

**CTAG Name: Introduction to Exercise Science**

This document contains information about 2 Career-Technical Articulation Number (CTAN) for the Exercise Science, Sports and Recreational Health Care Career-Technical Assurance Guide (CTAG).

**1. Introduction to Exercise Science:** CTAN alignment with the Tech Prep Exercise Science/Sport and Recreational Health Care Pathway in the Career Field Technical Content Standards of the Ohio Department of Education.

**Advising notes:**

None

**Course Description:** This course is the introduction to exercise science and the sub-disciplines. It is designed to help students define professional goals and explore the many careers in exercise science. Students will begin to gain the competencies essential and the commitment required to be in the field of exercise science.

**Semester Credit Hours:** 3

**Alignment:**

<b>Learning Outcomes</b> <b>The student will be able to:</b>	<b>Competencies in ODE’s Revised Career Field Technical Content Standards Dated October 2013.</b>
<b>1. Identify and define the basic concepts of physical activity, fitness and wellness.</b>	3.2.1 Describe the national and state health agenda for wellness. 3.2.5 Share information to promote, maintain, and restore health. 3.2.6 Communicate the importance of age-appropriate healthy eating, exercise, and preventative medicine. 3.2.8 Identify the components of wellness and communicate the relationship between physical fitness, physical performance, injury prevention and nutritional intake.

<p><b>2. Identify potential career opportunities, educational requirements, and certifications in exercise science and the sub-disciplines.</b></p>	<p>1.1.1 Identify the knowledge, skills and abilities necessary to succeed in careers.</p> <p>1.3.3 Use ethical charter traits consistent with workplace standards (e.g., honesty, personal integrity, compassion, justice).</p> <p>1.3.4 Identify how federal and state consumer protection laws affect products and services.</p> <p>3.2.1 Describe the national and state health agenda for wellness</p>
<p><b>3. Identify professional organizations, journals and best practices that support the profession.</b></p>	<p>1.1.4 Describe the role and function of professional organizations, industry associations, and organized labor and use networking techniques to develop and maintain professional relationships.</p> <p>1.3.1 Analyze how regulatory compliance affects business operations and organizational performance</p> <p>3.2.5 Share information to promote, maintain and restore.</p>
<p><b>4. Investigate the skills and knowledge essential for a practitioner in the field of exercise science.</b></p>	<p>1.1.2 Identify the scope of career opportunities and the requirements for education, training, certification, licensure, and experience.</p> <p>1.1.6 Explain the importance of work ethic, accountability, and responsibility and demonstrate associated behaviors in fulfilling personal, community and workplace roles.</p> <p>1.1.8 Identify the correlation between emotions, behavior, and appearance and manage those to establish and maintain professionalism.</p> <p>1.1.12 Identify healthy lifestyles that reduce the risk of chronic disease, unsafe habits, and abusive behavior.</p> <p>1.2.8 Identify the strengths, weaknesses, and characteristics of leadership styles that influence internal and external workplace relationships.</p> <p>3.2.1 Describe the national and state health agenda for wellness</p>

<p><b>5. Utilize effective communication skills to present scholarly physical activity, fitness and wellness topics.</b></p>	<p>1.2.1 Extract relevant, valid information from materials and cite sources of information (e.g., medical reports, fitness assessment, medical test results).</p> <p>1.2.2 Deliver formal and informal presentations.</p> <p>1.2.3 Identify and use verbal, nonverbal, and active listening skills to communicate effectively.</p> <p>1.2.6 Use proper grammar and expression in all aspects of communication.</p> <p>1.2.9 Identify advantages and disadvantages involving digital and/or electronic communications.</p> <p>1.2.10 Use interpersonal skills to provide group leadership, promote collaboration and work in a team.</p>
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**CTAN Name: Fitness and Health Foundations**

**2. Fitness and Health Foundations:** CTAN alignment with the Tech Prep Exercise Science/Sport and Recreational Health Care Pathway in the Career Field Technical Content Standards of the Ohio Department of Education.

**Advising notes:**

None

**Semester Credit Hours: 3**

Course Description: This course is an introduction to the foundations of fitness, health and related topics including energy balance, lifestyle choices and exercise testing and prescription. Individual fitness assessment, evaluation and programming will be emphasized. Attention will be given to the research that supports the professional guidelines for fitness and health.

**Alignment:**

**All outcomes considered essential**

<b>Learning Outcomes</b>  <b>The student will be able to:</b>	<b>Competencies in ODE's REVISED Career Field Technical Content Standards</b>
<b>1. Identify and define the components of physical fitness.</b>	<p>3.2.2 Identify skill related components (i.e. agility, balance, coordination, power, speed and reaction time).</p> <p>3.2.3 Measure and document an individual's health-related components (i.e. cardiorespiratory fitness, muscular strength and endurance, flexibility, and body composition).</p>
<b>2. Evaluate and assess cardiorespiratory fitness, muscular strength, muscular endurance, flexibility, body composition and learn to determine appropriate recommendations.</b>	<p>2.1.2 Describe the cardiovascular system and trace the path of blood and factors affecting blood flow.</p> <p>2.1.3 Describe how blood pressure is controlled and factors influencing changes in blood pressure.</p> <p>2.1.4 Describe the function and components of the respiratory system and pulmonary ventilation and factors influencing respiratory rates.</p> <p>2.1.6 Describe the musculoskeletal system including skeletal, cardiac, and smooth muscle, various bone structures, and the role of bone marrow, and joints and injuries.</p> <p>3.5.10 Take anthropometric measurements (e.g., weight, height, body mass index (BMI) body fat percentage).</p> <p>3.6.1 Complete a comprehensive fitness evaluation.</p> <p>3.6.14. Apply the FITT principle (i.e., frequency, intensity, time, type) to health and skill conditioning activities.</p>

<p><b>3. Design and implement an exercise prescription for cardiorespiratory fitness, muscular strength, muscular endurance, and flexibility for personal use by utilizing basic exercise physiology and basic anatomy.</b></p>	<p>3.6.3 Design and implement an individualized training program (e.g., by using interval, continuous, and circuit training techniques).</p> <p>3.6.5 Apply techniques to enhance neuromuscular flexibility (e.g., proprioceptive neuromuscular facilitations (PNF) and static, dynamic, and ballistic stretching techniques).</p> <p>3.6.6 Apply techniques to enhance muscle strength, endurance, and flexibility (e.g., isometric, isotonic, isokinetic and aerobic, strength, power and flexibility training).</p>
<p><b>4. Analyze the relationship between nutrition, good health and well-being.</b></p>	<p>3.2.1 Describe the national and state health agenda for wellness.</p> <p>3.2.5 Share information to promote, maintain, and restore health</p> <p>3.2.8 Identify the components of wellness and communicate the relationship between physical fitness, physical performance, injury prevention and nutritional intake.</p>
<p><b>5. Describe lifestyle factors that may impact weight management and healthy behaviors.</b></p>	<p>3.2.6 Communicate the importance of age-appropriate healthy eating, exercise, and preventative medicine.</p> <p>3.5.2 Calculate the energy of carbohydrates, proteins, and fats.</p> <p>3.5.3 Describe ergogenic aids and possible benefits and risks.</p> <p>3.5.4 Calculate caloric needs of the individual and refer the individual to nutritional resources for optimal health and performance.</p> <p>3.5.5 Provide diet and hydration guidelines to maintain optimal health.</p> <p>3.6.4 Calculate the differences in caloric costs between various exercise protocols (e.g., cardio versus resistance training, large versus small muscle groups).</p>