Exercise Science and Nutrition (MS) Clinical Track Student Learning Outcomes:

1) Exhibit mastery of foundational and supporting areas of exercise science and nutrition, resulting in safe and effective exercise programming.

2) Demonstrate proficiency in clinical-based testing.

3) Develop ability to access, evaluate, and disseminate scientific evidence.

4) Provide active and meaningful participation in affiliated clinical or performance-based settings while adhering to the Code of Ethics as defined by the American College of Sports Medicine.

1. Exhibit mastery of foundational and supporting areas of exercise science and nutrition, resulting in safe and effective exercise programming.

Description: demonstrating proficiency in developing safe and effective exercise programs based on the FITT principles, addressing all health-fitness related variables includes:

- General exercise program prescription: appropriate exercise program creation based on client health status, baseline fitness assessment data, and client goals
- Cardiorespiratory exercise program prescription: using the FITT-VP model in creation of a comprehensive cardiovascular exercise training program
- Muscular strength/endurance program prescription: using the FITT-VP model in creation of a comprehensive muscular strength/endurance training program
- Flexibility exercise program prescription: using the FITT-VP model in creation of a comprehensive flexibility exercise training program
- Exercise progression guidelines: adjusting the FITT-VP model in response to changes in cardiorespiratory, muscular strength/endurance, and flexibility exercise program participation
- Exercise prescription for select populations: Make appropriate modifications to each FITT-VP exercise program variable for select populations (persons with chronic diseases, pregnancy, youth and the elderly)

Criteria	**1**	**2**	**3**	**4**

General exercise program prescription	Displays substantial errors in program design in more than one of the areas: client's health status, baseline fitness assessment, or client's goals.	Displays substantial errors in program design in one of the areas: client's health status, baseline fitness assessment, or client's goals.	Designs an exercise program with nominal errors (i.e., won't negatively impact client) based on client's health status, baseline fitness assessment, and client's goals.	Designs an appropriate exercise program based on client's health status, baseline fitness assessment, and client's goals.
Cardiorespiratory exercise program prescription	Displays substantial errors in the exercise prescription in three or more elements of the FITT-VP model.	Displays substantial errors in the exercise prescription in up to two elements of the FITT-VP model.	Designs an exercise prescription based on the FITT-VP model with minor errors or generalities (i.e., won't negatively impact client).	Designs an appropriate comprehensive exercise prescription based on the FITT-VP model.
Muscular strength/ endurance program prescription	Displays substantial errors in the exercise prescription in three or more elements of the FITT-VP model.	Displays substantial errors in the exercise prescription in up to two elements of the FITT-VP model.	Designs an exercise program based on the FITT-VP model with nominal errors (i.e., won't negatively impact client).	Designs an appropriate comprehensive exercise program based on the FITT-VP model.
Flexibility exercise program prescription	Displays substantial errors in the exercise prescription in three or more elements of the FITT-VP model.	Displays substantial errors in the exercise prescription in up to two elements of the FITT-VP model.	Designs an exercise program based on the FITT-VP model with nominal errors (i.e., won't negatively impact client).	Designs an appropriate comprehensive exercise program based on the FITT-VP model.
Exercise progression guideline	Does not adjust the program in at least two of the areas: client's progress, changes in health status, and goals according to the FITT-VP model.	Displays substantial errors in the adjustment of the program based on client's progress, changes in health status, and goals according to the FITT-VP model.	Adjusts the program based on client's progress, changes in health status, and goals according to the FITT-VP model with nominal errors (i.e., won't negatively impact client).	Properly adjusts the program based on client's progress, changes in health status, and goals according to the FITT-VP model.

Exercise prescription for select populations	Does not use modifications of the program for special populations based on the FITT-VP model.	Displays substantial errors in the modifications of the program for special populations based on the FITT-VP model.	Modifies most aspects of the program for special populations based on the FITT-VP model with nominal errors (i.e., won't negatively impact client).	Properly modifies the program for special populations based on the FITT-VP model.

*** A score of "4" represents the minimum passing grade for a graduate student.**

2. Demonstrate proficiency in clinical-based testing (clinical track).

Description: demonstrating proficiency in health and fitness assessments includes:

- Pre-Activity Assessment of Physical Impairments and Risk Factors Affecting Exercise Safety and Readiness: administration of pre-activity screens to maximize client safety and minimize risks and determination of a client's readiness to participate in a health-related physical activity program (*e.g.,* informed consent, PAR-Q, health/medical history, CVD risk stratification)
- Cardiopulmonary Fitness and Functional Capacity Assessment: Administer and interpret a 12-lead EKG, resting pulmonary function test (PFT), 6-minute walk, incremental shuttle walking and walking speed tests as well as manual muscle testing, goniometry and special tests to determine client's cardiopulmonary fitness and functional capacity
- Musculoskeletal Fitness and Functional Capacity Assessment: Measure muscular strength, range of motion and functional capacity with manual muscle testing, goniometry, the Thomas Test, and other field based assessments
- Body Composition Assessment: Conducting and interpreting anthropometric and body composition assessments (*e.g.,* skinfolds, bioelectrical impedance, BOD POD)

Criteria	1	2	3	4*
Pre-Activity Assessment of Physical Impairments and Risk Factors Affecting Exercise Safety and Readiness	Completely omits pre-activity questionnaires and demonstrates substantial errors selecting, administering and interpreting appropriate medical & health	Omits select questionnaires and/or demonstrates substantial errors administering pre-activity medical & health screenings and determining client risk	Adequately administers informed consent, pre-activity medical & health screens with minimal errors determining client risk of/readiness to exercise that would have nominal	Properly administers informed consent, pre-activity medical & health screens and accurately determines client risk of/readiness to exercise

	screens and inaccurately determines client's risk of/readiness to exercise that *would* lead to a faulty selection of exercise assessment and/or prescription	of/readiness to exercise that *may* result in the selection of faulty exercise assessments and/or prescription	influence on exercise assessment and/or prescription	
Assessment of Risk Stratification, Disease Specific Severity, Impairment and Stage	Demonstrates substantial errors in a client's risk assessment that would lead to a faulty selection of exercise assessment and/or prescription	Demonstrates substantial errors in a client's risk assessment that may result in the selection of faulty exercise assessments and/or prescription	Demonstrates minimal errors in a client's risk assessment that would have nominal influence on exercise assessment and/or prescription	Properly determines the assessment of risk for a client
Cardiopulmonary Fitness and Functional Capacity Assessment	Demonstrates errors in either the selection, administration and/or interpretation of assessment that would invalidate the results of the assessment completely	Displays substantial errors in either the selection, administration and/or interpretation or assessment that would substantially influence training prescription decisions	Displays minimal errors in either the selection, administration and/or interpretation of assessment that would nominally influence training prescription decisions	Properly selects, administers and interprets results from assessment
Musculoskeletal Fitness and Functional Capacity Assessment	Demonstrates errors in either the selection, administration or interpretation of assessment that would invalidate the results of the assessment completely	Displays substantial errors in either the selection, administration and/or interpretation or assessment that would substantially influence training prescription decisions	Displays minimal errors in either the selection, administration and/or interpretation of assessment that would nominally influence training prescription decisions	Properly selects, administers and interprets results from assessment
Body Composition Assessment	Demonstrates errors in either the selection, administration or interpretation of assessment that would invalidate	Displays substantial errors in either the selection, administration and/or interpretation or assessment that	Displays minimal errors in either the selection, administration and/or interpretation of assessment that	Properly selects, administers and interprets results from assessment

	the results of the assessment completely	would substantially influence training prescription decisions	would nominally influence training prescription decisions	

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3. Develop ability to access, evaluate, and disseminate scientific evidence.

Criteria	1	2	3	4
Recognition of Question or Problem	Identifies the main question or problem, but unable to provide explanation	Identifies the question or problem including at least one logical explanation	Identifies the question or problem and demonstrates an understanding of the scope of the issues involved	Demonstrates a thorough understanding of the question or problem and related issues; generates appropriate hypotheses
Accesses Needed Information	Accesses information randomly; retrieves information that lacks relevance and quality	Accesses information using simple search strategies; retrieves information from limited and similar sources	Accesses information using variety of search strategies and some relevant information sources; demonstrates ability to refine search	Accesses information using effective, well-designed search strategies and appropriate information sources
Critical Appraisal	Discusses strengths or weaknesses for at least one source of evidence including clinical expertise, patient/client values/preferences, and research	Discusses strengths and weaknesses for one source of evidence including clinical expertise, patient/client values/preferences, and research	Discusses strengths and weaknesses of two or more sources of evidence including clinical expertise, patient/client values/preferences and research	Organizes and synthesizes multiple sources of evidence, including clinical expertise, patient/client values/preferences and research
Draws Conclusions	Draws conclusions without	Draws conclusions with some	Draws logical conclusions	Develops logical conclusions based upon evaluation of

	consideration of evidence	consideration of evidence	based upon consideration of evidence	evidence and consideration of possible consequences
Quantitative and Qualitative Research Methodologies	Unable to recognize research methods	Recognizes a limited number of research methods	Demonstrates an understanding of quantitative and qualitative research methodologies	Demonstrates a comprehensive understanding of quantitative and qualitative research methodologies and selects methods appropriate to the situation

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4. Provide active and meaningful participation in affiliated clinical or performance-based settings while adhering to the Code of Ethics as defined by the American College of Sports Medicine.

Description: providing active and meaningful participation and adhering to professional Code of Ethics means:

- Professionalism: includes punctuality, attendance, reliability/dependability, appropriate dress, and visible awareness of scope of practice
- Interpersonal Skills: degree to which one can successfully communicate ideas with supervisions, coworkers, and patients/clients
- Initiative: demonstrated interest in issues related to the field and willingness to do more than minimum requirements of internship
- Facility/Equipment Maintenance: ability to assist with setup of devices, equipment and supervise training sessions (e.g., EKG monitors, oxygen tanks).

Criteria	1	2	3*	4
Professionalism	Routinely misses work, arrives late, is not dressed appropriately, *or* displays a lack of understanding regarding scope of practice via verbal	Occasionally misses work, arrives late, is not dressed appropriately, *or* displays a lack of understanding regarding scope of practice via verbal	Is routinely present and punctual for work, dressed appropriately, *and* displays understanding regarding scope of practice via verbal	Is always present and punctual for work, dressed appropriately, *and* displays understanding regarding scope of practice via verbal

	communication *or* actions.	communication *or* actions.	communication *and* actions.	communication *and* actions.
Interpersonal Skills	Rarely provides effective, clear, and respectful communication with patients, peers, and supervisors.	Occasionally provides effective, clear, and respectful communication with patients, peers, and supervisors.	Typically provides effective, clear, and respectful communication with patients, peers, and supervisors.	Always provides effective, clear, and respectful communication with patients, peers, and supervisors.
Initiative	Never displays demonstrated interest in the field, offers original ideas related to clinic when appropriate.	Occasionally displays demonstrated interest in the field, offers original ideas related to clinic when appropriate.	Typically displays demonstrated interest in the field, offers original ideas related to clinic when appropriate.	Consistently displays demonstrated interest in the field, offers original ideas related to clinic when appropriate.
Facility/ Equipment Maintenance	Rarely or never is able and willing to assist with or individually perform set-up, calibration, or breakdown of equipment.	Is occasionally able and willing to assist with or individually perform set-up, calibration, or breakdown of equipment.	Is typically able and willing to assist with or individually perform set-up, calibration, or breakdown of equipment.	Is always able and willing to assist with or individually perform set-up, calibration, or breakdown of equipment.

*** A score of "3" represents the passing grade for a graduate student.**