



# Commission on Accreditation of Allied Health Education Programs

## Standards and Guidelines for the Accreditation of Educational Programs in Exercise Physiology

Standards initially adopted in 2004; revised in 2017

Adopted by the  
American College of Sports Medicine  
American Council on Exercise  
American Kinesiotherapy Association  
American Red Cross  
National Academy of Sports Medicine  
National Council on Strength & Fitness  
Committee on Accreditation for the Exercise Sciences  
and  
Commission on Accreditation of Allied Health Education Programs

The Commission on Accreditation of Allied Health Education Programs (CAAHEP) accredits programs upon the recommendation of the Committee on Accreditation for the Exercise Sciences (CoAES).

These accreditation **Standards and Guidelines** are the minimum standards of quality used in accrediting programs that prepare individuals to enter the Exercise Physiology profession. Standards are the minimum requirements to which an accredited program is held accountable. Guidelines are descriptions, examples, or recommendations that elaborate on the Standards. Guidelines are not required, but can assist with interpretation of the Standards.

**Standards** are printed in regular typeface in outline form. The *Guidelines* are printed in italic typeface in narrative form.

### Preamble

The Commission on Accreditation of Allied Health Education Programs (CAAHEP), the Committee on Accreditation for the Exercise Sciences, the American College of Sports Medicine, the American Council on Exercise, the American Kinesiotherapy Association, the American Red Cross, the National Academy of Sports Medicine, and the National Council on Strength & Fitness cooperate to establish, maintain and promote appropriate standards of quality for educational programs in Exercise Physiology, and to provide recognition for educational programs that meet or exceed the minimum standards outlined in these accreditation **Standards and Guidelines**. Lists of accredited programs are published for the information of students, employers, educational institutions, agencies and the public.

These **Standards and Guidelines** are to be used for the development, evaluation, and self-analysis of Exercise Physiology programs. Onsite review teams assist in the evaluation of a program's relative compliance with the accreditation Standards.

## Description of the Profession

Exercise Physiology is a discipline that includes clinical exercise physiology and applied exercise physiology. Applied Exercise Physiologists manage programs to assess, design, and implement individual and group exercise and fitness programs for apparently healthy individuals and individuals with controlled disease. Clinical Exercise Physiologists work under the direction of a physician in the application of physical activity and behavioral interventions in clinical situations where they have been scientifically proven to provide therapeutic or functional benefit.

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## I. Sponsorship

### A. Sponsoring Institution

A sponsoring institution must be one of the following:

1. A post-secondary academic institution accredited by an institutional accrediting agency that is recognized by the U.S. Department of Education, and authorized under applicable law or other acceptable authority to provide a post-secondary program, which awards a minimum of a master's degree at the completion of the program.
2. A foreign post-secondary academic institution acceptable to CAAHEP.

### B. Consortium Sponsor

1. A consortium sponsor is an entity consisting of two or more members that exists for the purpose of operating an educational program. In such instances, at least one of the members of the consortium must meet the requirements of a sponsoring educational institution as described in I.A.
2. The responsibilities of each member of the consortium must be clearly documented as a formal affiliation agreement or memorandum of understanding, which includes governance and lines of authority.

### C. Responsibilities of Sponsor

The Sponsor must assure that the provisions of these **Standards and Guidelines** are met.

## II. Program Goals

### A. Program Goals and Outcomes

There must be a written statement of the program's goals and learning domains consistent with and responsive to the demonstrated needs and expectations of the various communities of interest served by the educational program. The communities of interest that are served by the program include, but are not limited to, students, graduates, faculty, sponsor administration, employers, licensed healthcare providers, and the public.

Program-specific statements of goals and learning domains provide the basis for program planning, implementation, and evaluation. Such goals and learning domains must be compatible with the mission of the sponsoring institution(s), the expectations of the communities of interest, and nationally accepted standards of roles and functions. Goals and learning domains are based upon the substantiated needs of health care providers and employers, and the educational needs of the students served by the educational program.

## **B. Appropriateness of Goals and Learning Domains**

The program must regularly assess its goals and learning domains. Program personnel must identify and respond to changes in the needs and/or expectations of its communities of interest.

An advisory committee, which is representative of these communities of interest named in these Standards, must be designated and charged with the responsibility of meeting at least annually, to assist program and sponsor personnel in formulating and periodically revising appropriate goals and learning domains, monitoring needs and expectations, and ensuring program responsiveness to change.

*Advisory committee meetings may include participation by synchronous electronic means.*

## **C. Minimum Expectations**

The program must have the following goal(s) defining minimum expectations: “To prepare competent entry-level Applied Exercise Physiologists in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains,” and/or “To prepare competent entry-level Clinical Exercise Physiologists in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains.”

Programs adopting educational goals beyond entry-level competence must clearly delineate this intent and provide evidence that all students have achieved the basic competencies prior to entry into the field.

*Sponsors may select one or both of the above Minimum Expectation statements. Accreditation is considered only for the specific Minimum Expectation statement(s) designated by each program.*

*Nothing in this Standard restricts programs from formulating goals beyond entry-level competencies.*

# **III. Resources**

## **A. Type and Amount**

Program resources must be sufficient to ensure the achievement of the program’s goals and outcomes. Resources must include, but are not limited to: faculty; clerical and support staff; curriculum; finances; offices; classroom, laboratory, and, ancillary student facilities; clinical affiliates, equipment; supplies; computer resources; instructional reference materials; and faculty/staff continuing education.

## **B. Personnel**

The sponsor must appoint sufficient faculty and staff with the necessary qualifications to perform the functions identified in documented job descriptions and to achieve the program’s stated goals and outcomes.

### **1. Program Director**

#### **a. Responsibilities**

The Program Director must assure achievement of the program’s goals and outcomes, and is responsible for all aspects of the program, including the organization, administration, continuous review, planning, development and general effectiveness of the program. The Program Director must provide supervision, administration and coordination of the instructional staff in the academic and practical phases of the educational program.

*Administrative and supervisory responsibilities of the Program Director should be recognized as a department assignment. The amount of time devoted to these responsibilities should be consistent with departmental or institutional policy, but should be deemed appropriate in view of the administrative responsibilities of the Program Director.*

**b. Qualifications**

The Program Director must possess a minimum of a doctorate degree and work-related experience that exceeds that for which the students in the program are being prepared.

*A qualified Program Director should be a full-time employee of the sponsoring institution and should possess a minimum of three years of work-related experience in applied and/or clinical exercise physiology.*

**2. Medical Advisor(s)** (for Clinical Exercise Physiologists programs only)

**a. Responsibilities**

The medical advisor(s) must provide guidance to ensure that the medical components of the curriculum meet currently acceptable performance standards.

*The role of the medical advisor(s) should be defined in writing by the program. Examples may include guest lecturer, advisory committee member, provider of internships, liaison between physician community and program, and participate as appropriate in other activities to promote program evaluation.*

**b. Qualifications**

The medical advisor(s) must be a licensed healthcare provider (e.g., MD, DO, PT, RN)

*The medical advisor(s) should have recognized qualifications by training and/or experience in the clinical expectations of the program.*

**3. Faculty and/or Instructional Staff**

**a. Responsibilities**

In classrooms, laboratories, and all applied instructional settings where a student is assigned, there must be (a) qualified individual(s) clearly designated as liaison(s) to the program to provide instruction, supervision, and timely assessments of the student's progress in meeting program requirements.

*All faculty members, regardless of the extent of their participation, should be familiar with the goals of the program and should be able to demonstrate the ability to develop an organized plan of instruction and evaluation.*

**b. Qualifications**

Instructors must possess appropriate credentials and knowledge in subject matter by virtue of training and/or experience, in teaching their assigned subjects.

*Qualified faculty and/or instructional staff should possess a minimum of two years of work-related experience in applied and/or clinical exercise physiology.*

**C. Curriculum**

The curriculum must ensure the achievement of program goals and learning domains. Instruction must be an appropriate sequence of classroom, laboratory, and clinical/practical activities. Instruction must be based on clearly written course syllabi describing learning goals, course objectives, and competencies required for graduation.

The program must demonstrate by comparison that the curriculum offered meets or exceeds the competencies specified in Appendix B of these Standards and Guidelines.

*The program should end in a culminating experience, such as an internship or research project, and a national credentialing examination.*

#### **D. Resource Assessment**

The program must, at least annually, assess the appropriateness and effectiveness of the resources described in these standards. The results of resource assessment must be the basis for ongoing planning and appropriate change. An action plan must be developed when deficiencies are identified in the program resources. Implementation of the action plan must be documented and results measured by ongoing resource assessment.

### **IV. Student and Graduate Evaluation/Assessment**

#### **A. Student Evaluation**

##### **1. Frequency and purpose**

Evaluation of students must be conducted on a recurrent basis and with sufficient frequency to provide both the students and program faculty with valid and timely indications of the students' progress toward and achievement of the competencies and learning domains stated in the curriculum.

##### **2. Documentation**

Records of student evaluations must be maintained in sufficient detail to document learning progress and achievements.

#### **B. Outcomes Assessment**

##### **1. Outcomes Assessment**

The program must periodically assess its effectiveness in achieving its stated goals and learning domains. The results of this evaluation must be reflected in the review and timely revision of the program.

Outcomes assessments must include at least 4 of the following:

- Program retention rates
- Graduate satisfaction rate
- Positive placement rate
- Performance on culminating experience.
- Employer satisfaction \*required?
- National credentialing exam pass rate

Outcomes assessments must include, but are not limited to: national credentialing examination(s) performance, programmatic retention/attrition, graduate satisfaction, employer satisfaction, job (positive) placement, and programmatic summative measures. The program must meet the outcomes assessment thresholds.

*Programmatic summative measures, if used, should contribute to assessing effectiveness in specific learning domains.*

*“Positive placement” means that the graduate is employed full or part-time in the profession or in a related field; or continuing his/her education; or serving in the military. A related field is one in which the individual is using cognitive, psychomotor, and affective competencies acquired in the educational program.*

*“National credentialing examinations” are those accredited by the National Commission for Certifying Agencies (NCCA). Participation rates on national credentialing examination(s) performance may be considered in determining whether or not a program meets the designated threshold, provided the credentialing examination or an alternative examination is available to be administered prior to graduation from the program. Results from an alternative examination may be accepted, if designated as equivalent by the organization whose credentialing examination is so accredited.*

## **2. Outcomes Reporting**

The program must periodically submit to the CoAES the program goal(s), learning domains, evaluation systems (including type, cut score, and appropriateness), outcomes, its analysis of the outcomes and an appropriate action plan based on the analysis.

Programs not meeting the established thresholds must begin a dialogue with the CoAES to develop an appropriate plan of action to respond to the identified shortcomings.

## **V. Fair Practices**

### **A. Publications and Disclosure**

1. Announcements, catalogs, publications, and advertising must accurately reflect the program offered.
2. At least the following must be made known to all applicants and students: the sponsor's institutional and programmatic accreditation status as well as the name, address and phone number of the accrediting agencies, admissions policies and practices, including technical standards (when used); policies on advanced placement, transfer of credits, and credits for experiential learning; number of credits required for completion of the program; tuition/fees and other costs required to complete the program; and policies and processes for withdrawal and for refunds of tuition/fees.
3. At least the following must be made known to all students: academic calendar, student grievance procedure, criteria for successful completion of each segment of the curriculum and graduation, and policies and processes by which students may perform clinical work while enrolled in the program.
4. The sponsor must maintain, and make available to the public, current and consistent summary information about student/graduate achievement that includes the results of one or more of the outcomes assessments required in these **Standards**.

*The sponsor should develop a suitable means of communicating to the communities of interest the achievement of students/graduates (e.g., through a website or electronic or printed documents).*

### **B. Lawful and Non-discriminatory Practices**

All activities associated with the program, including student and faculty recruitment, student admission, and faculty employment practices, must be non-discriminatory and in accord with federal and state statutes, rules, and regulations. There must be a faculty grievance procedure made known to all paid faculty.

### **C. Safeguards**

The health and safety of patients, students, faculty, and other participants associated with the educational activities of the students must be adequately safeguarded.

All activities required in the program must be educational and students must not be substituted for staff.

**D. Student Records**

Satisfactory records must be maintained for student admission, advisement, counseling, and evaluation. Grades and credits for courses must be recorded on the student transcript and permanently maintained by the sponsor in a safe and accessible location.

**E. Substantive Change**

The sponsor must report substantive change(s) as described in Appendix A to CAAHEP/CoAES in a timely manner. Additional substantive changes to be reported to CoAES within the time limits prescribed include:

1. the institution's mission or objectives if these will affect the program;
2. the institution's legal status or form of control;
3. the addition of courses that represent a significant departure in content or in method of delivery;
4. the degree awarded;
5. a substantial increase in clock or credit hours for successful completion of a program or in the length of a program.

**F. Agreements**

There must be a formal affiliation agreement or memorandum of understanding between the sponsor and all other entities that participate in the education of the students describing the relationship, role, and responsibilities between the sponsor and that entity.

## APPENDIX A

### Application, Maintenance, and Administration of Accreditation

#### A. Program and Sponsor Responsibilities

##### 1. Applying for Initial Accreditation

- a. The chief executive officer or an officially designated representative of the sponsor completes a “Request for Accreditation Services” form and returns it electronically or by mail to:

Committee on Accreditation for the Exercise Sciences  
c/o Georgia State University  
Dept of Kinesiology & Health  
MSC 7A0105  
Atlanta, GA 30303

The “Request for Accreditation Services” form can be obtained from the CAAHEP website at <https://www.cognitofrms.com/CAAHEP2/RequestForAccreditationServices>.

**Note:** There is **no** CAAHEP fee when applying for accreditation services; however, individual committees on accreditation may have an application fee.

- b. The program undergoes a comprehensive review, which includes a written self-study report and an on-site review.

The self-study instructions and report form are available from the Committee on Accreditation for the Exercise Sciences (CoAES). The on-site review will be scheduled in cooperation with the program and the CoAES once the self-study report has been completed, submitted, and accepted by the CoAES.

##### 2. Applying for Continuing Accreditation

- a. Upon written notice from the CoAES, the chief executive officer or an officially designated representative of the sponsor completes a “Request for Accreditation Services” form, and returns it electronically or by mail to:

Committee on Accreditation for the Exercise Sciences  
c/o Georgia State University  
Dept of Kinesiology & Health  
MSC 7A0105  
Atlanta, GA 30303

The “Request for Accreditation Services” form can be obtained from the CAAHEP website at <https://www.cognitofrms.com/CAAHEP2/RequestForAccreditationServices>.

- b. The program may undergo a comprehensive review in accordance with the policies and procedures of the CoAES.

If it is determined that there were significant concerns with the conduct of the on-site review, the sponsor may request a second site visit with a different team. After the on-site review team submits a report of its findings, the sponsor is provided the opportunity to comment in writing and to correct factual errors prior to the CoAES forwarding a recommendation to CAAHEP.

### **3. Administrative Requirements for Maintaining Accreditation**

- a. The program must inform the CoAES and CAAHEP within a reasonable period of time (as defined by the committee on accreditation and CAAHEP policies) of changes in chief executive officer, dean of health professions or equivalent position, and required program personnel (Refer to Standard III.B.).
- b. The sponsor must inform CAAHEP and the CoAES of its intent to transfer program sponsorship. To begin the process for a Transfer of Sponsorship, the current sponsor must submit a letter (signed by the CEO or designated individual) to CAAHEP and the CoAES that it is relinquishing its sponsorship of the program. Additionally, the new sponsor must submit a "Request for Transfer of Sponsorship Services" form. The CoAES has the discretion of requesting a new self-study report with or without an on-site review. Applying for a transfer of sponsorship does not guarantee that the transfer will be granted.
- c. The sponsor must promptly inform CAAHEP and the CoAES of any adverse decision affecting its accreditation by recognized institutional accrediting agencies and/or state agencies (or their equivalent).
- d. Comprehensive reviews are scheduled by the CoAES in accordance with its policies and procedures. The time between comprehensive reviews is determined by the CoAES and based on the program's on-going compliance with the Standards, however, all programs must undergo a comprehensive review at least once every ten years.
- e. The program and the sponsor must pay CoAES and CAAHEP fees within a reasonable period of time, as determined by the CoAES and CAAHEP respectively.
- f. The sponsor must file all reports in a timely manner (self-study report, progress reports, probation reports, annual reports, etc.) in accordance with CoAES policy.
- g. The sponsor must agree to a reasonable on-site review date that provides sufficient time for CAAHEP to act on a CoAES accreditation recommendation prior to the "next comprehensive review" period, which was designated by CAAHEP at the time of its last accreditation action, or a reasonable date otherwise designated by the CoAES.

Failure to meet any of the aforementioned administrative requirements may lead to administrative probation and ultimately to the withdrawal of accreditation. CAAHEP will immediately rescind administrative probation once all administrative deficiencies have been rectified.

### **4. Voluntary Withdrawal of a CAAHEP- Accredited Program**

Notification of voluntary withdrawal of accreditation from CAAHEP must be made by the Chief Executive Officer or an officially designated representative of the sponsor by writing to CAAHEP indicating: the desired effective date of the voluntary withdrawal, and the location where all records will be kept for students who have completed the program.

### **5. Requesting Inactive Status of a CAAHEP- Accredited Program**

Inactive status for any accredited program may be requested from CAAHEP at any time by the Chief Executive Officer or an officially designated representative of the sponsor writing to CAAHEP indicating the desired date to become inactive. No students can be enrolled or matriculated in the program at any time during the time period in which the program is on

inactive status. The maximum period for inactive status is two years. The sponsor must continue to pay all required fees to the CoAES and CAAHEP to maintain its accreditation status. To reactivate the program the Chief Executive Officer or an officially designated representative of the sponsor must provide notice of its intent to do so in writing to both CAAHEP and the CoAES. The sponsor will be notified by the CoAES of additional requirements, if any, that must be met to restore active status.

If the sponsor has not notified CAAHEP of its intent to re-activate a program by the end of the two-year period, CAAHEP will consider this a “Voluntary Withdrawal of Accreditation.”

## **B. CAAHEP and Committee on Accreditation Responsibilities – Accreditation Recommendation Process**

1. After a program has had the opportunity to comment in writing and to correct factual errors on the on-site review report, the CoAES forwards a status of public recognition recommendation to the CAAHEP Board of Directors. The recommendation may be for any of the following statuses: initial accreditation, continuing accreditation, transfer of sponsorship, probationary accreditation, withhold of accreditation, or withdrawal of accreditation.

The decision of the CAAHEP Board of Directors is provided in writing to the sponsor immediately following the CAAHEP meeting at which the program was reviewed and voted upon.

2. Before the CoAES forwards a recommendation to CAAHEP that a program be placed on probationary accreditation, the sponsor must have the opportunity to request reconsideration of that recommendation or to request voluntary withdrawal of accreditation. The CoAES’ reconsideration of a recommendation for probationary accreditation must be based on conditions existing both when the committee arrived at its recommendation as well as on subsequent documented evidence of corrected deficiencies provided by the sponsor.

The CAAHEP Board of Directors’ decision to confer probationary accreditation is not subject to appeal.

3. Before the CoAES forwards a recommendation to CAAHEP that a program’s accreditation be withdrawn or that accreditation be withheld, the sponsor must have the opportunity to request reconsideration of the recommendation, or to request voluntary withdrawal of accreditation or withdrawal of the accreditation application, whichever is applicable. The CoAES’ reconsideration of a recommendation of withdraw or withhold accreditation must be based on conditions existing both when the CoAES arrived at its recommendation as well as on subsequent documented evidence of corrected deficiencies provided by the sponsor.

The CAAHEP Board of Directors’ decision to withdraw or withhold accreditation may be appealed. A copy of the CAAHEP “Appeal of Adverse Accreditation Actions” is enclosed with the CAAHEP letter notifying the sponsor of either of these actions.

At the completion of due process, when accreditation is withheld or withdrawn, the sponsor’s Chief Executive Officer is provided with a statement of each deficiency. Programs are eligible to re-apply for accreditation once the sponsor believes that the program is in compliance with the accreditation Standards.

**Note: Any student who completes a program that was accredited by CAAHEP at any time during his/her matriculation is deemed by CAAHEP to be a graduate of a CAAHEP-accredited program.**

## Appendix B

### Curriculum for Educational Programs in Exercise Physiology

#### Performance Domains and Associated Competencies for Programs in Applied Exercise Physiology

The curriculum for the Applied Exercise Physiology program must include the performance domains and associated competencies listed below.

	<b>DOMAIN I: PATIENT/CLIENT ASSESSMENT</b>
	<b>A. Determine and obtain the necessary physician referral and medical records to assess the potential participant</b>
I.A.1.a	Knowledge of the procedure to obtain informed consent from participant to meet legal requirements.
I.A.1.b	Knowledge of information and documentation required for program participation.
I.A.1.c	Knowledge of the procedure to obtain physician referral and medical records required for program participation.
I.A.1.d	Knowledge of the procedure to obtain participant's medical history through available documentation.
I.A.2.a	Skill in assessing participant physician referral and medical records to determine program participation status.
	<b>DOMAIN I: PATIENT/CLIENT ASSESSMENT</b>
	<b>B. Perform a pre-participation health screening including review of the participant's medical history and knowledge, their needs and goals, the program's potential benefits and additional required testing and data.</b>
I.B.1.a	Knowledge of normal cardiovascular, pulmonary and metabolic anatomy and physiology.
I.B.1.b	Knowledge of cardiovascular, pulmonary and metabolic pathologies, clinical progression, diagnostic testing and medical regimens/procedures.
I.B.1.c	Knowledge of instructional techniques to assess participant's expectations and goals.
I.B.1.d	Knowledge of commonly used medication for cardiovascular, pulmonary and metabolic diseases.
I.B.1.e	Knowledge of the effects of physical inactivity, including bed rest, and methods to counteract these changes.
I.B.1.f	Knowledge of normal physiologic responses to exercise.
I.B.1.g	Knowledge of abnormal responses/signs/symptoms to exercise associated with different pathologies (e.g., cardiovascular, pulmonary, metabolic).
I.B.1.h	Knowledge of anthropometric measurements and their interpretation.
I.B.1.i	Knowledge of normal 12-lead and telemetry ECG interpretation.
I.B.1.j	Knowledge of interpretation of ECGs for abnormalities (e.g., arrhythmias, blocks, ischemia, infarction).
I.B.1.k	Knowledge of normal and abnormal heart and lung sounds.
I.B.1.l	Knowledge of pertinent areas of a participant's medical history (e.g., any symptoms since their procedure, description of discomfort/pain, orthopedic issues).
I.B.1.m	Knowledge of validated tools for measurement of psychosocial health status.
I.B.1.n	Knowledge of a variety of behavioral assessment tools (e.g., SF-36, health-related quality of life, Chronic Respiratory Disease Questionnaire) and strategies for their use.
I.B.1.o	Knowledge of psychological issues associated with acute and chronic illness (e.g., anxiety, depression, social isolation, suicidal ideation).
I.B.1.p	Knowledge of participant-centered goal setting.
I.B.1.q	Knowledge of functional and diagnostic exercise testing methods, including symptom-limited maximal and submaximal aerobic testing.
I.B.1.r	Knowledge of indications and contraindications to exercise testing.
I.B.1.s	Knowledge of normal and abnormal (i.e., signs/symptoms) endpoints for termination of exercise testing.
I.B.1.t	Knowledge of testing and interpretation of muscle strength/endurance and flexibility.
I.B.1.u	Knowledge of current published guidelines for treatment of cardiovascular, pulmonary and metabolic pathologies (e.g., ACC/AHA (American College of Cardiology/American Heart Association) Joint Guidelines, GOLD - Global Initiative for Chronic Obstructive Pulmonary Disease, ADA (American Diabetes Association) guidelines).
I.B.2.a	Skill in auscultation methods for common cardiopulmonary abnormalities.
I.B.2.b	Skill in data collection during baseline intake assessment.
I.B.2.c	Skill in assessment and interpretation of information collected during the baseline intake assessment.
I.B.2.d	Skill in formulating an exercise program based upon the information collected during the baseline intake assessment.
I.B.2.e	Skill in selection, application and monitoring of exercise testing for healthy and patient populations.

I.B.2.f	Skill in muscle strength, endurance and flexibility assessments for healthy and patient populations.
I.B.2.g	Skill in patient preparation and ECG electrode application for resting and exercise ECGs.
	<b>DOMAIN I: PATIENT/CLIENT ASSESSMENT</b>
	<b>C. Evaluate the participant's risk to ensure safe participation and determine level of monitoring/supervision in a preventive or rehabilitative exercise program.</b>
I.C.1.a	Knowledge of applied exercise physiology principles.
I.C.1.b	Knowledge of cardiovascular, pulmonary and metabolic pathologies, their clinical progression, diagnostic testing and medical regimens/procedures to treat.
I.C.1.c	Knowledge of ACSM's pre-participation screening algorithm.
I.C.1.d	Knowledge of the participant's risk factor profile (i.e., cardiovascular, pulmonary and metabolic) to determine level of exercise supervision using ACSM, AHA, and AACVPR (American Association of Cardiovascular and Pulmonary Rehabilitation) risk stratification criteria.
I.C.1.e	Knowledge of indications and contraindications to exercise testing.
I.C.1.f	Knowledge of functional and diagnostic exercise testing methods, including symptom-limited maximal and submaximal aerobic testing.
I.C.1.g	Knowledge of interpretation of ECGs for abnormalities (e.g., arrhythmias, blocks, ischemia, infarction).
I.C.1.h	Knowledge of normal and abnormal (i.e., signs/symptoms) endpoints for termination of exercise testing.
I.C.1.i	Knowledge of testing and interpretation of muscle strength/endurance and flexibility.
I.C.1.j	Knowledge of commonly used medication for cardiovascular, pulmonary and metabolic diseases.
I.C.1.k	Knowledge of current published guidelines for treatment of cardiovascular, pulmonary and metabolic pathologies (e.g., ACC/AHA Joint Guidelines, GOLD - Global Initiative for Chronic Obstructive Pulmonary Disease, ADA guidelines).
I.C.2.a	Skill in risk stratification using established guidelines (ACSM, AHA vs. informal).
I.C.2.b	Skill in selection, application and monitoring of exercise tests for apparently healthy participants and those with chronic disease.
I.C.2.c	Skill in ECG interpretation and interpreting exercise test results.
	<b>DOMAIN II: EXERCISE PRESCRIPTION</b>
	<b>A. Develop a clinically appropriate exercise prescription using all available information (e.g., clinical and physiological status, goals and behavioral assessment).</b>
II.A.1.a	Knowledge of applied exercise physiology principles.
II.A.1.b	Knowledge of the FITT (Frequency, Intensity, Time, Type) principle for aerobic, muscular fitness /resistance training and flexibility exercise prescription.
II.A.1.c	Knowledge of cardiovascular, pulmonary and metabolic pathologies, their clinical progression, diagnostic testing and medical regimens/procedures to treat.
II.A.1.d	Knowledge of the effects of physical inactivity, including bed rest, and methods to counteract these changes.
II.A.1.e	Knowledge of normal physiologic responses to exercise.
II.A.1.f	Knowledge of abnormal responses/signs/symptoms to exercise associated with different pathologies (e.g., cardiovascular, pulmonary, metabolic).
II.A.1.g	Knowledge of validated tools of measurement of psychosocial health status.
II.A.1.h	Knowledge of functional and diagnostic exercise testing methods, including symptom-limited maximal and submaximal aerobic testing.
II.A.1.i	Knowledge of normal and abnormal (i.e., signs/symptoms) endpoints for termination of exercise testing.
II.A.1.j	Knowledge of tests to assess and interpret muscle strength/endurance and flexibility.
II.A.1.k	Knowledge of commonly used medication for cardiovascular, pulmonary and metabolic diseases, and their effect on exercise prescription.
II.A.1.l	Knowledge of exercise principles (prescription, progression/maintenance and supervision) for apparently healthy participants and participants with cardiovascular, pulmonary, and/or metabolic diseases.
II.A.1.m	Knowledge of appropriate mode, volume and intensity of exercise to produce desired outcomes for apparently healthy participants and those with cardiovascular, pulmonary and metabolic diseases.
II.A.1.n	Knowledge of the application of metabolic calculations.
II.A.1.o	Knowledge of goal development strategies.
II.A.1.p	Knowledge of behavioral assessment tools (e.g., SF-36, health-related quality of life, Chronic Respiratory Disease Questionnaire) and strategies for use.

II.A.1.q	Knowledge of psychological issues associated with acute and chronic illness (e.g., anxiety, depression, social isolation, suicidal ideation).
II.A.2.a	Skill in interpretation of functional and diagnostic exercise testing with applications to exercise prescription.
II.A.2.b	Skill in interpretation of muscular strength/endurance testing with applications to exercise prescription.
II.A.2.c	Skill in developing an exercise prescription based on a participant's clinical status.
	<b>DOMAIN II: EXERCISE PRESCRIPTION</b> <b>B. Review the exercise prescription and exercise program with the participant, including home exercise, compliance and participant's expectations and goals.</b>
II.B.1.a	Knowledge of applied exercise physiology principles.
II.B.1.b	Knowledge of normal physiologic responses to exercise.
II.B.1.c	Knowledge of abnormal responses/signs/symptoms to exercise associated with different pathologies (e.g., cardiovascular, pulmonary, metabolic).
II.B.1.d	Knowledge of anthropometric measurements and their interpretation.
II.B.1.e	Knowledge of participant-centered goal setting.
II.B.1.f	Knowledge of exercise principles (prescription, progression/maintenance and supervision) for apparently healthy participants and participants with cardiovascular, pulmonary, and/or metabolic diseases.
II.B.1.g	Knowledge of the FITT (Frequency, Intensity, Time, Type) principle for aerobic, muscular fitness /resistance training and flexibility exercise prescription.
II.B.1.h	Knowledge of appropriate mode, volume and intensity of exercise to produce desired outcomes for apparently healthy participants and those with cardiovascular, pulmonary and metabolic diseases.
II.B.1.i	Knowledge of the application of metabolic calculations.
II.B.1.j	Knowledge of goal development strategies.
II.B.1.k	Knowledge of terminology appropriate to provide the client with education regarding their exercise prescription.
II.B.1.l	Knowledge of instructional techniques for safe and effective prescription implementation and understanding by participant.
II.B.1.m	Knowledge of the timing of daily activities with exercise (e.g., medications, meals, insulin/glucose monitoring).
II.B.1.n	Knowledge of disease-specific strategies and tools to improve tolerance of exercise (e.g., breathing techniques, insulin pump use and adjustments, prophylactic nitroglycerin).
II.B.1.o	Knowledge of instructional strategies for improving exercise adoption and maintenance.
II.B.1.p	Knowledge of common barriers to exercise compliance and strategies to address these (e.g., physical, psychological, environmental, demographic).
II.B.1.q	Knowledge of instructional techniques to assess participant's expectations and goals.
II.B.1.r	Knowledge of risk factor reduction programs and alternative community resources (e.g., dietary counseling, weight management/Weight Watchers®, smoking cessation, stress management, physical therapy/back care).
II.B.2.a	Skill in communicating with participants from a wide variety of educational backgrounds.
II.B.2.b	Skill in effectively communicating exercise prescription and exercise techniques.
II.B.2.c	Skill in applying various models to optimize patient compliance and adherence in order to achieve patient goals.
	<b>DOMAIN II: EXERCISE PRESCRIPTION</b> <b>C. Instruct the participant in the safe and effective use of exercise modalities, exercise plan, reporting symptoms and class organization.</b>
II.C.1.a	Knowledge of applied exercise physiology principles.
II.C.1.b	Knowledge of normal physiologic responses to exercise.
II.C.1.c	Knowledge of abnormal responses/signs/symptoms to exercise associated with different pathologies (e.g., cardiovascular, pulmonary, metabolic).
II.C.1.d	Knowledge of the timing of daily activities with exercise (e.g., medications, meals, insulin/glucose monitoring).
II.C.1.e	Knowledge of commonly used medication for cardiovascular, pulmonary and metabolic diseases.
II.C.1.f	Knowledge of lay terminology for explanation of exercise prescription.
II.C.1.g	Knowledge of the operation of various exercise equipment/modalities.
II.C.1.h	Knowledge of proper biomechanical technique for exercise (e.g., gait assessment, proper weight lifting form).
II.C.1.i	Knowledge of muscle strength/endurance and flexibility modalities and their safe application and instruction.
II.C.1.j	Knowledge of tools to measure exercise tolerance (heart rate/pulse, blood pressure, glucometry, oximetry, rating of perceived exertion, dyspnea scale, pain scale).
II.C.1.k	Knowledge of principals and application of exercise session organization.
II.C.2.a	Skill in the observational assessment of participants.
II.C.2.b	Skill in communicating with participants from a wide variety of educational backgrounds.

II.C.2.c	Skill in communicating with participants regarding the proper organization of exercise sessions.
<b>DOMAIN III: PROGRAM IMPLEMENTATION AND ONGOING SUPPORT</b>	
<b>A. Implement the program (e.g., exercise prescription, education, counseling, goals).</b>	
III.A.1.a	Knowledge of abnormal responses/signs/symptoms to exercise associated with different pathologies (i.e., cardiovascular, pulmonary, metabolic).
III.A.1.b	Knowledge of normal and abnormal 12-lead and telemetry ECG interpretation.
III.A.1.c	Knowledge of the FITT principle (Frequency, Intensity, Time, Type) for aerobic, muscular fitness /resistance training and flexibility exercise prescription.
III.A.1.d	Knowledge of exercise progression/maintenance and supervision for apparently healthy participants and participants with cardiovascular, pulmonary, and/or metabolic diseases.
III.A.1.e	Knowledge of disease-specific strategies and tools to improve tolerance of exercise (e.g., breathing techniques, insulin pump use and adjustments, prophylactic nitroglycerin).
III.A.1.f	Knowledge of instructional strategies for improving exercise adoption and maintenance.
III.A.1.g	Knowledge of strategies to maximize exercise compliance (e.g., overcoming barriers, values clarification, goals setting).
III.A.1.h	Knowledge of the operation of various exercise equipment/modalities.
III.A.1.i	Knowledge of proper biomechanical technique for exercise (e.g., gait, weight lifting form).
III.A.1.j	Knowledge of tools to measure clinical exercise tolerance (e.g., heart rate, glucometry, oximetry, subjective assessments).
III.A.1.k	Knowledge of the principles and application of exercise session organization.
III.A.1.l	Knowledge of commonly used medications for cardiovascular, pulmonary and metabolic diseases.
III.A.1.m	Knowledge of exercise program monitoring (e.g., telemetry, oximetry, glucometry).
III.A.1.n	Knowledge of principles and application of muscular strength/endurance and flexibility training.
III.A.1.o	Knowledge of methods to assess participant's educational goals.
III.A.1.p	Knowledge of counseling techniques to optimize participant's disease management, risk reduction and goal attainment.
III.A.2.a	Skill in educating participants on the use and effects of medications.
III.A.2.b	Skill in the application of metabolic calculations.
III.A.2.c	Skill in communicating the exercise prescription and related exercise programming techniques.
III.A.2.d	Skill in observation of clients for problems associated with comprehension and performance of their exercise program.
III.A.2.e	Skill in muscular strength/endurance and flexibility training.
<b>DOMAIN III: PROGRAM IMPLEMENTATION AND ONGOING SUPPORT</b>	
<b>B. Continually assess participant feedback, clinical signs and symptoms and exercise tolerance and provide feedback to the participant about their exercise, general program participation and clinical progress.</b>	
III.B.1.a	Knowledge of cardiovascular, pulmonary and metabolic pathologies, their clinical progression, diagnostic testing and medical regimens/procedures to treat.
III.B.1.b	Knowledge of normal and abnormal exercise responses, signs and symptoms associated with different pathologies (i.e., cardiovascular, pulmonary, metabolic).
III.B.1.c	Knowledge of normal and abnormal 12-lead and telemetry ECG interpretation.
III.B.1.d	Knowledge of normal and abnormal heart and lung sounds.
III.B.1.e	Knowledge of the components of a participant's medical history necessary to screen during program participation.
III.B.1.f	Knowledge of appropriate mode, volume and intensity of exercise to produce desired outcomes for apparently healthy participants and those with cardiovascular, pulmonary and metabolic diseases.
III.B.1.g	Knowledge of psychological issues associated with acute and chronic illness (e.g., depression, social isolation, suicidal ideation).
III.B.1.h	Knowledge of the timing of daily activities with exercise (e.g., medications, meals, insulin/glucose monitoring).
III.B.1.i	Knowledge of how medications or missed dose(s) of medications impact exercise and its progression.
III.B.1.j	Knowledge of methods to provide participant feedback relative to their exercise, general program participation and clinical progress.
III.B.2.a	Skill in auscultation methods for common cardiovascular and pulmonary abnormalities.
III.B.2.b	Skill in the assessment of normal and abnormal response to exercise.
III.B.2.c	Skill in adjusting the exercise program based on participant's signs and symptoms, feedback and exercise response.
III.B.2.d	Skill in communicating exercise techniques, program goals and clinical monitoring and progress.
III.B.2.e	Skill in applying and interpreting tools for clinical assessment (e.g., telemetry, oximetry and glucometry, perceived rating scales).

	<b>DOMAIN III: PROGRAM IMPLEMENTATION AND ONGOING SUPPORT</b> <b>C. Reassess and update the program (e.g., exercise, education and client goals) based upon the participant's progress and feedback.</b>
III.C.1.a	Knowledge of techniques to determine participant's medical history through available documentation.
III.C.1.b	Knowledge of normal physiologic responses to exercise.
III.C.1.c	Knowledge of abnormal responses/signs/symptoms to exercise associated with different pathologies (e.g., cardiovascular, pulmonary, metabolic).
III.C.1.d	Knowledge of participant's educational and behavioral goals and methods to obtain them.
III.C.1.e	Knowledge of counseling techniques focusing on participant goal attainment.
III.C.1.f	Knowledge of exercise progression/maintenance and supervision for apparently healthy participants and participants with cardiovascular, pulmonary, and/or metabolic diseases.
III.C.1.g	Knowledge of appropriate mode, volume and intensity of exercise to produce desired outcomes for apparently healthy participants and those with cardiovascular, pulmonary and metabolic diseases.
III.C.1.h	Knowledge of strategies to maximize exercise compliance (e.g., overcoming barriers, values clarification, goals setting).
III.C.1.i	Knowledge of risk factor reduction programs and alternative community resources (e.g., dietary counseling/Weight Watchers®, smoking cessation, physical therapy/back care).
III.C.1.j	Knowledge of proper biomechanical technique for exercise (e.g., gait, weight lifting form).
III.C.1.k	Knowledge of clinical monitoring of the exercise program (e.g., telemetry, oximetry and glucometry, adjusting exercise intensity).
III.C.1.l	Knowledge of commonly used medication for cardiovascular, pulmonary and metabolic diseases.
III.C.1.m	Knowledge of the application and instruction of muscle strength/endurance and flexibility modalities.
III.C.1.n	Knowledge of modification of the exercise prescription for clinical changes and attainment of participant's goals.
III.C.1.o	Knowledge of community resources available to the participant following discharge from the program.
III.C.2.a	Skill in modifying the exercise program based on participant's signs and symptoms, feedback and exercise responses.
III.C.2.b	Skill in utilizing metabolic calculations and clinical data to adjust the exercise prescription.
III.C.2.c	Skill in observation of participant for problems associated with comprehension and performance of their exercise program.
III.C.2.d	Skill in communicating exercise techniques, program goals and clinical monitoring and progress.
III.C.2.e	Skill in applying and interpreting tools for clinical assessment (e.g., telemetry, oximetry and glucometry, perceived rating scales).
	<b>DOMAIN III: PROGRAM IMPLEMENTATION AND ONGOING SUPPORT</b> <b>D. Maintain participant records to document progress and clinical status.</b>
III.D.1.a	Knowledge of participant's medical history through available documentation.
III.D.1.b	Knowledge of cardiovascular, pulmonary and metabolic pathologies, diagnostic testing and medical management regimens and procedures.
III.D.1.c	Knowledge of commonly used medication for cardiovascular, pulmonary and metabolic diseases.
III.D.1.d	Knowledge of HIPAA (Health Insurance Portability and Accountability Act) regulations relative to documentation.
III.D.1.e	Knowledge of medical documentation (e.g., progress notes, SOAP notes).
III.D.2.a	Skill in applying knowledge of medical documentation and regulations.
III.D.2.b	Skill in summarizing participants' exercise sessions, outcomes and clinical issues into an appropriate medical record.
	<b>DOMAIN IV: LEADERSHIP &amp; COUNSELING</b> <b>A. Educate the participant about performance and progression of aerobic, strength and flexibility exercise programs.</b>
IV.A.1.a	Knowledge of physiological responses, signs, and symptoms to exercise associated with different pathologies (i.e., cardiovascular, pulmonary, metabolic).
IV.A.1.b	Knowledge of exercise (as written above) principles (prescription, progression/maintenance and supervision) for apparently healthy participants and participants with cardiovascular, pulmonary, and/or metabolic diseases.
IV.A.1.c	Knowledge of exercise progression, maintenance and supervision for apparently healthy participants and participants with cardiovascular, pulmonary, and/or metabolic diseases.
IV.A.1.d	Knowledge of tools for measuring clinical exercise tolerance (e.g., heart rate, glucometry, subjective rating scales).
IV.A.1.e	Knowledge of the application and instruction of muscle strength/endurance and flexibility modalities.
IV.A.1.f	Knowledge of exercise modalities and the operation of associated equipment.
IV.A.1.g	Knowledge of proper biomechanical techniques (e.g., gait assessment, resistance training form).
IV.A.1.h	Knowledge of methods to educate participant in proper exercise programming and progression.
IV.A.1.i	Knowledge of the timing of daily activities with exercise (e.g., medications, meals, insulin/ glucose monitoring).

IV.A.1.j	Knowledge of disease-specific strategies and tools to improve exercise tolerance (e.g., breathing techniques, insulin pump use, prophylactic nitroglycerin).
IV.A.1.k	Knowledge of behavioral strategies for improving exercise adoption and maintenance.
IV.A.1.l	Knowledge of barriers to exercise compliance and associated strategies (e.g., physical, psychological, environmental).
IV.A.2.a	Skill in communication of exercise techniques, prescription and progression.
IV.A.2.b	Skill in the assessment of participant symptoms, biomechanics and exercise effort.
	<b>DOMAIN IV: LEADERSHIP &amp; COUNSELING</b>
	<b>B. Provide disease management and risk factor reduction education based on the participant's medical history, needs and goals.</b>
IV.B.1.a	Knowledge of education program development based on participant's medical history, needs and goals.
IV.B.1.b	Knowledge of methods to educate participant in risk factor reduction.
IV.B.1.c	Knowledge of published national standards on risk factors for cardiovascular, pulmonary and metabolic disease.
IV.B.1.d	Knowledge of risk factor reduction programs and alternative community resources (e.g., dietary counseling/Weight Watchers®, smoking cessation, physical therapy/back care).
IV.B.1.e	Knowledge of strategies to improve participant compliance to risk factor reduction.
IV.B.1.f	Knowledge of goal development strategies.
IV.B.1.g	Knowledge of counseling techniques.
IV.B.1.h	Knowledge of validated tools for measurement of psychosocial health status (e.g., SF-36, trait-anxiety, Beck depression).
IV.B.1.i	Knowledge of psychological issues associated with acute and chronic illness (e.g., anxiety, depression, social isolation, suicidal ideation).
IV.B.1.j	Knowledge of outcome evaluation methods (e.g., AACVPR outcomes model).
IV.B.2.a	Skill in communicating with participants from a wide variety of backgrounds.
IV.B.2.b	Skill in selection of participant outcome parameters.
	<b>DOMAIN IV: LEADERSHIP &amp; COUNSELING</b>
	<b>C. Create a positive environment for participant adherence and outcomes by incorporating effective motivational skills, communication techniques and behavioral strategies.</b>
IV.C.a	Knowledge of current behavior facilitation theories (e.g., health-belief model, transtheoretical model).
IV.C.b	Knowledge of behavioral strategies and coaching methods for improving exercise adoption and maintenance.
IV.C.c	Knowledge of communication strategies that foster a positive environment.
IV.C.d	Knowledge of methods to educate participant in motivational skills and behavioral strategies.
IV.C.e	Knowledge of barriers to exercise compliance (e.g., physical, psychological, environmental).
IV.C.f	Knowledge of community resources available for participant use following discharge from the program.
	<b>DOMAIN IV: LEADERSHIP &amp; COUNSELING</b>
	<b>D. Collaborate and consult with health care professionals to address clinical issues and provide referrals to optimize participant outcomes.</b>
IV.D.1.a	Knowledge of cardiovascular, pulmonary and metabolic pathologies, clinical progression, diagnostic testing, medical regimens and treatment procedures.
IV.D.1.b	Knowledge of techniques to determine participant's medical history through available documentation.
IV.D.1.c	Knowledge of commonly used medication for cardiovascular, pulmonary and metabolic diseases.
IV.D.1.d	Knowledge of tools for measuring clinical exercise tolerance (e.g., heart rate, glucometry, subjective rating scales).
IV.D.1.e	Knowledge of risk factor reduction programs and alternative community resources (e.g., dietary counseling/Weight Watchers®, smoking cessation, physical therapy/back care).
IV.D.1.f	Knowledge of psychological issues associated with acute and chronic illness (e.g., anxiety, depression, suicidal ideation).
IV.D.1.g	Knowledge of assessment tools to measure psychosocial health status.
IV.D.1.h	Knowledge of accepted methods of referral.
IV.D.1.i	Knowledge of community resources available for participant use following program discharge.
IV.D.2.a	Skill in collaborative decision making.
IV.D.2.b	Skill in interpretation of psychosocial assessment tools.
	<b>DOMAIN V: LEGAL AND PROFESSIONAL CONSIDERATIONS</b>
	<b>A. Evaluate the exercise environment to minimize risk and optimize safety by following routine inspection procedures based on established facility and industry standards and guidelines.</b>

V.A.1.a	Knowledge of government and industry standards and guidelines (e.g., AACVPR, HIPAA, OSHA (Occupational Health and Safety Administration)).
V.A.1.b	Knowledge of the operation, calibration and maintenance of exercise equipment.
	<b>DOMAIN V: LEGAL AND PROFESSIONAL CONSIDERATIONS</b> <b>B. Perform regular inspections of emergency equipment and practice emergency procedures (e.g., crash cart, advanced cardiac life support procedures, activation of emergency medical system).</b>
V.B.1.a	Knowledge of standards of practice during emergency situations (e.g., American Heart Association).
V.B.1.b	Knowledge of local and institutional procedures for activation of the emergency medical system.
V.B.1.c	Knowledge of standards for inspection of emergency medical equipment.
V.B.2.a	Skill in the application of basic life support procedures and external defibrillator use.
	<b>DOMAIN V: LEGAL AND PROFESSIONAL CONSIDERATIONS</b> <b>C. Promote awareness and accountability and minimize risk by informing participants of safety procedures, self-monitoring of exercise and related symptoms.</b>
V.C.1.a	Knowledge of signs and symptoms of exercise intolerance.
V.C.1.b	Knowledge of the timing of daily activities with exercise (e.g., medications, meals, insulin/glucose monitoring).
V.C.1.c	Knowledge of commonly used medications for cardiovascular, pulmonary and metabolic diseases.
V.C.1.d	Knowledge of communication techniques to ensure safety in participant's self-monitoring and symptom management.
V.C.1.e	Knowledge of contraindicated and higher risk exercises, and proper exercise form to minimize risk.
V.C.2.a	Skill in the instruction and modification of exercises to minimize risk of injury.
	<b>DOMAIN V: LEGAL AND PROFESSIONAL CONSIDERATIONS</b> <b>D. Comply with Health Insurance Portability and Accountability Act (HIPAA) laws and industry-accepted professional, ethical and business standards in order to maintain confidentiality, optimize safety, and reduce liability.</b>
V.D.1.a	Knowledge of HIPAA regulations relative to documentation and protecting patient privacy (e.g., written and electronic medical records).
V.D.1.b	Knowledge of the use and limitations of informed consent.
V.D.1.c	Knowledge of advanced directives and implications for rehabilitation programs.
V.D.1.d	Knowledge of professional responsibilities and their implications related to liability and negligence.
	<b>DOMAIN V: LEGAL AND PROFESSIONAL CONSIDERATIONS</b> <b>E. Promote a positive image of the program by engaging in healthy lifestyle practices.</b>
V.E.1.a	Knowledge of common sources of health information, education and promotion techniques.
V.E.2.a	Skill in the practice and demonstration of a healthy lifestyle.
	<b>DOMAIN V: LEGAL AND PROFESSIONAL CONSIDERATIONS</b> <b>F. Select and participate in continuing education programs that enhance knowledge and skills on a continuing basis, maximize effectiveness and increase professionalism in the field.</b>
V.F.1.a	Knowledge of continuing education opportunities as required for maintenance of professional credentials.
V.F.1.b	Knowledge of total quality management (TQM) and continuous quality improvement (CQI) concepts and application to personal professional growth.

## Performance Domains and Associated Competencies for Programs in Clinical Exercise Physiology

The curriculum for the Clinical Exercise Physiology program must include the performance domains and associated competencies listed below.

### INSTITUTIONAL COMPETENCIES MATCHING FORM

#### Clinical Exercise Physiology

	<b>Performance Domains and Associated Job Tasks</b>	<b>Course prefix, number and name</b> Example Course Title: MOV 304 Physiology of Activity
	<b>DOMAIN I: PATIENT ASSESSMENT</b>	
	<b>A. Assess a patients’s medical record for information related to their visit.</b>	
I.A.1.a	Knowledge of he procedure to obtain patient’s medical history through available documentation.	
I.A.1.b	Knowledge of the necessary medical records needed to properly assess a patient, given their diagnosis and/or reason for referral.	
I.A.1.c	Knowledge of the procedure to obtain physician referral and medical records required for program participation.	
I.A.1.d	Knowledge of information and documentation required for program participation.	
I.A.1.e	Knowledge of the epidemiology, pathophysiology, progression, risk factors, key clinical findings, and treatments of chronic diseases.	
I.A.1.f	Knowledge of the techniques (e.g., lab results, diagnostic tests) used to diagnose chronic diseases, their indications, limitations, risks, normal and abnormal results.	
I.A.1.g	Knowledge of medical charting, terminology and common acronyms.	
I.A.2.a	Skill in interpreting information from medical records in patient care and/or exercise prescription.	
I.A.2.b	Skill in assessing various vital signs.	
I.A.2.c	Skill in assessing participant physician referral and/or medical records to determine program participation status.	
	<b>DOMAIN I: PATIENT ASSESSMENT</b>	
	<b>B. Interview patient regarding medical hisotry for their visit and reconcile medications.</b>	
I.B.1.a	Knowledge of establishment of rapport through health counseling techniques (e.g., the patient-centered approach), and nonjudgmental positive regard in creation of collaborative partnership.	
I.B.1.b	Knowledge of use of open-ended inquiry, active listening and attention to nonverbal behavior, interest and empathy.	
I.B.1.c	Knowledge of information and documentation required for program participation.	
I.B.1.d	Knowledge of the procedure to obtain informed consent from patient to meet legal requirements.	
I.B.1.e	Knowledge of commonly used medications in patients with chronic diseases, their mechanisms of action, and side effects.	
I.B.1.f	Knowledge of medical charting, terminology and common acronyms.	
I.B.2.a	Skill in administering informed consent.	
I.B.2.b	Skill in interviewing patient for medical history pertinent to the reason for their visit and reconciling medications.	

I.B.2.c	Skill in active listening and usage of health counseling techniques.	
I.B.2.d	Skill in data collection during baseline intake assessment.	
I.B.2.e	Skill in proficiency in medical charting.	
	<b>DOMAIN I: PATIENT ASSESSMENT</b> <b>C. Obtain and assess resting biometric data (e.g. height, weight, ECG, arterial oxygen saturation, blood glucose, body composition, spirometry).</b>	
I.C.1.a	Knowledge of best practice-based intake assessment tools and techniques to assess and interpret clinical and health measures (e.g., height, weight, anthropometrics, body mass index, resting energy expenditure).	
I.C.1.b	Knowledge of medical therapies for chronic diseases and their effect on resting vital signs and symptoms.	
I.C.1.c	Knowledge of normal cardiovascular, pulmonary and metabolic anatomy and physiology.	
I.C.1.d	Knowledge of techniques for assessing signs and symptoms (e.g., peripheral pulses, blood pressure, edema, pain).	
I.C.1.e	Knowledge of 12-lead and telemetry ECG interpretation for normal sinus rate and rhythm or abnormalities (e.g., arrhythmias, blocks, ischemia, infarction).	
I.C.1.f	Knowledge of ECG changes associated with, but not limited to, drug therapy, electrolyte abnormalities, myocardial injury and infarction, congenital defects, pericarditis, pulmonary embolus and the clinical significance of each.	
I.C.2.a	Skill in administering and interpreting resting biometric data to determine baseline health status.	
I.C.2.b	Skill in preparing a patient and ECG electrode application for resting ECGs.	
I.C.2.c	Skill in assessing vital signs and symptoms at rest.	
I.C.2.d	Skill in assessing ankle brachial index using a hand-held Doppler	
	<b>DOMAIN I: PATIENT ASSESSMENT</b> <b>D. Determine a sufficient level of monitoring/supervision based on a preparticipation health screening.</b>	
I.D.1.a	Knowledge of normal physiologic responses to exercise.	
I.D.1.b	Knowledge of abnormal responses/signs/symptoms to exercise associated with different pathologies (e.g., cardiovascular, pulmonary, metabolic).	
I.D.1.c	Knowledge of pertinent areas of a patient's medical history (e.g., any symptoms since their procedure, description of discomfort/pain, orthopedic issues).	
I.D.1.d	Knowledge of indications and contraindications to exercise testing and training.	
I.D.1.e	Knowledge of current published guidelines for treatment of cardiovascular, pulmonary and metabolic pathologies (e.g., American College of Cardiology/American Heart Association [ACC/AHA] Joint Guidelines, Global Initiative for Chronic Obstructive Lung Disease [GOLD], American Diabetes Association [ADA]).	
I.D.1.f	Knowledge of industry recognized preparticipation health screening practices (e.g., the Physical Activity Readiness Questionnaire for Everyone [PAR-Q+], ACSM's preparticipation screening algorithm).	
I.D.1.g	Knowledge of medical therapies for chronic diseases and their effect on the physiologic response to exercise.	
I.D.1.h	Knowledge of the timing of daily activities (e.g., medications, dialysis, meals, glucose monitoring) and their effect on exercise in patients with chronic diseases.	
I.D.1.i	Knowledge of abnormal signs and symptoms in apparently healthy individuals and those with chronic disease.	
I.D.1.j	Knowledge of methods used to obtain a referral for clinical exercise physiology services.	
I.D.2.a	Skill in implementing industry-recognized preparticipation health screening practices.	
I.D.2.b	Skill in administering informed consent.	
I.D.2.c	Skill in selecting an exercise test based on a patient's disease, condition and ability.	
I.D.2.d	Skill in determining risk and level of monitoring of patient using health history, medical history, medical records and additional diagnostic assessments.	
I.D.2.e	Skill in modifying exercise/physical activity program in response to medication use, timing and side effects.	

	<b>DOMAIN I: PATIENT ASSESSMENT</b> <b>E. Assess patient goals, needs and objectives based on health and exercise history, motivation level and physical activity readiness.</b>	
I.E.1.a	Knowledge of patient-centered health counseling techniques with nonjudgmental positive regard.	
I.E.1.b	Knowledge of assessment of patient goals and exercise history through use of open-ended inquiry, active listening and attention to nonverbal behavior and reflective listening.	
I.E.1.c	Knowledge of the effects of a sedentary lifestyle, including extended periods of physical inactivity and approaches to counteract these changes.	
I.E.1.d	Knowledge of behavior modification tools and techniques to assess patient's expectations, goals and motivation level (e.g., health literacy, identification of real and perceived barriers, decisional balance).	
I.E.1.e	Knowledge of common barriers to exercise compliance and adherence (e.g., physical/disease state, environmental, demographic, vocation).	
I.E.1.f	Knowledge of known demographic factors related to likelihood of adherence and maintenance of exercise (e.g., age, gender, socioeconomic status, education, ethnicity).	
I.E.1.g	Knowledge of characteristics associated with poor adherence to healthy behaviors (e.g., low self-efficacy, poor social support).	
I.E.1.h	Knowledge of psychological issues associated with acute and chronic illness (e.g., anxiety, depression, social isolation, suicidal ideation).	
I.E.1.i	Knowledge of validated tools for measurement of psychosocial health status.	
I.E.1.j	Knowledge of a variety of behavioral assessment tools (e.g., SF-36, health-related quality of life, Chronic Respiratory Disease Questionnaire) and strategies for their use.	
I.E.1.k	Knowledge of recognizing adverse effects of exercise in apparently healthy persons or those with chronic disease.	
I.E.2.a	Skill in active listening and behavior modification techniques.	
I.E.2.b	Skill in counseling techniques and strategies to overcome real and perceived barriers.	
I.E.2.c	Skill in applying health behavior theories and strategies to strengthen patient barriers self-efficacy and optimize compliance and adherence in support of achievement of goals.	
I.E.2.d	Skill in adapting/modifying an exercise program based on unique needs of a patient.	
I.E.2.e	Skill in administering commonly used screening tools to evaluate mental health status.	
	<b>DOMAIN II: EXERCISE TESTING</b> <b>A. Select, administer and interpret submaximal aerobic exercise tests (e.g., treadmill, step-test, 6-minute walk).</b>	
II.A.1.a	Knowledge of tests to assess submaximal aerobic endurance.	
II.A.1.b	Knowledge of the acute and chronic responses to aerobic exercise on the function of the cardiovascular, respiratory, musculoskeletal, neuromuscular, metabolic, endocrine and immune systems in trained and untrained individuals.	
II.A.1.c	Knowledge of the mechanisms underlying the acute and chronic responses to aerobic exercise on the function of the cardiovascular, respiratory, musculoskeletal, neuromuscular, metabolic, endocrine and immune systems in trained and untrained individuals.	
II.A.1.d	Knowledge of the effect of chronic diseases on acute and chronic responses to aerobic exercise.	
II.A.1.e	Knowledge of standard and/or disease-specific endpoints for submaximal aerobic exercise tests in apparently healthy individuals and those with chronic disease.	
II.A.1.f	Knowledge of typical submaximal aerobic test results and physiological values in trained and untrained individuals and those with and without chronic diseases.	
II.A.1.g	Knowledge of abnormal signs and symptoms in apparently healthy individuals and those with chronic disease.	
II.A.1.h	Knowledge of abnormal readings and results from exercise testing equipment (e.g., treadmill, ergometers, electrocardiograph, spirometer, metabolic cart, sphygmomanometer) that may indicate equipment malfunction.	
II.A.1.i	Knowledge of commonly used medications in patients with chronic diseases, their mechanisms of action and side effects.	
II.A.2.a	Skill in selecting the appropriate exercise test based on a patient's disease, condition and ability.	

II.A.2.b	Skill in administering and interpreting of submaximal aerobic exercise tests.	
II.A.2.c	Skill in modifying submaximal aerobic test and/or interpretation of results in response to medication use, timing and side effects.	
	<b>DOMAIN II: EXERCISE TESTING</b> <b>B. Select, administer and interpret tests to assess musculoskeletal fitness, mobility and balance.</b>	
II.B.1.a	Knowledge of tests to assess muscular strength, muscular endurance, flexibility and mobility.	
II.B.1.b	Knowledge of the acute and chronic responses to resistance exercise on the function of the cardiovascular, respiratory, musculoskeletal, neuromuscular, metabolic, endocrine and immune systems in trained and untrained individuals.	
II.B.1.c	Knowledge of tests to assess function and balance.	
II.B.1.d	Knowledge of the acute and chronic responses to flexibility and mobility exercise on the function of the cardiovascular, respiratory, musculoskeletal, neuromuscular, metabolic, endocrine and immune systems.	
II.B.1.e	Knowledge of the mechanisms underlying the acute and chronic responses to resistance exercise on the function of the cardiovascular, respiratory, musculoskeletal, neuromuscular, metabolic, endocrine and immune systems in trained and untrained individuals.	
II.B.1.f	Knowledge of the effects of chronic diseases and their treatments on acute and chronic responses to resistance exercise, and an individual's flexibility and mobility.	
II.B.1.g	Knowledge of standard and/or disease-specific endpoints for muscular strength, endurance, functional and balance testing in apparently healthy individuals and those with chronic disease.	
II.B.1.h	Knowledge of typical muscular strength, muscular endurance, functional and balance test results and physiological values in trained and untrained individuals and those with and without chronic diseases.	
II.B.1.i	Knowledge of commonly used medications in patients with chronic diseases, their mechanisms of action and side effects.	
II.B.2.a	Skill in selecting an exercise test based on a patient's disease, condition and ability.	
II.B.2.b	Skill in administering and interpreting tests to assess muscular strength and endurance.	
II.B.2.c	Skill in administering and interpreting functional and balance tests.	
II.B.2.d	Skill in modifying musculoskeletal fitness, mobility and balance tests and/or interpretation of results in response to medication use, timing and side effects.	
	<b>DOMAIN II: EXERCISE TESTING</b> <b>C. Select, prepare and administer maximal, symptom-limited exercise tests.</b>	
II.C.1.a	Knowledge of contraindications to symptom-limited, maximal exercise testing and factors associated with complications (e.g., probability of coronary heart disease, abnormal blood pressure).	
II.C.1.b	Knowledge of medical therapies for chronic diseases and their effect on the physiologic response to exercise.	
II.C.1.c	Knowledge of current practice guidelines/recommendations (e.g., AHA, Arthritis Foundation, National Multiple Sclerosis Society) for the prevention, evaluation, treatment and management of chronic diseases.	
II.C.1.d	Knowledge of the timing of daily activities (e.g., medications, dialysis, meals, glucose monitoring) and their effect on exercise in patients with chronic diseases.	
II.C.1.e	Knowledge of cardiovascular, pulmonary and metabolic pathologies, their clinical progression, diagnostic testing and medical regimens/procedures to treat.	
II.C.1.f	Knowledge of normal and abnormal endpoints (i.e., signs/symptoms) for termination of exercise testing.	
II.C.1.g	Knowledge of abnormal signs and symptoms in apparently healthy individuals and those with chronic disease.	
II.C.1.h	Knowledge of medical therapies for chronic diseases and their effect on resting vital signs and symptoms.	
II.C.1.i	Knowledge of commonly used medications in patients with chronic diseases, their mechanisms of action and side effects.	
II.C.1.j	Knowledge of procedures to prepare a patient for ECG monitoring, including standard and modified lead placement.	

II.C.1.k	Knowledge of tools to guide exercise intensity (e.g., heart rate, perceived exertion, dyspnea scale, pain scale).	
II.C.1.l	Knowledge of the use of effective communication techniques (e.g., active listening and attention to nonverbal behavior, open-ended questioning, reflective listening skills) to address any concerns with the exam procedures.	
II.C.1.m	Knowledge of tests to assess maximal exercise tolerance.	
II.C.1.n	Knowledge of the physiologic responses during incremental exercise to maximal exertion in trained and untrained individuals and those with and without chronic diseases.	
II.C.1.o	Knowledge of standard and/or disease-specific endpoints for maximal exercise testing in apparently healthy individuals and those with chronic disease.	
II.C.1.p	Knowledge of typical maximal exercise test results and physiological values in trained and untrained individuals and those with and without chronic diseases.	
II.C.1.q	Knowledge of medical therapies for chronic diseases and their effect on clinical measurements and the physiologic response to maximal exercise.	
II.C.2.a	Skill in administering a symptom-limited, maximal exercise test.	
II.C.2.b	Skill in preparing a patient for ECG monitoring during exercise.	
II.C.2.c	Skill in assessing vital signs and symptoms at rest and during exercise.	
II.C.2.d	Skill in interpreting ECG rhythms and 12-lead ECGs.	
	<b>DOMAIN II: EXERCISE TESTING</b> <b>D. Evaluate and report results from a symptom-limited maximal exercise test to medical providers and in the medical record as required.</b>	
II.D.1.a	Knowledge of the effects of chronic diseases on acute responses to maximal exercise.	
II.D.1.b	Knowledge of standard and/or disease-specific endpoints for maximal exercise testing in apparently healthy individuals and those with chronic disease.	
II.D.1.c	Knowledge of abnormal signs and symptoms in apparently healthy individuals and those with chronic disease during maximal exercise testing.	
II.D.1.d	Knowledge of typical maximal exercise test results and physiological values in trained and untrained individuals and those with and without chronic diseases.	
II.D.1.e	Knowledge of medical therapies for chronic diseases and their effect on clinical measurements and the physiologic response to maximal exercise.	
II.D.1.f	Knowledge of the interpretation of maximal exercise test measures (e.g., ECG response, oxygen saturation, rate-pressure product, claudication) and prognostic tools (e.g., Duke Treadmill Score) in context with the indication for the test, termination reason and the patient's medical history.	
II.D.2.a	Skill in interpreting and reporting results from a symptom-limited, maximal exercise test.	
	<b>DOMAIN II: EXERCISE TESTING</b> <b>E. Identify relative and absolute contraindications for test termination and report to medical personnel as needed.</b>	
II.E.1.a	Knowledge of absolute contraindications and endpoints for terminating exercise testing.	
II.E.2.a	Skill in interpreting and reporting results from a symptom-limited, maximal exercise test.	
II.E.2.	Skill in assessing vital signs and symptoms at rest and during exercise.	
II.E.2.c	Skill in interpreting ECG rhythms and 12-lead ECGs.	
	<b>DOMAIN III: EXERCISE PRESCRIPTION</b> <b>A. Develop individualized exercise prescription to support patient needs and goals for various exercise environments (e.g., home/community based, facility based, virtual).</b>	
III.A.1.a	Knowledge of appropriate mode, volume and intensity of exercise to produce favorable outcomes in apparently healthy individuals and those with chronic disease.	

III.A.1.b	Knowledge of the FITT-VP (frequency, intensity, time, type, volume, progression) principle for aerobic, muscular fitness/resistance training and flexibility exercise prescription.	
III.A.1.c	Knowledge of the benefits and risks of aerobic, resistance and flexibility exercise training in apparently healthy individuals and those with chronic disease.	
III.A.1.d	Knowledge of the effects of physical inactivity and methods to counteract these changes.	
III.A.1.e	Knowledge of normal and abnormal physiologic responses to exercise in healthy individuals and those with chronic diseases.	
III.A.1.f	Knowledge of the timing of daily activities (e.g., medications, dialysis, meals, glucose monitoring) and their effect on exercise training in patients with chronic diseases.	
III.A.1.g	Knowledge of disease-specific strategies or tools (e.g., breathing techniques, assistive devices, prophylactic nitroglycerin) to improve exercise tolerance in patients with chronic disease.	
III.A.1.h	Knowledge of appropriate modifications to the exercise prescription in response to environmental conditions in apparently healthy individuals and those with chronic disease.	
III.A.1.i	Knowledge of current practice guidelines/recommendations (e.g., U.S. Department of Health and Human Services, American College of Sports Medicine, Arthritis Foundation) for exercise prescription in apparently healthy individuals and those with chronic disease.	
III.A.1.j	Knowledge of applying metabolic calculations.	
III.A.1.k	Knowledge of proper biomechanical technique for exercise (e.g., gait assessment, proper weight lifting form).	
III.A.1.l	Knowledge of muscle strength/endurance and flexibility modalities and their safe application and instruction.	
III.A.1.m	Knowledge of principals and application of exercise session organization.	
III.A.1.n	Knowledge of known demographic factors related to likelihood of adherence and maintenance of exercise (e.g., age, gender, socioeconomic status, education, ethnicity, vocation).	
III.A.1.o	Knowledge of psychological issues associated with acute and chronic illness (e.g., anxiety, depression, social isolation, suicidal ideation).	
III.A.1.p	Knowledge of goal setting (e.g., SMART goals), reviewing, and constructive feedback in identifying barriers and reinforcing positive changes.	
III.A.1.q	Knowledge of risk factor reduction programs and alternative community resources (e.g., dietary counseling, weight management, smoking cessation, stress management, physical therapy/back care).	
III.A.1.r	Knowledge of incorporating health behavior theories into clinical practice.	
III.A.2.a	Skill in interpreting functional and diagnostic exercise testing with applications to exercise prescription.	
III.A.2.b	Skill in interpreting muscular strength/endurance testing with applications to exercise prescription.	
III.A.2.c	Skill in developing an exercise prescription based on a participant's clinical status and goals.	
III.A.2.d	Skill in applying metabolic calculations.	
III.A.2.e	Skill in applying strategies to reduce risk of adverse events during exercise (e.g., gait belt, blood glucose monitoring).	
III.A.2.f	Skill in individualizing home exercise programs.	
III.A.2.g	Skill in optimizing patient compliance and adherence of exercise prescription.	
	<b>DOMAIN III: EXERCISE PRESCRIPTION</b> <b>B. Communicate the exercise prescription, including the use of exercise equipment, and the importance of promptly reporting any adverse reactions or symptoms.</b>	
III.B.1.a	Knowledge of normal and abnormal physiologic responses to exercise in healthy individuals and those with chronic diseases.	
III.B.1.b	Knowledge of the timing of daily activities (e.g., medications, dialysis, meals, glucose monitoring) and their effect on exercise training in patients with chronic diseases and how to communicate this information with patient.	
III.B.1.c	Knowledge of lay terminology for explanation of exercise prescription.	

III.B.1.d	Knowledge of the operation of various exercise equipment/modalities.	
III.B.1.e	Knowledge of proper biomechanical technique for exercise (e.g., gait assessment, proper weight lifting form).	
III.B.1.f	Knowledge of muscle strength/endurance and flexibility modalities and their safe application and instruction.	
III.B.1.g	Knowledge of principals and application of exercise session organization.	
III.B.1.h	Knowledge of proper protocol to report adverse symptoms per facility policy.	
III.B.2.a	Skill in communicating exercise prescription, exercise techniques and organization of exercises.	
	<b>DOMAIN III: EXERCISE PRESCRIPTION</b> <b>C. Explain and confirm patient understanding of exercise intensity and measures to assess exercise intensity (e.g., target heart rate, RPE, signs/symptoms, talk test).</b>	
III.C.1.a	Knowledge of tools to guide exercise intensity (e.g., heart rate, RPE, dyspnea scale, pain scale, talk test).	
III.C.1.b	Knowledge of abnormal signs and symptoms during exercise training in apparently healthy individuals and those with chronic disease.	
III.C.1.c	Knowledge of clear communication using patient learning style and/or health literacy to explain exercise intensity assessment.	
III.C.1.d	Knowledge of clear communication through effective communication techniques (e.g., active listening and attention to nonverbal behavior, open-ended questioning, reflective listening skills).	
III.C.2.a	Skill in teaching methods used to guide exercise intensity.	
	<b>DOMAIN III: EXERCISE PRESCRIPTION</b> <b>D. Evaluate and modify the exercise prescription based on the patient's compliance, signs/symptoms and physiologic response to the exercise program, as needed.</b>	
III.D.1.a	Knowledge of physiologic effects due to changes in medical therapies for chronic diseases and their impact on exercise training.	
III.D.1.b	typical responses to aerobic, resistance and flexibility training in apparently healthy individuals and those with chronic disease.	
III.D.1.c	Knowledge of the timing of daily activities (e.g., medications, dialysis, meals, glucose monitoring) and their effect on exercise in patients with chronic diseases.	
III.D.1.d	Knowledge of disease-specific strategies or tools (e.g., breathing techniques, assistive devices, prophylactic nitroglycerin) to improve exercise tolerance in patients with chronic disease.	
III.D.1.e	Knowledge of abnormal signs and symptoms during exercise training in apparently healthy individuals and those with chronic disease.	
III.D.1.f	Knowledge of mode, volume and intensity of exercise to produce favorable outcomes in apparently healthy individuals and those with chronic disease.	
III.D.1.g	Knowledge of commonly used medications in patients with chronic diseases, their mechanisms of action and side effects.	
III.D.1.h	Knowledge of modifications to the exercise prescription in response to environmental conditions in apparently healthy individuals and those with chronic disease.	
III.D.1.i	Knowledge of	
III.D.1.j	Knowledge of participant progress in a preventive and rehabilitative exercise program given gender, age, clinical status, pre-program fitness level, specifics of the exercise program (e.g., walking only vs. comprehensive monitored program) and rate of program participation.	
III.D.2.a	Skill in helping patients identify barriers and providing strategies to overcome them.	
III.D.2.b	Skill in assessing adequacy of patient's progress in a preventive or rehabilitative exercise program given age, sex, gender, clinical status, specifics of the exercise program and rate of program participation.	
III.D.2.c	Skill in developing an individualized exercise prescription.	
III.D.2.d	Skill in using patient feedback and developing individualized exercise prescription and/or care plan.	
III.D.2.e	Skill in active listening.	

III.D.2.f	Skill in modifying an exercise prescription specifically to meet a patient's individual needs and goals.	
	<b>DOMAIN IV: EXERCISE TRAINING AND LEADERSHIP</b>	
	<b>A. Discuss and explain exercise training plan, patient and clinician expectations and goals.</b>	
IV.A.1.a	Knowledge of health counseling techniques (e.g., the patient-centered approach) and nonjudgmental positive regard in creation of collaborative partnership.	
IV.A.1.b	Knowledge of effective communication techniques, while using clear, patient-friendly terms (e.g., active listening, body language, motivational interviewing).	
IV.A.1.c	Knowledge of factors related to health literacy skills and capacity.	
IV.A.1.d	Knowledge of cardiovascular, pulmonary and metabolic pathologies, and their clinical progression.	
IV.A.1.e	Knowledge of diagnostic testing and medical regimens/procedures to treat.	
IV.A.1.f	Knowledge of the FITT-VP principle (frequency, intensity, time, type, volume, progression) for aerobic, muscular fitness/resistance training and flexibility exercise prescription.	
IV.A.1.g	Knowledge of the timing of daily activities (e.g., medications, dialysis, meals, glucose monitoring) and their effect on exercise training in patients with chronic diseases.	
IV.A.1.h	Knowledge of disease-specific strategies or tools (e.g., breathing techniques, assistive devices, prophylactic nitroglycerin) to improve exercise tolerance in patients with chronic disease.	
IV.A.1.i	Knowledge of exercise training concepts specific to industrial or occupational rehabilitation, such as work hardening, work conditioning, work fitness and job coaching.	
IV.A.1.j	Knowledge of commonly used medication for cardiovascular, pulmonary and metabolic diseases.	
IV.A.2.a	Skill in identifying unique needs of those with chronic diseases in exercise prescription.	
IV.A.2.b	Skill in communicating the exercise prescription and related exercise programming techniques.	
IV.A.2.c	Skill in educating patients following the observation of problems with comprehension and performance of their exercise program.	
IV.A.2.d	Skill in applying techniques to reduce risks of adverse events during exercise (e.g., gait belt, blood glucose monitoring).	
IV.A.2.e	Skill in educating participants on the use and effects of medications.	
IV.A.2.f	Skill in communicating with participants from a wide variety of educational backgrounds.	
IV.A.2.g	Skill in using patient feedback to develop individualized exercise prescription and/or care plan.	
IV.A.2.h	Skill in active listening.	
	<b>DOMAIN IV: EXERCISE TRAINING AND LEADERSHIP</b>	
	<b>B. Identify, adapt and instruct in cardiorespiratory fitness, muscular strength and endurance, flexibility, coordination and agility exercise modes.</b>	
IV.B.1.a	Knowledge of the selection, operation and modification of exercise equipment/modalities based on the disease, condition and ability of the individual.	
IV.B.1.b	Knowledge of proper biomechanical technique for exercise (e.g., gait, weight lifting form).	
IV.B.1.c	Knowledge of exercise techniques to reduce risk and maximize the development of cardiorespiratory fitness, muscular strength and flexibility.	
IV.B.1.d	Knowledge of mode, volume and intensity of exercise to produce favorable outcomes in apparently healthy individuals and those with chronic disease.	
IV.B.1.e	Knowledge of disease-specific strategies or tools (e.g., breathing techniques, assistive devices, prophylactic nitroglycerin) to improve exercise tolerance in patients with chronic disease.	
IV.B.1.f	Knowledge of counseling techniques to optimize participant's disease management, risk reduction and goal attainment.	
IV.B.1.g	Knowledge of modifications to the exercise prescription in response to environmental conditions in apparently healthy individuals and those with chronic disease.	

IV.B.1.h	Knowledge of the benefits and risks of aerobic, resistance and flexibility training in apparently healthy individuals and those with chronic disease.	
IV.B.2.a	Skill in identifying unique needs and goals of a patient and adapting/modifying an exercise program.	
IV.B.2.b	Skill in supervising and leading patients during exercise training.	
IV.B.2.c	Skill in communicating the exercise prescription and related exercise programming techniques.	
IV.B.2.d	Skill in educating patients following the observation of problems with comprehension and performance of their exercise program.	
<b>DOMAIN IV: EXERCISE TRAINING AND LEADERSHIP</b>		
<b>C. As indicated, provide patient monitoring (e.g., pulse oximetry, biometric data) and supervision during exercise.</b>		
IV.C.1.a	Knowledge of normal and abnormal exercise responses, signs and symptoms associated with different pathologies (i.e., cardiovascular, pulmonary, metabolic, orthopedic/musculoskeletal, neuromuscular, neoplastic, immunologic and hematologic disorders).	
IV.C.1.b	Knowledge of normal and abnormal 12-lead and telemetry ECG interpretation.	
IV.C.1.c	Knowledge of exercise program monitoring (e.g., telemetry, oximetry, glucometry).	
IV.C.1.d	Knowledge of disease-specific strategies or tools (e.g., breathing techniques, assistive devices, prophylactic nitroglycerin) to improve exercise tolerance in patients with chronic disease.	
IV.C.1.e	Knowledge of the benefits and risks of aerobic, resistance and flexibility training in apparently healthy individuals and those with chronic disease.	
IV.C.1.f	Knowledge of the components of a patient's medical history necessary to screen during program participation.	
IV.C.1.g	Knowledge of commonly used medications in patients with chronic diseases, their mechanisms of action and side effects.	
IV.C.1.h	Knowledge of the timing of daily activities with exercise (e.g., medications, meals, insulin/glucose monitoring).	
IV.C.1.i	Knowledge of how medications or missed dose(s) of medications impact exercise and its progression.	
IV.C.1.j	Knowledge of psychological issues associated with acute and chronic illness (e.g., depression, social isolation, suicidal ideation).	
IV.C.1.k	Knowledge of health counseling techniques and nonjudgmental positive regard.	
IV.C.2.a	Skill in monitoring and supervising patients during exercise training.	
IV.C.2.b	Skill in interpreting ECG rhythms and 12-lead ECGs.	
IV.C.2.c	Skill in recognizing adverse effects of exercise in apparently healthy persons or those with pathologies of acute and/or chronic disease.	
IV.C.2.d	Skill in applying and interpreting tools for clinical assessment (e.g., telemetry, oximetry and glucometry, perceived rating scales).	
IV.C.2.e	Skill in modifying exercise/physical activity programming in response to medication use, timing and side effects.	
<b>DOMAIN IV: EXERCISE TRAINING AND LEADERSHIP</b>		
<b>D. Evaluate the patient's contraindications to exercise training and associated risk/benefit and modify the exercise/activity program accordingly.</b>		
IV.D.1.a	Knowledge of the contraindications to exercise training and factors associated with complications in apparently healthy individuals and those with chronic disease.	
IV.D.1.b	Knowledge of the benefits and risks of aerobic, resistance and flexibility training in apparently healthy individuals and those with chronic disease.	
IV.D.1.c	Knowledge of abnormal signs and symptoms in apparently healthy individuals and those with chronic disease.	
IV.D.1.d	Knowledge of the acute and chronic responses to exercise training on the function of the cardiovascular, respiratory, musculoskeletal, neuromuscular, metabolic, endocrine and immune systems in trained and untrained individuals.	
IV.D.1.e	Knowledge of cardiovascular, pulmonary and metabolic pathologies, diagnostic testing and medical management regimens and procedures.	

IV.D.2.a	Skill in identifying contraindications to exercise training.	
IV.D.2.b	Skill in modifying the exercise program based on participant's signs and symptoms, feedback and exercise responses.	
	<b>DOMAIN IV: EXERCISE TRAINING AND LEADERSHIP</b> <b>E. Evaluate, document and report patient's clinical status and response to exercise training in the medical records.</b>	
IV.E.1.a	Knowledge of the techniques (e.g., lab results, diagnostic tests) used to diagnose different pathologies, their indications, limitations, risks, normal and abnormal results.	
IV.E.1.b	Knowledge of the acute and chronic responses to exercise training on the function of the cardiovascular, respiratory, musculoskeletal, neuromuscular, metabolic, endocrine, and immune systems in trained and untrained individuals.	
IV.E.1.c	Knowledge of normal and abnormal exercise responses, signs and symptoms associated with different pathologies (i.e., cardiovascular, pulmonary, metabolic, orthopedic/musculoskeletal, neuromuscular, neoplastic, immunologic and hematologic disorders).	
IV.E.1.d	Knowledge of how chronic diseases may affect the acute and chronic responses exercise training.	
IV.E.1.e	Knowledge of abnormal signs or symptoms which may be associated with worsening of a chronic disease.	
IV.E.1.f	Knowledge of proper medical documentation according to generally accepted principles and individual facility standards.	
IV.E.1.g	Knowledge of regulations relative to documentation and protecting patient privacy (e.g., written and electronic medical records, Health Insurance Portability and Accountability Act [HIPAA]).	
IV.E.2.a	Skill in summarizing patient's exercise sessions, outcomes and clinical status into patient's medical record.	
IV.E.2.b	Skill in proficiency in medical charting.	
	<b>DOMAIN IV: EXERCISE TRAINING AND LEADERSHIP</b> <b>F. Discuss clinical status and response to exercise training with patients and adapt and/or modify the exercise program, as indicated.</b>	
IV.F.1.a	Knowledge of common barriers to exercise compliance and adherence (e.g., physical, environmental, demographic).	
IV.F.1.b	Knowledge of effective communication techniques (e.g., active listening, body language).	
IV.F.1.c	Knowledge of techniques to adapt/modify exercise program based on a patient's needs.	
IV.F.1.d	Knowledge of assess patient's individual progress based on known cardiorespiratory fitness, muscular strength, and flexibility improvements expected within a given population.	
IV.F.1.e	Knowledge of assess patient's tolerance to exercise modality and suggest comparable alternative modalities.	
IV.F.2.a	Skill in communicating health information based on a patient's learning style and health literacy.	
IV.F.2.b	Skill in modifying the exercise program based on participant's signs and symptoms, feedback and exercise responses.	
IV.F.2.c	Skill in summarizing patient's exercise sessions, outcomes and clinical status into patient's medical record.	
	<b>DOMAIN IV: EXERCISE TRAINING AND LEADERSHIP</b> <b>G. Promptly report new or worsening symptoms and adverse events in the patient's medical record and consult with the responsible health care provider.</b>	
IV.G.1.a	Knowledge of proper medical documentation according to generally accepted principles and individual facility standards.	
IV.G.1.b	Knowledge of the scope of practice of health care professionals (e.g., physical therapist, nurse, dietician, psychologist).	
IV.G.1.c	Knowledge of abnormal signs and symptoms during exercise training in apparently healthy individuals and those with chronic disease.	
IV.G.1.d	Knowledge of the effects of chronic diseases on the acute and chronic responses to exercise training.	

IV.G.2.a	Skill in assessing normal and abnormal response to exercise.	
IV.G.2.b	Skill in educating patients following the observation of problems with comprehension and performance of their exercise program.	
IV.G.2.c	Skill in evaluating and prompt reporting of a patient's adverse response to an exercise program in accordance with a facility policy and procedures.	
<b>DOMAIN V: EDUCATION AND BEHAVIOR CHANGE</b>		
<b>A. Continually evaluate patients using observation, interaction and industry-accepted tools, to identify those who may benefit from counseling or other mental health services using industry-accepted screening tools.</b>		
V.A.1.a	Knowledge of establishment of rapport through use of open-ended questions, active listening and attention to nonverbal behavior, interest and empathy.	
V.A.1.b	Knowledge of the psychological issues associated with acute and chronic illness (e.g., anxiety, depression, social isolation, hostility, aggression, suicidal ideation).	
V.A.1.c	Knowledge of theories of health behavior change (e.g., Social Cognitive Theory [SCT], Health Belief Model [HBM], Transtheoretical Model [TTM]).	
V.A.1.d	Knowledge of industry accepted screening tools to evaluate mental health status (e.g., SF-36, Beck Depression Index).	
V.A.1.e	Knowledge of signs and symptoms of failure to cope during personal crises (e.g., job loss, bereavement, illness).	
V.A.1.f	Knowledge of accepted methods of referral to behavioral health or other specialist as needed.	
V.A.2.a	Skill in administering commonly used screening tools to evaluate mental health status.	
V.A.2.a	Skill in applying and interpreting psychosocial assessment tools.	
V.A.2.a	Skill in identifying patients who may benefit from behavioral health services.	
<b>DOMAIN V: EDUCATION AND BEHAVIOR CHANGE</b>		
<b>B. Assess patient's understanding of their disease and/or disability and conduct education to teach the role of lifestyle in the prevention, management, and treatment of the disease.</b>		
V.B.1.a	Knowledge of active listening, open-ended questioning, reflective listening skills.	
V.B.1.b	Knowledge of patient-centered health counseling techniques (e.g., Five-A's Model, Motivational Interviewing).	
V.B.1.c	Knowledge of factors related to health literacy skills and capacity.	
V.B.1.d	Knowledge of barriers to exercise compliance (e.g., physical/disease state, psychological environmental, demographic).	
V.B.1.e	Knowledge of social ecological model.	
V.B.1.f	Knowledge of psychological issues associated with acute and chronic illness (e.g., anxiety, depression, suicidal ideation).	
V.B.1.g	Knowledge of theories of health behavior change (e.g., Social Cognitive Theory, Health Belief Model, Transtheoretical Model).	
V.B.1.h	Knowledge of tools to determine a patient's knowledge and their readiness to change (e.g., scoring rulers, decisional balance).	
V.B.1.i	Knowledge of the benefits and risks of aerobic, resistance, flexibility, and balance training in apparently healthy individuals and those with chronic disease.	
V.B.1.j	Knowledge of the health benefits of a physically active lifestyle, the hazards of sedentary behavior, and current recommendations from U.S. national reports on physical activity (e.g., U.S. Surgeon General, National Academy of Medicine).	
V.B.1.k	Knowledge of abnormal signs and symptoms during rest and exercise in apparently healthy individuals and those with chronic disease.	
V.B.1.l	Knowledge of the epidemiology, pathophysiology, progression, risk factors, key clinical findings, and treatments of chronic disease.	
V.B.1.m	Knowledge of education content and program development based on participant's medical history, needs and goals.	
V.B.1.n	Knowledge of medical therapies and commonly used medications for chronic diseases and their effect on resting vital signs, clinical measurements, and the response to exercise.	
V.B.1.o	Knowledge of disease-specific strategies and tools to improve exercise tolerance (e.g., breathing techniques, insulin pump use, prophylactic nitroglycerin).	

V.B.1.p	Knowledge of risk factor reduction strategies (e.g., healthy nutrition, weight management/BMI, body composition, smoking cessation, stress management, back care, substance abuse).	
V.B.2.a	Skill in assessing a patient's educational needs.	
V.B.2.b	Skill in communicating health information based on a patient's learning style and health literacy.	
V.B.2.c	Skill in developing educational materials and programs on disease and the role of lifestyle intervention.	
V.B.2.d	Skill in teaching health information to patient's in individual and group settings.	
V.B.2.e	Skill in communicating exercise techniques, prescription and progression.	
	<b>DOMAIN V: EDUCATION AND BEHAVIOR CHANGE</b> <b>C. Apply health behavior change techniques (e.g., Motivational Interviewing, Cognitive Behavioral Therapy [CBT], Health Coaching) based upon assessment of readiness to change according to Transtheoretical Model (TTM).</b>	
V.C.1.a	Knowledge of active listening, open-ended questioning, reflective listening skills.	
V.C.1.b	Knowledge of barriers to exercise compliance and adherence (e.g., physical/disease state, psychological environmental, demographic, vocational).	
V.C.1.c	Knowledge of known demographic factors related to likelihood of adherence and maintenance of exercise (e.g., age, gender, socioeconomic status, education, ethnicity).	
V.C.1.d	Knowledge of characteristics associated with poor adherence to healthy behaviors.	
V.C.1.e	Knowledge of health counseling techniques (e.g., the patient-centered approach).	
V.C.1.f	Knowledge of goal setting (e.g., SMART goals), reviewing, and constructive feedback in support of patient for best likelihood of achievement of goals.	
V.C.1.g	Knowledge of theories of health behavior change (e.g., Social Cognitive Theory [SCT], Health Belief Model [HBM], Transtheoretical Model ([TTM]).	
V.C.1.h	Knowledge of application of behavior-change techniques (e.g., motivational interviewing, cognitive-behavioral therapy, health coaching).	
V.C.1.i	Knowledge of eliciting change talk by patient through motivational interviewing technique.	
V.C.1j	Knowledge of development of self-efficacy (task and barriers) in exercise behaviors.	
V.C.2.a	Skill in effective use of behavior-change techniques.	
V.C.2.b	Skill in active listening of patient feedback and consideration with decision making of exercise prescription and/or care plan.	
V.C.2.c	Skill in promoting patient engagement in process of fitness and health improvement.	
V.C.2.d	Skill in creating clear communication using medical terminology suitable for patient's health literacy and/or learning style.	
	<b>DOMAIN V: EDUCATION AND BEHAVIOR CHANGE</b> <b>D. Promote adherence to healthy behaviors through a patient centered approach (e.g., addressing barriers, engaging in active listening, expressing interest and empathy, increasing self-efficacy, teaching relapse prevention techniques and identifying support).</b>	
V.D.1.a	Knowledge of establishment of rapport through use of open-ended questions, active listening and attention to nonverbal behavior, interest and empathy.	
V.D.1.b	Knowledge of health counseling techniques (e.g., the patient-centered approach) and nonjudgmental positive regard in creation of collaborative partnership.	
V.D.1.c	Knowledge of theories of health behavior change (e.g., Social Cognitive Theory [SCT], Health Belief Model [HBM], Transtheoretical Model [TTM]).	
V.D.1.d	Knowledge of barriers to exercise compliance and adherence (e.g., physical/disease state, psychological environmental, demographic, vocational).	
V.D.1.e	Knowledge of known demographic factors related to likelihood of adherence and maintenance of exercise (e.g., age, sex, gender, socioeconomic status, education, ethnicity).	
V.D.1.f	Knowledge of tools for measuring clinical exercise tolerance (e.g., heart rate, glucometry, subjective rating scales), and consideration of affect regulation in determining exercise prescription.	

V.D.1.g	Knowledge of risk factor reduction programs and alternative community resources (e.g., wellness coaching, smoking cessation, physical therapy/back care, dietary counseling).	
V.D.1.h	Knowledge of goal setting (i.e., SMART goals), reviewing, and constructive feedback in support of patient for best likelihood of achievement of goals.	
V.D.1.i	Knowledge of eliciting change talk by patient through motivational interviewing technique.	
V.D.1.j	Knowledge of development of self-efficacy (task and barriers) in exercise behaviors.	
V.D.1.k	Knowledge of promotion of patient intrinsic motivation (e.g., supporting feelings of autonomy and competence, positive feedback, enjoyment) in facilitating long-term adherence to exercise.	
V.D.1.l	Knowledge of community resources (exercise and/or health support) available for participant use following program conclusion and/or discharge.	
V.D.1.m	Knowledge of relapse prevention techniques (e.g., proactive problem solving, managing lapses, maintaining high self-efficacy in health behaviors, identifying social support).	
V.D.1.n	Knowledge of guidance of social support (e.g., reassurance, nurturance, supportive exercise groups).	
V.D.2.a	Skill in effective use of behavior-change techniques.	
V.D.2.b	Skill in active listening and receptiveness to patient feedback in decision making of exercise prescription and/or care plan.	
V.D.2.c	Skill in effective communication with participants from a wide variety of backgrounds.	
V.D.2.d	Skill in promoting patient engagement in process of fitness and health improvement.	
	<b>DOMAIN VI: LEGAL AND PROFESSIONAL RESPONSIBILITIES</b> <b>A. Evaluate the exercise environment and perform regular inspections of any emergency equipment and practice emergency procedures (e.g., crash cart, activation of emergency procedures) per industry and regulatory standards and facility guidelines.</b>	
VI.A.1.a	Knowledge of government and industry standards and guidelines (e.g., American Association of Cardiovascular and Pulmonary Rehabilitation [AACVPR], American College of Sports Medicine [ACSM], Academy of Nutrition and Dietetics, Health Insurance Portability and Accountability Act [HIPAA], Joint Commission: Accreditation, Health Care, Certification [JCAHO], Occupational Health and Safety Act [OHSA], Americans with Disabilities Act, American Diabetes Association [ADA]).	
VI.A.1.b	Knowledge of the operation and routine maintenance of exercise equipment.	
VI.A.1.c	Knowledge of current practice guidelines/recommendations for facility layout and design.	
VI.A.1.d	Knowledge of standards of practice during emergency situations (e.g., American Heart Association, American Red Cross).	
VI.A.1.e	Knowledge of local and institutional procedures for activation of the emergency medical system.	
VI.A.1.f	Knowledge of standards for inspection of emergency medical equipment.	
VI.A.1.g	Knowledge of risk-reduction strategies, universal precautions, basic life support, emergency equipment, and standard emergency procedures.	
VI.A.2.a	Skill in adhering to legal guidelines and documents.	
VI.A.2.b	Skill in implementing facility safety policies and procedures.	
VI.A.2.c	Skill in applying basic life support procedures (e.g., Cardiopulmonary resuscitation [CPR], automated external defibrillator [AED]).	
VI.A.2.d	Skill in the use of medical terminology.	
	<b>DOMAIN VI: LEGAL AND PROFESSIONAL RESPONSIBILITIES</b> <b>B. Follow industry-accepted scopes of practice, ethical, legal (e.g., data privacy, informed consent), and business standards.</b>	
VI.A.1.a	Knowledge of professional liability and common types of negligence seen in exercise rehabilitation and exercise testing environments.	
VI.A.1.b	Knowledge of the legal implications of documented safety procedures, the use of incident documents, and ongoing safety training.	
VI.A.1.c	Knowledge of the scope of practice of healthcare professionals (e.g., physical therapist, nurse, dietician, psychologist).	

VI.A.1.d	Knowledge of current practice guidelines/recommendations (e.g., National Heart, Lung, and Blood Institute, Arthritis Foundation, National Multiple Sclerosis Society) for the prevention, evaluation, treatment, and management of chronic diseases.	
VI.A.1.e	Knowledge of regulations relative to documentation and protecting patient privacy (e.g., written and electronic medical records, Health Insurance Portability and Accountability Act [HIPAA]).	
VI.A.2.a	Skill in proficiency in medical charting.	
VI.A.2.b	Skill in applying industry and regulatory standards.	
VI.A.2.c	Skill in adhering to legal guidelines and documents.	
VI.A.2.d	Skill in the use of medical terminology.	