

A P P E N D I X B

*ACE Personal Trainer
Certification
Examination
Content Outline*

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Exam Content Outline please go to
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PURPOSE

In July 2005, the American Council on Exercise® (ACE®) and CASTLE Worldwide, Inc. conducted a role delineation study to identify the primary tasks performed by personal trainers. The fundamental purpose of this study was to establish and validate appropriate content areas for the ACE Personal Trainer Certification Examination. The result of this process includes this exam content outline, which sets forth the tasks, knowledge, and skills necessary for a personal trainer to perform job responsibilities at a minimum professional level. It is the position of ACE that the recommendations outlined here are not exhaustive to the qualifications of a personal trainer but represent a minimum level of proficiency and theoretical knowledge. Please note that not all knowledge and skill statements listed in the exam content outline will be addressed on each exam administration.

The ACE Personal Trainer Exam includes a Written Simulation portion that is designed to test the decision-making ability of the candidate. The problems in the exam are intended to simulate, as closely as possible, the types of situations that an actual certified personal trainer may encounter in a professional setting. Please visit www.acefitness.org to learn more.

DESCRIPTION

An ACE-certified Personal Trainer works in a health/fitness facility or in another appropriate setting administering individualized physical activity programs to asymptomatic individuals or those who have been cleared by a physician. ACE-certified Personal Trainers will be competent to assess a client's health/medical/fitness status effectively; design safe and effective physical activity programs utilizing goal setting, exercise science principles, and safety guidelines; implement the exercise program safely and effectively; modify the program as necessary to achieve reasonable goals; and adhere to all codes, laws, and procedures applicable within the recognized scope of practice for personal trainers. The ACE Personal Trainer Certification will be granted to those candidates who possess current adult CPR, are at least 18 years of age, and obtain the minimum passing score on an entry-level examination measuring ACE-identified competencies. This certification is appropriate for individuals working one-on-one, with small groups, or as floor staff, etc. The certification will be valid for a two-year period, at which time it may be renewed. Requirements for renewal will be obtaining a pre-determined number of continuing education credits (CECs) and paying the applicable fee.

Attention Exam Candidates!

When preparing for an ACE certification exam, be aware that the material presented in this manual, or any text, may become outdated due to the evolving nature of the fitness industry, as well as new developments in current and ongoing research. These exams are based on an in-depth job analysis and an industry-wide validation survey. By design, these exams assess a candidate's knowledge and application of the most current scientifically based professional standards and guidelines. The dynamic nature of this field requires that ACE certification exams be regularly updated to ensure that they reflect the latest industry findings and research. Therefore, the knowledge and skills required to pass these exams are not solely represented in this or any industry text. *In addition to learning the material presented in this manual, ACE strongly encourages all exam candidates and fitness professionals to keep abreast of new developments, guidelines, and standards from a variety of valid industry sources.*

The Examination Content Outline is essentially a blueprint for the exam. All exam questions are based on this outline, which may also be found in the appendix in the ACE manual.

DOMAINS, TASKS AND KNOWLEDGE AND SKILL STATEMENTS

A Role Delineation Study completed for the Personal Trainer certification first identified the major categories of responsibility for the professional. These categories are defined as Domains and it was determined that the profession could be divided into four Performance domains, or major areas of responsibility. These performance domains are:

- **Domain I: Client Interview and Assessment**
- **Domain II: Program Design and Implementation**
- **Domain III: Program Progression, Modification and Maintenance**
- **Domain IV: Professional Role and Responsibility**

The Personal Trainer, in performing their job, draws upon knowledge from four foundational sciences called Content

domains. The content domains include all exercise science topics important to the competence of the Personal Trainer in fulfilling the performance domains. These foundational sciences are:

- Anatomy and Biomechanics
- Physiology
- Nutrition
- Psychology

Within each performance domain are Task Statements that detail the job-related functions under the specific domain. Each task statement is further divided into Knowledge and Skill Statements to further detail the scope of information required and how that information is applied in a practical setting for task statement.

The domains are presented in two dimensions:

- Performance domains that exist vertically for client interview and assessment; program design and implementation; program progression, modification and maintenance; and professional role and responsibility
- Content domains that exist horizontally for anatomy and biomechanics; physiology; nutrition; and psychology

Table 1: Exam Content Outline: Personal Trainer Certification

Applied Exercise Science					
Performance Domain	Total Items	Anatomy and Biomechanics (40)	Physiology (33)	Nutrition (20)	Psychology (22)
Client Interview and Assessment	40	14	11	7	8
Program Design and Implementation	41	14	12	7	8
Program Progression, Modification and Maintenance	34	12	10	6	6
Professional Role and Responsibility	10	0	0	0	0
Total:	125	40	33	20	22

DOMAIN I – CLIENT INTERVIEW AND ASSESSMENT **32%**

Task 1 - Establish rapport and program value using effective communication and listening techniques to build trust, confidence, and enthusiasm and to maximize program participation. (Chapters 13–15)

Knowledge of:

Psychology (Chapter 15)

1. Communication techniques (e.g., active listening, appropriate eye contact, reflecting and other attending behaviors, nonverbal and verbal communication)
2. Effective interviewing techniques (e.g., open-ended questioning, clarifying, paraphrasing, probing, summarizing)
3. Factors that build and enhance rapport (e.g., empathy, genuineness, nonjudgmental responses, client confidentiality)
4. Cultural, ethnic, and personal differences as they affect communication, lifestyle, dietary habits, and personal and interpersonal behavior (e.g., common assumptions, misconceptions, complicating factors)
5. Environmental factors that affect communication (e.g., location, noise, temperature, distractions, sense of privacy)
6. Psychological factors that influence an individual's self-image and their impact on the communication process
7. Each interaction as an opportunity to enhance or improve an individual's lifestyle
8. Communication technology (e.g., software, email, Website, telephone)

Skill in:

Psychology (Chapter 15)

1. Selecting an appropriate environment for consultation sessions

2. Applying interviewing and communication techniques (e.g., active listening)
3. Respecting the client's personal characteristics (e.g., gender, age, cultural/ethnic background) in all communication
4. Building rapport
5. Avoiding behaviors that are detrimental to building rapport (e.g., prejudicial statements, negative body language, and unproductive assumptions with regard to the client's body size, eating habits, past successes/failures with weight management)
6. Interpreting body language and recognizing incongruities between verbal and nonverbal behaviors
7. Identifying stage of behavioral change
8. Enhancing the perceived value of lifestyle modification for the client
9. Using technology as a communication tool

Task 2 - Assess client attitudes, preferences, motivations, and readiness for behavior change using questionnaires and interviews to set appropriate program goals and to identify potential barriers and unrealistic expectations. (Chapter 13)

Knowledge of:

Nutrition (Chapter 4)

1. Cultural, ethnic, and personal differences as they affect dietary habits
2. Potential barriers to healthful dietary choices and weight management

Psychology (Chapter 15)

1. Communication techniques (e.g., active listening, appropriate eye contact, reflecting and other attending behaviors, nonverbal and verbal communication)

2. Effective interviewing techniques (e.g., open-ended questioning, clarifying, paraphrasing, probing, summarizing)
3. Factors that build and enhance rapport (e.g., empathy, genuineness, nonjudgmental responses, client confidentiality)
4. Cultural, ethnic, and personal differences as they affect communication, lifestyle, dietary habits, and personal and interpersonal behavior (e.g., common assumptions, misconceptions, complicating factors)
5. Environmental factors that affect communication (e.g., location, noise, temperature, distractions, sense of privacy)
6. Psychological factors that influence an individual's self-image and their impact on the communication process
7. Factors that indicate a client's readiness to change
8. Appropriate forms and assessment tools

Skill in:

Nutrition (Chapter 4)

1. Identifying potential barriers to healthful dietary choices and weight management

Psychology (Chapter 15)

2. Applying interviewing and communication techniques (e.g., active listening, empathy)
3. Respecting the client's personal characteristics (e.g., gender, age, cultural/ethnic background) in all communication
4. Interpreting body language and recognizing incongruities between verbal and nonverbal behaviors
5. Avoiding behaviors that are detrimental to building trust (e.g., prejudicial statements, body language, assump-

tions with regard to body size, eating habits, past successes and failures with weight management, activity history, and ability)

6. Identifying stage of behavioral change
7. Using stage-specific strategies for facilitating behavior change
8. Administering appropriate forms and assessment tools

Task 3 - Obtain health and exercise history and lifestyle information (e.g., nutrition habits, activity) using questionnaires, interviews, and available documents to determine risk stratification, to identify the need for medical clearance and referrals, and to facilitate program design (Chapters 5, 6 & 11)

Knowledge of:

Anatomy and Biomechanics (Chapters 2 & 3)

1. General anatomy (e.g., neuromuscular, musculoskeletal, cardiovascular, respiratory)
2. Anatomical position, muscle actions, functional movements, and planes of motion
3. Normal joint range of motion
4. Physical laws of motion (e.g., inertia, acceleration, momentum, impact and reaction forces, lever classes, muscle and force production)
5. Static postural assessment and movement analysis (e.g., postural and muscle imbalances)
6. Static and dynamic balance (e.g., center of gravity, base of support, proprioception)

Physiology (Chapters 1 & 12)

1. General physiology (e.g., neuromuscular, musculoskeletal, cardiorespiratory, cardiovascular, endocrine)
2. General physiology of cardiorespiratory, metabolic, and musculoskeletal diseases and conditions (e.g., diabetes, osteoporosis, cardiovascular disease)

3. Population-specific considerations (e.g., youth, older adults, pregnancy)
4. Cardiovascular risk factors, risk stratification, and industry guidelines
5. Appropriate precautions with respect to prescription and nonprescription drugs

Nutrition (Chapter 4)

1. Appropriate allied health professionals to use as referrals (e.g., registered dietitians, physicians)
2. Physical and psychological signs and symptoms that might indicate the need for referral

Psychology (Chapter 15)

1. Communication techniques (e.g., active listening, appropriate eye contact, reflecting and other attending behaviors, nonverbal and verbal communication)
2. Effective interviewing techniques (e.g., open-ended questioning, clarifying, paraphrasing, probing, summarizing)
3. Factors that build and enhance rapport (e.g., empathy, genuineness, nonjudgmental responses, client confidentiality)
4. Cultural, ethnic, and personal differences as they affect communication, lifestyle, dietary habits, and personal and interpersonal behavior (e.g., common assumptions, misconceptions, complicating factors)
5. Environmental factors that affect communication (e.g., location, noise, temperature, distractions, sense of privacy)
6. Psychological factors that influence an individual's self esteem and body image (e.g., anorexia, bulimia, body dysmorphia) and their impact on the communication process
7. Appropriate data collection forms

Skill in:

Anatomy and Biomechanics (Chapters 2 & 3)

1. Applying knowledge of anatomy and biomechanics to the interpretation of health history data

Physiology (Chapters 1 & 12)

1. Identifying and taking appropriate precautions with respect to prescription and nonprescription drugs
2. Identifying conditions based on observation and those addressed on the health history and lifestyle questionnaires
3. Stratifying risk and identifying the need for referral

Nutrition (Chapter 4)

1. Recognizing physical and psychological conditions that might indicate the need for referral
2. Recognizing the need to refer clients to appropriate allied health professionals

Psychology (Chapter 15)

1. Applying interviewing and communication techniques (e.g., active listening)
2. Respecting the client's personal characteristics (e.g., gender, age, cultural/ethnic background) in all communication
3. Avoiding behaviors that are detrimental to building trust (e.g., prejudicial statements, body language, assumptions with regard to body size, eating habits, past successes and failures with weight management, activity history, and ability)
4. Identifying stage of behavioral change
5. Managing time during the interview and data collection processes

Task 4 - Conduct appropriate baseline assessments (e.g., posture, function, cardiorespiratory fitness, muscular strength and endurance, flexibility, body composition,

heart rate, blood pressure, diet, lifestyle) based on the client interview, questionnaire information, and standardized protocols to establish a safe, effective exercise program and to track changes over time.

(Chapters 5 & 6)

Knowledge of:

Anatomy and Biomechanics (Chapters 2 & 3)

1. General anatomy (e.g., neuromuscular, musculoskeletal, cardiovascular, respiratory)
2. Anatomical position, muscle actions, functional movements, and planes of motion
3. Normal joint range of motion
4. Physical laws of motion (e.g., inertia, acceleration, momentum, impact and reaction forces, lever classes, muscle and force production)
5. Static postural assessment and movement analysis (e.g., postural and muscle imbalances)
6. Static and dynamic balance (e.g., center of gravity, base of support, proprioception)

Physiology (Chapters 1 & 12)

1. General physiology (e.g., neuromuscular, musculoskeletal, cardiorespiratory, cardiovascular, endocrine)
2. General physiology of cardiorespiratory, metabolic, and musculoskeletal diseases and conditions (e.g., diabetes, osteoporosis, cardiovascular disease)
3. Population-specific considerations (e.g., youth, older adults, pregnancy)
4. Acute physiological responses to exercise testing with consideration for individual differences (e.g., age, gender, disease, environmental conditions)
5. Normal and abnormal responses during physiological assessment
6. Effects of medications on physiological responses during testing

7. Factors that affect body composition
8. Standardized testing protocols, their intended use and limitations
9. Signs indicating the need for test termination

Nutrition (Chapter 4)

1. Appropriate dietary assessment protocols and their uses (e.g., 24-hour diet recall, food logs, food frequency questionnaires)
2. Limitations of dietary data (e.g., inaccurate reporting, inaccurate recording)

Psychology (Chapter 15)

1. Communication techniques (e.g., active listening, appropriate eye contact, reflecting and other attending behaviors, nonverbal and verbal communication)
2. Factors that build and enhance rapport (e.g., empathy, genuineness, nonjudgmental responses, client confidentiality)
3. Cultural, ethnic, and personal differences as they affect communication, lifestyle, dietary habits, and personal and interpersonal behavior (e.g., common assumptions, misconceptions, complicating factors)
4. Motivating and demotivating factors of fitness testing

Skill in:

Anatomy and Biomechanics (Chapters 2 & 3)

1. Assessing posture and movement
2. Assessing static and dynamic balance
3. Monitoring movement patterns during fitness testing

Physiology (Chapter 1)

1. Selecting and administering a variety of physiological assessments (e.g., cardiorespiratory, muscular strength and endurance, body composition, flexibility)

2. Monitoring client responses during test administration (e.g., blood pressure, heart rate, RPE)
3. Measuring and recording exercise testing data accurately
4. Recognizing responses that indicate the need for test termination
5. Terminating exercise tests safely

Nutrition (Chapter 4)

1. Administering appropriate dietary assessment protocols
2. Collecting nutrition data

Psychology (Chapter 15)

1. Empathizing with the client's lack of experience, knowledge, or expertise in exercise methods and techniques
2. Modifying communication style and content appropriate to the client (e.g., learning style, sensory limitations, educational background, primary language)

DOMAIN II - PROGRAM DESIGN AND IMPLEMENTATION 33%

Task 1 - Interpret the results of the client interview and assessment by evaluating responses and data to facilitate goal setting and the design of a safe and effective exercise and lifestyle program.
(Chapters 5 & 6)

Knowledge of:

Anatomy and Biomechanics (Chapters 2 & 3)

1. General anatomy (e.g., neuromuscular, musculoskeletal, cardiovascular, respiratory)
2. Anatomical position, muscle actions, functional movements, and planes of motion
3. Normal joint range of motion
4. Physical laws of motion (e.g., inertia, acceleration, momentum, impact and reaction forces, lever classes, muscle and force production)

5. Static postural assessment and movement analysis (e.g., postural and muscle imbalances)
6. Static and dynamic balance (e.g., center of gravity, base of support, proprioception)

Physiology (Chapters 1 & 12)

1. General physiology (e.g., neuromuscular, musculoskeletal, cardiorespiratory, cardiovascular, endocrine)
2. General physiology of cardiorespiratory, metabolic, and musculoskeletal diseases and conditions (e.g., diabetes, osteoporosis, cardiovascular disease)
3. Population-specific considerations (e.g., youth, older adults, pregnancy)
4. Data interpretation using standardized norms
5. Relationship between BMI, waist-to-hip ratio, and circumference measures to body weight and determination of appropriate body weight

Nutrition (Chapter 4)

1. Methods for interpreting client assessment data in relation to established guidelines
2. Limitations of dietary assessment data
3. Applicable guidelines and standards published by accepted organizations (e.g., American Dietetic Association, US Department of Agriculture, American Heart Association)

Psychology (Chapter 15)

1. Factors that indicate a client's readiness to change
2. Underlying motives that initiate program participation

Skill in:

Anatomy and Biomechanics (Chapters 2 & 3)

1. Evaluating musculoskeletal assessment data

Physiology (Chapter 1)

1. Interpreting physiological data relative to standardized norms

Nutrition (Chapter 4)

1. Evaluating the client's diet history, interview, and observations relative to accepted guidelines
2. Applying relevant standards and guidelines published by accepted organizations
3. Accounting for the limitations of dietary data

Psychology (Chapter 15)

1. Identifying stage of behavioral change
2. Identifying client goals, perceived and unperceived needs, and expectations for change
3. Helping the client to clarify and refine needs and motivations

Task 2 - Establish specific client goals using the interpretation of interview and assessment results and current standards to provide program direction.
(Chapters 13 & 14)

Knowledge of:

Anatomy and Biomechanics (Chapters 2 & 3)

1. General anatomy (e.g., neuromuscular, musculoskeletal, cardiovascular, respiratory)
2. Anatomical position, muscle actions, functional movements, and planes of motion
3. Normal joint range of motion
4. Physical laws of motion (e.g., inertia, acceleration, momentum, impact and reaction forces, lever classes, muscle and force production)

5. Static postural assessment and movement analysis (e.g., postural and muscle imbalances)
6. Static and dynamic balance (e.g., center of gravity, base of support, proprioception)

Physiology (Chapters 1 & 12)

1. General physiology (e.g., neuromuscular, musculoskeletal, cardiorespiratory, cardiovascular, endocrine)
2. General physiology of cardiorespiratory, metabolic, and musculoskeletal diseases and conditions (e.g., diabetes, osteoporosis, cardiovascular disease)
3. Population-specific considerations (e.g., youth, older adults, pregnancy)
4. Expected physiological adaptations to exercise

Nutrition (Chapter 4)

1. Principles of nutrition and weight management for goal setting

Psychology (Chapter 15)

1. Principles of goal setting
2. Potential obstacles and challenges that may interfere with goal setting and goal attainment
3. Psychological and social factors that impact goal setting in the development of safe and effective programs
4. Communication styles and presentation techniques that assure collaborative goal setting based on the client's needs, preferences, and expectations
5. Behavior change principles in goal setting

Skill in:

Anatomy and Biomechanics (Chapters 2 & 3)

1. Using musculoskeletal assessment results for goal setting and reinforcement

Physiology (Chapter 1)

1. Setting appropriate timeframes for goal attainment in accordance with industry standards

Nutrition (Chapter 4)

1. Applying the principles of nutrition and weight management to goal setting

Psychology (Chapter 15)

1. Assisting the client in setting personal goals based on the SMART framework
2. Guiding the goal setting process to address short- and long-term goals
3. Helping the client identify potential barriers to goal attainment
4. Using communication styles and presentation techniques that assure collaborative goal setting based on the client's needs, preferences, and expectations

Task 3 - Apply appropriate exercise principles (e.g., frequency, intensity, duration, type) for cardiorespiratory fitness, muscular strength and endurance, and flexibility using current standards and appropriate techniques to develop a safe and effective exercise program. (Chapters 7–12)

*Knowledge of:***Anatomy and Biomechanics (Chapters 2 & 3)**

1. General anatomy (e.g., neuromuscular, musculoskeletal, cardiovascular, respiratory)
2. Anatomical position, muscle actions, functional movements, and planes of motion
3. Normal joint range of motion
4. Physical laws of motion (e.g., inertia, acceleration, momentum, impact and reaction forces, lever classes, muscle and force production)
5. Static postural assessment and movement analysis (e.g., postural and muscle imbalances)

6. Static and dynamic balance (e.g., center of gravity, base of support, proprioception)

Physiology (Chapter 1)

1. General physiology (e.g., neuromuscular, musculoskeletal, cardiorespiratory, cardiovascular, endocrine)
2. General physiology of cardiorespiratory, metabolic, and musculoskeletal diseases and conditions (e.g., diabetes, osteoporosis, cardiovascular disease)
3. Population-specific considerations (e.g., youth, older adults, pregnancy)
4. ACSM guidelines for frequency, intensity, duration, and type for cardiorespiratory, muscular strength and endurance, and flexibility programs
5. Principles of fitness (e.g., overload, specificity, diminishing returns, recovery, progression)
6. Techniques for measuring and monitoring cardiorespiratory intensity
7. Techniques for developing resistance training programs (e.g., periodization, progression)
8. Techniques for aerobic and anaerobic training programs (e.g., intervals, steady state, tempo, low-intensity long-duration programs)

*Skill in:***Anatomy and Biomechanics (Chapters 2 & 3)**

1. Recognizing muscle functions, weaknesses, and imbalances

Physiology (Chapters 1 & 12)

1. Designing individualized programs in accordance with clients' goals for aerobic and anaerobic fitness, muscular strength and endurance, flexibility, and posture consistent recognized standards (e.g., ACSM, ACE, NSCA)
2. Applying principles of fitness to individualized exercise programs

3. Measuring intensity and calculating target training zones for cardiorespiratory fitness

Task 4 - Implement appropriate lifestyle modification strategies (e.g., stress management, nutrition, smoking cessation) using industry standards and best practices to improve quality of life and goal attainment.
(Chapters 11, 12 & 18)

Knowledge of:

Physiology (Chapters 1 & 12)

1. General physiology (e.g., neuromuscular, musculoskeletal, cardiorespiratory, cardiovascular, endocrine)
2. General physiology of cardiorespiratory, metabolic, and musculoskeletal diseases and conditions (e.g., diabetes, osteoporosis, cardiovascular disease)
3. Population-specific considerations (e.g., youth, older adults, pregnancy)
4. Physiology of cardiorespiratory and digestive systems
5. Physiological responses to lifestyle changes
6. Physiological changes with age

Nutrition (Chapter 4)

1. Appropriate application, safety, and effectiveness of various weight management techniques
2. Safe and effective weight loss methods and quantities
3. Different approaches to weight loss

Psychology (Chapter 15)

1. Communication techniques (e.g., active listening, appropriate eye contact, reflecting and other attending behaviors, nonverbal and verbal communication)
2. Factors that build and enhance rapport (e.g., empathy, genuineness, nonjudgmental responses, client confidentiality)

3. Cultural, ethnic, and personal differences as they affect communication, lifestyle, dietary habits, and personal and interpersonal behavior (e.g., common assumptions, misconceptions, complicating factors)
4. Motivating and demotivating factors of exercise and exercise environments
5. Stress management techniques

Skill in:

Physiology (Chapter 1)

1. Educating and communicating about physiological improvements with lifestyle changes

Psychology (Chapter 15)

1. Helping clients identify sources of stress
2. Helping clients identify their reactions to stress
3. Recognizing the motivating and demotivating factors of exercise and exercise environments

Task 5 - Incorporate functional exercise (e.g., balance, agility, and core) in accordance with scientific research to improve movement efficiency, activities of daily living, and overall physical performance.
(Chapters 8, 9 & 12)

Knowledge of:

Anatomy and Biomechanics (Chapters 2 & 3)

1. General anatomy (e.g., neuromuscular, musculoskeletal, cardiovascular, respiratory)
2. Anatomical position, muscle actions, functional movements, and planes of motion
3. Normal joint range of motion
4. Physical laws of motion (e.g., inertia, acceleration, momentum, impact and reaction forces, lever classes, muscle and force production)
5. Posture and movement (e.g., postural and muscle imbalances)

6. Static and dynamic balance (e.g., center of gravity, base of support, proprioception)

Physiology (Chapters 1 & 12)

1. General physiology (e.g., neuromuscular, musculoskeletal, cardiorespiratory, cardiovascular, endocrine)
2. General physiology of cardiorespiratory, metabolic, and musculoskeletal diseases and conditions (e.g., diabetes, osteoporosis, cardiovascular disease)
3. Population-specific considerations (e.g., youth, older adults, pregnancy)
4. Neuromuscular adaptations to functional exercise
5. Physiological demands of activities of daily living
6. Differences in neuromuscular adaptations to functional training across the lifespan and in chronic disease

Skill in:

Anatomy and Biomechanics (Chapters 2 & 3)

1. Selecting and integrating appropriate methods for functional exercise (e.g., balance, agility, core) based on the client's needs
2. Implementing safe and effective exercise programs to address muscle weakness and imbalance

Physiology (Chapters 1 & 12)

1. Adapting functional exercises to the individual based on current neuromuscular ability and/or limitations

Task 6 - Teach safe and effective techniques using a variety of methods and resources to attain desired results and to promote lifestyle modification.

(Chapter 11)

Knowledge of:

Anatomy and Biomechanics (Chapters 2 & 3)

1. General anatomy (e.g., neuromuscular, musculoskeletal, cardiovascular, respiratory)
2. Anatomical position, muscle actions, functional movements, and planes of motion
3. Normal joint range of motion
4. Physical laws of motion (e.g., inertia, acceleration, momentum, impact and reaction forces, lever classes, muscle and force production)
5. Posture and movement (e.g., postural and muscle imbalances)
6. Static and dynamic balance (e.g., center of gravity, base of support, proprioception)

Physiology (Chapter 1 & 12)

1. General physiology (e.g., neuromuscular, musculoskeletal, cardiorespiratory, cardiovascular, endocrine)
2. General physiology of cardiorespiratory, metabolic, and musculoskeletal diseases and conditions (e.g., diabetes, osteoporosis, cardiovascular disease)
3. Population-specific considerations (e.g., youth, older adults, pregnancy)
4. Musculoskeletal injury prevention
5. Physiological effects of overtraining and undertraining
6. Reliable resources to promote desired results and promote lifestyle modification (e.g., authoritative websites, training manuals from respected organizations, textbooks)
7. Physiological effects of lifestyle modification (e.g., smoking cessation, stress management, nutritious eating plan)

Nutrition (Chapter 4)

1. Healthful food and beverage selections at home, in restaurants, and at the grocery store based on food guidelines, food labels, methods of preparation, and key words on menus

2. Nutritional requirements during physical activity (e.g., hydration, energy needs)
3. Supplements, weight loss products, and fad diets and the associated risks of each
4. Concepts of energy balance, including dietary intake and expenditure
5. Different approaches to weight management and/or body composition change
6. Dietary guidelines emphasizing balance, variety, and moderation

Psychology (Chapter 15)

1. Learning styles (e.g., visual, verbal, kinesthetic)
2. Verbal and nonverbal communication
3. Learning theories

Skill in:

Anatomy and Biomechanics (Chapters 2 & 3)

1. Teaching proper use of a variety of equipment and offering appropriate feedback
2. Teaching safe and effective exercise techniques and offering appropriate feedback

Physiology (Chapter 1)

1. Designing safe and effective exercise and lifestyle modification programs that improve physiological systems

Nutrition (Chapter 4)

2. Approximating caloric intake and expenditure
3. Explaining concepts related to nutrition and weight management
4. Selecting healthful foods and beverages at home, in restaurants, and at the grocery store based on food guidelines, food labels, methods of preparation, and key words on menus

5. Implementing appropriate nutritional strategies during physical activity (e.g., hydration, energy needs)
6. Educating clients to supplements, weight loss products, and fad diets and the associated risks of each
7. Applying the concepts of energy balance, including dietary intake and expenditure
8. Applying dietary guidelines emphasizing balance, variety, and moderation

Psychology (Chapter 15)

1. Empathizing with the client's lack of experience, knowledge, or expertise in exercise methods and techniques
2. Modifying teaching style and content appropriate to the client's personal characteristics

Task 7 - Promote program adherence by applying the principles of motivation to maintain interest in physical activity and achievement of program goals. (Chapters 13 & 14)

Knowledge of:

Physiology (Chapters 1 & 12)

1. General physiology (e.g., neuromuscular, musculoskeletal, cardiorespiratory, cardiovascular, endocrine)
2. General physiology of cardiorespiratory, metabolic, and musculoskeletal diseases and conditions (e.g., diabetes, osteoporosis, cardiovascular disease)
3. Population-specific considerations (e.g., youth, older adults, pregnancy)
4. Client education about physiology as a tool for motivating clients to work at appropriate levels

Psychology (Chapter 15)

1. Self efficacy as it relates to exercise participation
2. Common barriers to program compliance (e.g., time, energy, money)

3. Psychological effect of exercise program participation
4. Locus of control as it relates to program adherence and motivation
5. Principles of reinforcement and punishment

Nutrition (Chapter 4)

1. Accepted industry standards and weight management planning to educate and motivate clients

Skill in:

Physiology (Chapter 1)

1. Educating clients on the response of physiological systems to various levels of training

Nutrition (Chapter 4)

1. Using accepted industry standards and weight management planning to educate and motivate clients

Psychology (Chapter 15)

1. Recognizing the client's needs, expectations, fears
2. Identifying barriers that influence program adherence
3. Manipulating factors to maximize adherence
4. Recognizing the personal trainer's influence on the client's adherence
5. Providing appropriate reinforcement

DOMAIN III - PROGRAM PROGRESSION, MODIFICATION, AND MAINTENANCE 27%

Task 1 - Evaluate ongoing progress using assessments, current standards, observation, and client feedback and performance to provide program direction and to optimize program adherence.
(Chapters 6 & 14)

Knowledge of:

Anatomy and Biomechanics (Chapters 2 & 3)

1. General anatomy (e.g., neuromuscular, musculoskeletal, cardiovascular, respiratory)
2. Anatomical position, muscle actions, functional movements, and planes of motion
3. Normal joint range of motion
4. Physical laws of motion (e.g., inertia, acceleration, momentum, impact and reaction forces, lever classes, muscle and force production)
5. Static postural assessment and movement analysis (e.g., postural and muscle imbalances)
6. Static and dynamic balance (e.g., center of gravity, base of support, proprioception)

Physiology (Chapters 1 & 12)

1. General physiology (e.g., neuromuscular, musculoskeletal, cardiorespiratory, cardiovascular, endocrine)
2. General physiology of cardiorespiratory, metabolic, and musculoskeletal diseases and conditions (e.g., diabetes, osteoporosis, cardiovascular disease)
3. Population-specific considerations (e.g., youth, older adults, pregnancy)
4. Physiological responses to chronic training
5. Principles of progression as it relates to cardiorespiratory, muscular fitness, and flexibility training programs
6. Appropriate frequency for reassessment
7. Standardized testing protocols, their intended use and limitations
8. Signs indicating the need for test termination
9. Current standards for training progression and weight loss

Nutrition (Chapter 4)

1. Appropriate dietary assessment protocols, purposes, inherent risks, and ben-

- efits (e.g., 24-hour diet recall, food logs, food frequency questionnaires)
- 2. Methods for interpreting client assessment data as it relates to established guidelines
- 3. Applicable guidelines and standards published by accepted organizations (e.g., ADA, USDA, AHA, Institute of Medicine)
- 4. Relationship between BMI, waist-to-hip ratio, and circumference measures to body weight and determination of appropriate body weight

Psychology (Chapter 15)

- 1. Self efficacy and locus of control as they relate to program adherence
- 2. Communication and listening techniques

Skill in:

Anatomy and Biomechanics (Chapters 2 & 3)

- 1. Assessing posture and movement in comparison to baseline data
- 2. Assessing static and dynamic balance in comparison to baseline data
- 3. Determining appropriate tests for reassessment to compare with baseline results
- 4. Evaluating data from musculoskeletal reassessment

Physiology (Chapters 1 & 12)

- 1. Identifying physiological responses based on observation and feedback during exercise
- 2. Selecting and administering a variety of physiological assessments (e.g., cardiorespiratory, muscular strength and endurance, body composition, flexibility)
- 3. Monitoring client responses during test administration (e.g., blood pressure, heart rate, RPE)
- 4. Measuring and recording exercise testing data accurately

- 5. Recognizing responses that indicate the need for test termination
- 6. Terminating exercise tests safely
- 7. Determining whether rate of progress is appropriate for the individual based on the expected physiological responses and current standards

Nutrition (Chapter 4)

- 1. Administering appropriate dietary assessment protocols
- 2. Interviewing and collecting nutrition data
- 3. Processing the client's diet history, evaluations, and observations, relative to accepted guidelines
- 4. Gathering, applying, and interpreting applicable standards and guidelines published by accepted organizations

Psychology (Chapter 15)

- 1. Recognizing the personal trainer's influence on the client's adherence
- 2. Recognizing client misconceptions about program progress
- 3. Communicating the results of the reassessments to effectively promote adherence
- 4. Managing time in the data collection process

Task 2 - Identify lapses and barriers to success by reassessing baseline measures and evaluating compliance to redefine goals and to modify the program.
(Chapter 6, 11 & 14)

Knowledge of:

Anatomy and Biomechanics (Chapters 2 & 3)

- 1. General anatomy (e.g., neuromuscular, musculoskeletal, cardiovascular, respiratory)
- 2. Anatomical position, muscle actions, functional movements, and planes of motion

3. Normal joint range of motion
4. Physical laws of motion (e.g., inertia, acceleration, momentum, impact and reaction forces, lever classes, muscle and force production)
5. Posture and movement
6. Static and dynamic balance (e.g., center of gravity, base of support, proprioception)

Physiology (Chapters 1 & 12)

1. General physiology (e.g., neuromuscular, musculoskeletal, cardiorespiratory, cardiovascular, endocrine)
2. General physiology of cardiorespiratory, metabolic, and musculoskeletal diseases and conditions (e.g., diabetes, osteoporosis, cardiovascular disease)
3. Population-specific considerations (e.g., youth, older adults, pregnancy)
4. Principles of fitness (e.g., overload, specificity, diminishing returns, recovery, reversibility, progression)
5. How to modify the program based on changes in fitness and health status

Nutrition (Chapter 4)

1. Cultural, ethnic, and personal differences as they affect dietary habits
2. Potential barriers to healthful dietary choices and weight management
3. Accepted industry standards and weight management planning

Psychology (Chapter 15)

1. Common barriers to program compliance (e.g., time, energy, money)
2. Self efficacy and locus of control as they relate to program participation and adherence

Skill in:

Anatomy and Biomechanics (Chapters 2 & 3)

1. Identifying inappropriate movement patterns that may impede progress or adherence
2. Modifying exercise techniques as needed

Physiology (Chapters 1 & 12)

1. Modifying program components to accommodate fitness and/or health status

Nutrition (Chapter 4)

1. Using accepted industry standards and weight management planning
2. Avoiding prejudicial statements, negative and/or unproductive assumptions with regard to client body size, eating habits, past successes and failures with weight management.
3. Identifying potential barriers to healthful dietary choices and weight management

Psychology (Chapter 15)

1. Identifying barriers and enhancers that influence program adherence
2. Recognizing the client's needs, desires, expectations, and fears
3. Recognizing the personal trainer's influence on the client's adherence
4. Providing appropriate reinforcement

Task 3 - Modify program goals using appropriate educational and motivational techniques to improve compliance and awareness of the benefits of physical activity and a healthful lifestyle.

(Chapters 11–14)

Knowledge of:

Anatomy and Biomechanics (Chapters 2 & 3)

1. General anatomy (e.g., neuromuscular, musculoskeletal, cardiovascular, respiratory)
2. Anatomical position, muscle actions, functional movements, and planes of motion
3. Normal joint range of motion
4. Physical laws of motion (e.g., inertia, acceleration, momentum, impact and reaction forces, lever classes, muscle and force production)
5. Posture and movement

6. Static and dynamic balance (e.g., center of gravity, base of support, proprioception)

Physiology (Chapters 1 & 12)

1. General physiology (e.g., neuromuscular, musculoskeletal, cardiorespiratory, cardiovascular, endocrine)
2. General physiology of cardiorespiratory, metabolic, and musculoskeletal diseases and conditions (e.g., diabetes, osteoporosis, cardiovascular disease)
3. Population-specific considerations (e.g., youth, older adults, pregnancy)
4. Physiological plateaus in cardiorespiratory, resistance, and weight loss programs

Nutrition (Chapter 4)

1. Complexity of issues related to obesity, body size, eating disorders, and related lifestyle factors
2. Safe and effective weight loss and lifestyle change in regard to nutrition
3. Role of nutrition, supplements, weight loss products, and fad diets, their effect on weight management and performance, and the associated risks

Psychology (Chapter 15)

1. Strategies that facilitate behavior change
2. Self efficacy and locus of control as they relate to exercise participation
3. Principles of reinforcement and punishment
4. Principles of goal setting
5. Potential obstacles and challenges that may interfere with goal setting and attainment
6. Biological, psychological, and social factors that impact program compliance

Skill in:

Anatomy and Biomechanics (Chapters 2 & 3)

1. Modifying exercise techniques to promote goal attainment

Physiology (Chapters 1 & 12)

1. Identifying program components that can be modified to promote a positive training effect
2. Educating clients about the physiological benefits of continued training

Nutrition (Chapter 4)

1. Communicating the benefits of healthful nutrition to weight management and performance
2. Applying principles of nutrition to redefine short- and long-term goals

Psychology (Chapter 15)

1. Assisting the client in reevaluating and modifying goals
2. Helping the client recognize potential and actual barriers to adherence
3. Assisting the client in developing coping strategies to overcome barriers
4. Enhancing the client's self efficacy through challenging yet manageable tasks

Task 4 - Implement progressions to the client's program as appropriate using established methods and techniques to facilitate goal achievement and long-term compliance. (Chapters 7-10)

Knowledge of:

Anatomy and Biomechanics (Chapters 2 & 3)

1. General anatomy (e.g., neuromuscular, musculoskeletal, cardiovascular, respiratory)
2. Anatomical position, muscle actions, functional movements, and planes of motion
3. Normal joint range of motion
4. Physical laws of motion (e.g., inertia, acceleration, momentum, impact and reaction forces, lever classes, muscle and force production)
5. Posture and movement

6. Static and dynamic balance (e.g., center of gravity, base of support, proprioception)

Physiology (Chapters 1 & 12)

1. General physiology (e.g., neuromuscular, musculoskeletal, cardiorespiratory, cardiovascular, endocrine)
2. General physiology of cardiorespiratory, metabolic, and musculoskeletal diseases and conditions (e.g., diabetes, osteoporosis, cardiovascular disease)
3. Population-specific considerations (e.g., youth, older adults, pregnancy)
4. Appropriate rate of progression according to established methods and guidelines
5. Various methods of progression for aerobic, anaerobic, muscular strength and endurance, and flexibility training

Skill in:

Anatomy and Biomechanics (Chapters 2 & 3)

1. Implementing appropriate exercise technique progressions

Physiology (Chapters 1 & 12)

1. Implementing appropriate exercise progressions to facilitate long term success

DOMAIN IV - PROFESSIONAL ROLE AND RESPONSIBILITIES 8%

Task 1 - Maintain a professional trainer-client relationship by adhering to legal requirements, professional boundaries, and standards of care and by operating within the scope of practice, as defined in the ACE Code of Ethics, to protect the client and to limit liability.

(Chapter 18 & Appendices A & F)

Knowledge of:

1. Professional boundaries pertaining to the client-trainer relationship
2. American Council on Exercise Code of Ethics
3. Accepted standards of care
4. Liability issues associated with acting outside the appropriate standard of care, scope of practice, and the American Council on Exercise Code of Ethics
5. Scope of practice
6. Professional ethics regarding technology and communication

Skill in:

1. Assessing areas of risk (e.g., client, facilities, use of technology)
2. Identifying professional boundaries based on professional and ethical obligations

Task 2 - Treat all individuals with respect, empathy, and equality regardless of weight, appearance, ethnicity, nationality, sexual orientation, gender, age, disability, religion, marital status, socioeconomic status, and health status to maintain integrity in all professional relationships.

(Chapters 12, 13 & 18)

Knowledge of:

1. Abilities and limitations of various disabilities
2. Cultural differences related to professional relationships
3. Acceptable and unacceptable behavior related to individual differences
4. Personal issues and biases
5. Qualities of respect, empathy, and equality

Skill in:

1. Demonstrating compassion, empathy, and respect for all individuals
2. Maintaining appropriate behavior patterns regardless of personal issues and biases

Task 3 - Maintain competence and professional growth by staying current with scientifically based research, theories, and practices to provide safe and effective services for clients, the public, and other health professionals.
(Chapter 18 & Appendix A)

Knowledge of:

1. Available and credible continuing education programs (e.g., conferences, workshops, college/university courses, teleseminars, online courses, in-home study courses) and providers
2. Appropriate and relevant scientifically based consumer and professional publications (e.g., journals, books, texts, videos, DVDs, CDs, online publications and resources)
3. Appropriate agencies and organizations that establish and publish scientifically based lifestyle modification standards and guidelines for the general public and special populations (e.g., ACSM, ACOG, USDA, OSHA, NIH, ADA, NSCA, CDC)
4. American Council on Exercise continuing education requirements and procedures

Skill in:

1. Recognizing credible resources

Task 4 - Exercise leadership by providing direction, motivation, and education and by modeling exemplary behavior to establish an environment for client success and to promote wellness in the community.
(Chapters 17 & 18)

Knowledge of:

1. General professional and business practices (e.g., time management, organizational skills, appropriate attire, integrity)
2. Educational strategies to promote client safety, program success, and wellness in the community

Skill in:

1. Demonstrating professional business practices
2. Using appropriate educational strategies to promote client safety, program success, and wellness within the community.

Task 5 - Maintain an environment of continual safety by upholding industry standards to reduce the risk of injury and liability.
(Chapters 16, 17, 18 & Appendix C)

Knowledge of:

1. Cardiopulmonary resuscitation (CPR) and Automated External Defibrillator (AED) procedures
2. Worksite emergency plan
3. Appropriate Emergency Medical Service system activation
4. Basic first aid
5. Occupational Health and Safety Administration guidelines regarding blood borne pathogens
6. Procedures for safe equipment operation (e.g., sizing, usage, inspection)
7. Industry standards for reducing risk of injury
8. Factors that affect liability
9. How to communicate a sense of security and safety to clients

Skill in:

1. Identifying and responding to emergency situations
2. Identifying and responding to hazards in training situations
3. Implementing the emergency plan in a professional manner
4. Communicating the rationale for various techniques that limit the risk of injury
5. Using equipment properly and safely

Task 6 - Develop risk management strategies in accordance with recognized guidelines (e.g.,

IHRSA, ACE, ACSM, OSHA, NSCA, state laws) to protect the client, personal trainer, and other relevant parties.

(Chapter 18)

Knowledge of:

1. Negligence (comparative and contributory) and liability laws as they pertain to personal trainers
2. Intellectual property laws as they apply to video, DVD, written materials, Internet, music, copyright, and trademark
3. Sources for and limitations of waivers and informed consents
4. Appropriate professional and general liability insurance
5. Sexual harassment and discrimination laws
6. Components of a comprehensive risk management program
7. Credible resources for risk management strategies (e.g., McGraw, Wong, ACSM, NSCA, OSHA, IHRSA, ACE, IDEA, Fitness Management, Athletic Business)

Skill in:

1. Complying with business laws and regulations
2. Completing appropriate reports (e.g., incident reports, accident reports, equipment and facility inspection forms, waivers, informed consents)
3. Developing and maintaining an appropriate risk management program for a facility or business
4. Monitoring the client when exercise or fitness assessments have been terminated due to abnormal physiological responses

Task 7 - Document client-related data, communications, and progress using a secure record keeping system in accordance with legal requirements (e.g., HIPAA, FERPA) to main-

tain continuity of care and to minimize liability.

(Chapter 16 & Appendix A)

Knowledge of:

1. Effective and confidential record keeping
2. Confidentiality guidelines
3. Importance of maintaining and implications of breaching client confidentiality
4. All required paperwork and documentation (e.g., waivers, informed consent, medical history, health risk appraisal, client contracts)

Skill in:

1. Maintaining confidentiality
2. Differentiating between confidential and non-confidential documents and information

Task 8 - Participate as a member of a referral network by identifying professional contacts and community resources to ensure the highest quality of service for clients.

(Chapter 18 & Appendix A)

Knowledge of:

1. Appropriate health and allied health professions for outside referral
2. Appropriate forms and documents required when communicating with other health professionals in order to maintain continuity of client care

Skill in:

1. Identifying and networking with appropriate health and allied health professionals
2. Establishing a method for referrals
3. Creating a means of ongoing communication and follow up with appropriate professionals