program and enter 'n/a' in Curriculum.

Program Type* (●) Program ( ) Shared Core

Curriculum*

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AY Proposal Submitted 2023-2024

AY Proposal Implemented

FOR ACADEMIC SENATE OFFICE USE ONLY

Senate Referral Number AP-016-234

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