Master of Science

in

Clinical Exercise Physiology

Practicum Handbook

2010 - 2011

Clinical Exercise Physiology program accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) through the American College of Sports Medicine

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Revised August 2010

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ADVANCED PRACTICUM IN CEP HANDBOOK

Welcome

The faculty of Kinesiology believe strongly that an appropriate educational experience, especially one that purports to train clinical practitioners, should have a large clinical component. Therefore, the MS in Clinical Exercise Physiology has a large clinical component. Fulfilling this requirement will mean that you will experience at least 600 clinical hours in a variety of different areas where Clinical Exercise Physiologists practice.

The purpose of this handbook is to give an overview of the Practicum (see course syllabus in Appendix A). While you will see that the Knowledge, Skills and Abilities (KSAs) required will vary by clinical site, the end result of your clinical experience, whether it be 600 or 1200 hours, will be a broad exposure to the common experiences that a Clinical Exercise Physiologist (CEP) will face in practice.

We harbor no illusions that this handbook will answer all of your questions. Therefore, we strongly encourage you to maintain contact with both your advisor and Practicum Supervisor.

Brief History of the Program

The UNC Charlotte Kinesiology program followed the national implementation of the national ACSM Registry of Clinical Exercise Physiologists (RCEP) by implementing a concentration area in CEP within the Health Promotion M.S. degree in 2000. Within two years, the CEP concentration area was attracting 50% of the students in the Health Promotion degree and coupled with a departmental reorganization, it was decided to seek permission to establish a stand-alone Masters degree program in Clinical Exercise Physiology. After two years of planning and considerable effort on the part of the departmental faculty and the Departmental Advisory Board, the University Faculty Council approved the new program and associated curriculum in April 2004 and in October 2004, the State Board of Governors granted permission to implement a M.S. program in CEP starting in January, 2005.

How the Clinical experience is incorporated into the program

When designing the CEP curriculum, the faculty not only used examples from other universities (e.g. Virginia Tech, University of Florida, Northeastern) but also suggestions from our Advisory Board. What we heard repeatedly was that integration of practical, clinical experiences with academic learning was critical to the development of a successful Clinical Exercise Physiologist. Therefore, we have incorporated a minimum of 600 hours of clinical experience into the degree program.

The clinical experience is delivered in 200 hour segments, with the student receiving a one-academic credit for each segment. These one-hour courses are titled "Practicum" courses and the student is required to take at least three before they are allowed to graduate. Students who choose to take the Comprehensive Exam as their capstone experience – as opposed to writing a thesis – are required to complete an additional three Practicum courses (i.e. an additional 600 clinical hours) before they can graduate.

Items to be covered in the Practicum

The UNC Charlotte MS CEP program was developed to meet the knowledge, skills, and abilities (KSAs) delineated by the American College of Sports Medicine for its Registered Clinical Exercise Physiologist (RCEP) national registry. The RCEP KSAs (see *ACSM's Resources for Clinical Exercise Physiology. Lippincott Williams & Wilkins, Philadelphia, PA*) consist of both didactic and experiential items that are split into six (6) practice areas. The KSAs for each practice area that we would like covered within the Practicum experience are listed in Appendix B. As you will note by perusing these KSAs, they are quite extensive and it is likely that some KSAs will be covered by several sites and some will only be covered by individual clinical sites.

IMPORTANT: It is not expected that any one Clinical Site will necessarily cover ALL of the KSAs listed in one practice area. Each clinical site is unique and will deliver specific learning experiences that fall within the KSAs. The Practicum supervisor will meet with the Clinical Preceptor (see next section) at each site to determine the appropriate KSAs for each site.

Qualifications of students assigned to Clinical Sites

Each student that presents for a Clinical Experience will have the following qualifications:

1. Completion of at least 9 credit hours in the program;
2. Current CPR certification (either Red Cross or American Heart Association);
3. Current professional liability insurance;
4. Current immunizations.

Proof of each of these items will be delivered to the Practicum Supervisor and the Clinical Preceptor on the first day of the student's clinical experience.

NOTE: Some clinical sites also require criminal background checks and/or a drug screen. The Clinical Preceptor will notify you of these requirements and then it will be the student's responsibility to complete these items (i.e. the University is not involved in these requirements).

Assignment of students to Clinical Sites

One of the program's goals is to insure that students with appropriate levels of training, professional skill, and demeanor are assigned to each Clinical Site. Whereas students can begin their clinical experiences as early as the second term they are in the program, each student will have a variety of knowledge accumulated regarding Clinical Exercise Physiology. The knowledge level of the student will be factored into the initial determination as will the KSAs each student needs to fulfill. Thus, the following procedure will be used to match each student with a clinical site.

1. Upon determination that the student meets the three qualifications listed above, three-four weeks before the beginning of each academic semester, the Practicum Supervisor (UNC Charlotte) will initially assign each student to a Clinical Site.
2. The student will immediately arrange an interview with the Site Preceptor.
3. The Site Preceptor will interview the student and will communicate to the Practicum Supervisor via letter or email, whether they wish to have the student at their site.
4. If the Preceptor approves the student, the student and Preceptor agree upon a start date and the weekly clinical schedule and the Preceptor signs the student's clinical experience

schedule (Appendix E). Copies of this schedule are then immediately distributed to the student, the preceptor, and the practicum supervisor.

5. The student begins the clinical experience on the agreed upon date.
6. If the Preceptor does not approve the student, the student will be assigned to another clinical site where possible, and if there are available students, another student may be assigned to the Preceptor's site.

Documents the Clinical Student will keep

Given that this clinical experience is part of an academic program, we must complete evaluations to determine whether you are making progress in learning the material. Therefore, there are a number of documents that you will be required to keep, in addition to two evaluations we will ask each Preceptor to complete.

Each student will be required to maintain and present to the Practicum Supervisor the following documents:

1. A log book of all clinical hours that also contains a brief description of the activities of those hours (example format in Appendix F);
2. A journal detailing the activities of the clinical experience (example format in Appendix G);

NOTE: Each Preceptor will be asked to complete an evaluation of the student (Appendix H) midway and at the end of the clinical experience and subsequently submit this evaluation to the Practicum Supervisor.

Regulations regarding students

It is well understood that the modern health-care setting has a large number of privacy and confidentiality requirements. You as a clinical student are expected to respect and follow those requirements as if you were a professionally practicing Clinical Exercise Physiologist. As such, you are required to abide by all appropriate federal, state, and local laws as well as the RCEP Professional Code of Ethics (Appendix I) and to work solely within your defined scope of practice (Appendix J).

In addition to these stipulations, when a clinical site agrees to accept you, the clinical site becomes an arm of the University and as such, must treat you in accordance with all aspects of student policies at UNC Charlotte. In particular, the following policies should be noted:

1. In general, graduate students (i.e. you) should spend no more than 20 hours per week at the clinical site;

2. You are at the clinical site for educational purposes; tasks given to you should be commensurate with their skill and knowledge level and should contribute directly to the accomplishment of the KSAs of the program;

3. You should not be assigned menial tasks that do not progress you toward fulfillment of the KSAs;

4. Proper interactions with students are governed by student policies at UNC Charlotte (e.g. sexual harassment, student conduct, etc.). These policies can be found at: http://www.legal.uncc.edu/policies/studpol.html.

5. If you are taken advantage of in any way at your Clinical Site, you should immediately notify the Practicum Supervisor.

Drug Screening and Criminal Background Checks

You should be aware that some clinical sites require drug screening and criminal background checks before you can do a Practicum at that site. These items are your responsibility, much like immunizations, and as such, you should take care of them as quickly as possible. For your information, here is the full policy and the form that you are required to sign and return to me.

UNC CHARLOTTE COLLEGE OF HEALTH AND HUMAN SERVICES

CRIMINAL BACKGROUND CHECK AND DRUG SCREENING POLICY
STUDENT

1. Introduction

It is a condition of initial enrollment in the College of Health and Human Services (CHHS) Programs, and a condition of eligibility to continue enrollment, that CHHS students meet all academic and other requirements imposed by CHHS, as well as all requirements of each external health and human service agency where CHHS attempts to place the student in a given semester.

CHHS must secure the cooperation of independent external health and human service agencies ("Agencies") to provide appropriate educational, internship, clinical, or field experiences for its students. Increasingly, those Agencies will not accept students who do not meet requirements that apply to employees at the Agency, including drug tests and criminal background checks. Because criminal background checks are now required by the North Carolina Board of Nursing for all licensure applicants, and because of recommendations from the Joint

Commission on Accreditation of Healthcare Organizations (JCAHO), many Agencies now require that CHHS students who will intern at their sites successfully complete criminal background checks and drug screening.

Many public and private schools and social services agencies also require criminal background and drug screening of CHHS students who interact with elementary/high school students and social service clients. Thus, in addition to meeting all CHHS academic and other requirements, students have the additional responsibility to meet requirements imposed by each Agency where they will receive clinical or field education, including internships.

A student who is rejected by one or more Agencies because of failure to meet that Agency's criminal background and/or drug testing requirements may be subject to dismissal from the CHHS Program in accordance with the CHHS Academic Dismissal Policy.

2. Agency Criminal Background Check Requirements

   a. Comply with the criminal background check requirements at each agency to which students are assigned.

   In some cases, the Agency will facilitate criminal background checks. Students will usually bear all expense associated with meeting these requirements. CHHS will receive notice only that the student has been accepted or rejected by the Agency**. If a student is rejected, CHHS will attempt to assign the student to another Agency. If no Agency accepts a student, he/she will be subject to dismissal from the CHHS Program in accordance with the CHHS Academic Dismissal Policy.**

   b. Undergo a criminal background check by a CHHS-approved agency.

   Some Agencies require that students obtain criminal background checks on their own. In these cases, students should apply to a CHHS-approved criminal investigation agency for a criminal background check to be conducted at the student's expense. The criminal investigation agency will provide the background check results to the student. Students are responsible for keeping the original criminal background check and sharing the results with each **Agency** that they are assigned to**. If a student is rejected from an Agency, CHHS will attempt to assign the student to another Agency. If no Agency accepts a student, he/she will be subject to dismissal from the CHHS Program in accordance with the CHHS Academic Dismissal Policy.**

3. Agency Drug Screening Requirements

   a. Comply with the drug screening requirements at each agency to which students are assigned.

   In some cases, the Agency will facilitate drug screening. Students will usually bear all expense associated with meeting these requirements. CHHS will receive notice only that a student has been accepted or rejected by the Agency**. If a student is rejected from a Agency, CHHS will attempt to assign the student to another Agency. If no Agency accepts a student, he/she will be subject to dismissal from the CHHS Program in accordance with the CHHS Academic Dismissal Policy.**

   b. Undergo drug testing by a CHHS-approved drug screening laboratory.

   Some Agencies require that students obtain a drug screening on their own. In these cases, students should apply to a CHHS-approved independent drug screening laboratory for a drug test to be conducted at the student's expense. Students will be given the original results, which they are responsible for sharing with the Agency**. If the result is positive, and the Agency rejects the student, CHHS will attempt to place the student at another Agency. If no Agency accepts a student, he/she will be subject to dismissal from the CHHS Program in accordance with the CHHS Academic Dismissal Policy.**

Appendix A – Practicum Course Syllabus

Department of Kinesiology
College of Health and Human Services
KNES 6490 – Advanced Practicum in Clinical Exercise Physiology
(1 credit)

Practicum Supervisor: Dr. Mitchell L. Cordova, Rm. 226 Belk Gym, UNC Charlotte, 9201 University City Blvd, Charlotte, NC 28223; mcordova@uncc.edu, 704-687-4695

Catalog Copy
KNES 6490. Advanced Practicum in Clinical Exercise Physiology. (1) Acquisition and application of knowledge, skills, and abilities necessary for the Registered Clinical Exercise Physiologist while gaining experiential hours in an appropriate clinical setting. Three (3) credit hours of Advanced Practicum is required for graduation; this course may be repeated for up to 6 credit hours. *(Fall, Spring, Summer)*

Rationale:
Clinical Exercise Physiologists (CEP) normally practice in a clinical environment. Thus, a necessary part of a CEP's education is exposure to and time in a clinical environment. Additionally, registration as a Clinical Exercise Physiologist requires the completion of a certain number of clinical hours. This Practicum is a method by which to expose students to the clinical environment as well as helping them fulfill the clinical hour requirements of the Registry.

Course Objectives
At the completion of the course the student will have gained experience in providing clinical exercise services for patients with chronic diseases and conditions as specified in the Clinical Exercise Physiologist Scope of Practice. Students will gain experiential hours that count towards satisfying the American College of Sports Medicine's requirement for 600 hours of clinical experience in the following areas.

- Cardiovascular: 120 hours required
- Pulmonary: 30 hours required
- Metabolic: 60 hours required
- Orthopedic/Musculoskeletal: 60 hours required
- Neuromuscular: 30 hours required
- Immunological/Hematological: 30 hours required
- Additional hours from any of the above: 270 hours required

Clinical Site Assignment: Students will be matched with a clinical site dependent upon their skill level, their interests, and their level within the program. The perceived convenience of a clinical site will not be a factor in matching a student with a clinical site. Students may request a particular site, but are not guaranteed to be

assigned to the requested site. The Practicum Supervisor will attempt to complete the initial clinical site assignment 3-4 weeks before the beginning of the semester. Upon notification of the site assignment, the student should immediately call and make an interview appointment with the Clinical Site Preceptor. After the interview, the Preceptor will then notify the Practicum Supervisor as to the acceptability of the student. If you are accepted at your site, you should immediately complete a scheduling agreement with the site, which will then be forwarded to the Practicum Supervisor.

Items needed to being Practicum: Given that in all of the clinical sites, the student will working with populations with chronic conditions, it is imperative that several standard clinical precautions be in place before the student is allowed to begin the clinical experience. Copies of each of these items should be provided to the Practicum Supervisor and to the Clinical Site Preceptor. Questions about any of these items can be directed to the Practicum Supervisor.

Items needed

1. Copy of immunization records;
2. Current and valid CPR card;
3. Copy of professional liability insurance (check with Kinesiology Secretary for information regarding state-backed liability insurance).

Additionally, some clinical sites require criminal background checks and/or drug screening. Your Clinical Preceptor will inform you if either is required. Both items should be handled between the student and the Clinical Site (i.e. the University does not want either record).

UNIVERSITY POLICIES

Academic Integrity: Students have the responsibility to know and observe the requirements of *The UNC Charlotte Code of Student Academic Integrity* (Catalog, p. 262). This code forbids cheating, fabrication, or falsification of information, multiple submission academic work, plagiarism, abuse of academic material, and complicity in academic dishonesty. Any special requirements or permission regarding academic integrity in this course will be state by the instructor, and are binding on the students. Academic work is free from academic dishonesty of any type; and grades in this course therefore should be and will be adversely affected by academic dishonesty. The normal penalty for the first offense is zero credit on the work involving dishonesty and further substantial reduction of the course grade. In almost all cases the course grade is reduce to F. Copies of the code can be obtained from the Dean of Students Office. Standards of academic integrity will be enforced in this course. Students are expected to report cases of academic dishonesty to the course's instructor.

Special Needs: If you have a documented disability and require accommodation in this course, contact Disability Services, Fretwell 230, phone: 687 4355 voice/TDD).

ITEMS INVOLED IN DETERMINING YOUR GRADE

Attendance

In conjunction with the Clinical Site, students are required to develop and submit a work schedule indicating the number of hours per week they will be gaining experiential hours in a particular setting (see Appendix E). Three unexcused absences during a clinical rotation will result in the lowering of the final practicum course grade by one letter. Five unexcused absences will result in failure of the practicum course. It is the student's

responsibility to keep up with their scheduled clinical responsibilities and events. If a student cannot make a scheduled clinical responsibility or event, it is his or her responsibility to communicate directly with their supervising Clinical Preceptor in a timely fashion. Students are to be prompt and on time for all clinical responsibilities and events. Showing up late for 3 clinical assignments will equal one unexcused absence.

Grading Scale and Criteria

The student's final grade will be based on the cumulative point totals from each of the following evaluation techniques:

Evaluation Type	**Number**	**Points Each**	**Total**
Clinical experience journal	8 entries	10	80
Mid term and Final Preceptor Evaluation	2 sets	100	200
Total			**280**

The student's final grade will be awarded based on the following scale:

A 90-100%
B 80-89%
C 70-79%
D 60-69%
F <60%

Clinical Education Journal

Students are required to keep track of their daily clinical experiences in a journal format (Appendix G). Students are required to submit their journal entries electronically (via e-mail) every 2 weeks.

Mid Term and Final Preceptor Evaluations

A large component of this course is the clinical evaluation of the student's knowledge, skills, and abilities (KSA) while working in the clinical setting (see Appendix B). The student's clinical preceptor will complete a formal evaluation of their skills, professional attributes and likelihood for success at the midpoint and end of the clinical experience.

Appendix B – Clinical Site KSAs

The following are the Knowledge, Skills, and Abilities of the Registered Clinical Exercised Physiologist (RCEP) listed by Practice Area that the Clinical Site Experience will help impart to the Student's academic program. IT IS NOT EXPECTED THAT A PARTICULAR CLINICAL SITE WILL MEET ALL KSAS IN ANY ONE PRACTICE AREA.

1.0 CARDIOVASCULAR PRACTICE AREA

1.4 **Cardiovascular Aspects of the Physical Examination.** Basic knowledge, skills, and abilities related to the cardiovascular physical exam of individuals with cardiovascular diseases and disabilities.
- 1.4.1 Basic knowledge of and ability to understand the results of a cardiovascular physical examination, including blood pressure, peripheral pulses, and heart and lung sounds.
- 1.4.2 Basic skills and abilities to measure blood pressure, heart and lung sounds, and peripheral pulses for the purpose of identifying contraindications prior to an exercise test or therapeutic exercise session.
- 1.4.3 Basic knowledge of and ability to identify the signs and symptoms of cardiovascular diseases and disorders, including typical and atypical angina; *nonanginal*, peripheral vascular disease; congestive heart failure, and arrhythmias.

1.5 **Cardiovascular Medical and Surgical Treatments.** Basic knowledge of techniques and understanding of key findings in reports of medical and surgical treatments used in the management of individuals with cardiovascular diseases and disabilities.
- 1.5.1 Basic knowledge of techniques and ability to understand key findings in reports of treatments using various thrombolytic agents.
- 1.5.2 Basic knowledge of techniques and ability to understand key findings in reports of treatments using percutaneous transluminal coronary angioplasty (PTCA), including the use of stents.
- 1.5.3 Basic knowledge of techniques and ability to understand key findings in reports of coronary artery bypass surgery (CABG).
- 1.5.4 Basic knowledge of techniques and ability to understand key findings in reports of pacemaker and implantable cardiac defibrillator (ICD) treatments.
- 1.5.5 Basic knowledge of techniques and ability to understand key findings in reports of cardiac transplant surgery.
- 1.5.6 Basic knowledge of techniques and ability to understand key findings in reports of angioplasty and the use of stents in peripheral vascular disease.

1.6 **Cardiovascular Diagnostic Techniques.** Basic knowledge of techniques and understanding of key findings in reports of diagnostic techniques and specific knowledge and abilities to administer certain specific techniques currently used in cardiovascular disease.
- 1.6.1 Basic knowledge of techniques and ability to understand key findings in a 24/48 hr ECG (Holter monitor) report.
- 1.6.2 Basic knowledge of techniques and ability to understand key findings in reports of various laboratory tests used in the diagnosis of cardiovascular disease, including CBC, hematocrit, hemoglobin, cardiac enzymes, and electrolytes.
- 1.6.3 Basic knowledge of techniques and ability to understand key findings in reports of radionuclide imaging tests for cardiovascular function.
- 1.6.4 Basic knowledge of techniques and ability to understand key findings in reports of tests of rest and stress echocardiography.
- 1.6.5 Basic knowledge of techniques and ability to understand key findings in reports of pharmacologic stress testing.
- 1.6.6 Basic knowledge of techniques and ability to understand key findings in reports of coronary angiography.
- 1.6.7 **Electrocardiography.** Knowledge, skills, and abilities in clinical electrocardiography (ECG), including determination of rate, rhythm, axis, hypertrophy, ischemia, and infarction, and additional factors altering the electrocardiograph in individuals with cardiovascular disease.
  - 1.6.7.1 Knowledge of the normal and abnormal responses for each of the following in individuals with coronary artery disease (CAD): function of the myocardium, generation and propagation of the action potential, repolarization, and major variants in the pathways of electrical activity.
  - 1.6.7.2 Ability to determine ventricular rate from rhythm strip and 12-lead ECG.
  - 1.6.7.3 Ability to identify sinus, atrial, junctional, and ventricular dysrhythmias from a rhythm strip, 12-lead ECG, and/or monitor and knowledge of the clinical significance for each.
  - 1.6.7.4 Ability to identify SA, AV, and bundle branch blocks from a rhythm strip, 12-lead ECG, and monitor and knowledge of the clinical significance for each.
  - 1.6.7.5 Ability to determine normal axis, left axis deviation, and right axis deviation from a 12-lead ECG and knowledge of the clinical significance for each.
  - 1.6.7.6 Ability to determine right and left atrial and ventricular enlargement and hypertrophy from a 12-lead ECG and knowledge of clinical significance for each.

1.6.7.7 Ability to determine ECG changes associated with subendocardial and transmural ischemia, injury, and infarction and knowledge of the clinical significance of each.
1.6.7.8 Ability to determine the lead sets that correspond to the general areas of the myocardium for ischemia, injury, or infarction.
1.6.7.9 Ability to identify ECG changes that typically occur due to hyperventilation, electrolyte abnormalities, and cardiovascular drug therapies.

1.7 **Cardiovascular Exercise/Fitness/Functional Testing.** Knowledge, skills, and abilities used in administration of cardiopulmonary exercise, pharmacologic stress, and functional capacity test for individuals with cardiovascular diseases and disabilities.
1.7.1 Knowledge of and ability to employ appropriate techniques for measurement of the ECG, blood pressure, RPE, symptoms, and expired gases at appropriate intervals during the exercise test.
1.7.2 Knowledge of and ability to employ techniques used to minimize ECG artifact.
1.7.3 Knowledge of and ability to use single-lead and multiple-lead ECG systems in exercise testing.
1.7.4 Knowledge of and ability to perform routine tasks prior to exercise testing, including obtaining appropriate standard and exercise 12-lead EKGs, accurately recording right and left arm blood pressure; and instructing the test participant in the use of rating of perceived exertion (RPE) scale and other appropriate subjective scales (e.g., dyspnea and angina scales).
1.7.5 Knowledge of the probable effects of angina, myocardial infarction, PTCA, CABG, and CHF on exercise performance, hemodynamics, functional capacity, and safety.
1.7.6 Knowledge of and ability to determine pretest probability of angina and coronary artery disease in patients.
1.7.7 Ability to administer appropriate test protocols and procedures for exercise tests that involve radionuclide or echocardiographic imaging.
1.7.8 Basic knowledge of and ability to assist with pharmacologic stress testing.

1.8 **Cardiovascular Exercise Prescription and Programming.** Knowledge, skills, and abilities in prescribing and supervising exercise programs for individuals with cardiovascular diseases and disabilities.
1.8.1 Knowledge of the appropriate use of static and dynamic resistance exercise for individuals with cardiovascular disease.
1.8.2 Knowledge of and ability to design a strength training program for individuals who are post-MI, post-CABG, post-PTCA, post-PTCA with stents, postartherectomies, and postcardiac transplant.
1.8.3 Ability to supervise exercise programs for outpatients hospitalized for MI, PTCA, CABG, and angina for the immediate posthospital recovery period, as well as the 3 months following hospitalization.

1.9 **Cardiovascular Education and Counseling.** Knowledge, skills, and abilities in conducting education programs and counseling individuals with cardiovascular diseases and disabilities. (See Core Education and Counseling.)

1.10 **Cardiovascular Emergency Procedures.** Basic knowledge, skills, and abilities to respond with appropriate emergency procedures for use prior to, during, or after administration of an exercise test or therapeutic exercise session for individuals with cardiovascular diseases and disabilities. (See Core Emergency Procedures.)

1.11 **Cardiovascular Quality Assurance, Outcome Assessment, and Discharge Planning.** Knowledge, skills, and abilities in quality assurance, outcome assessment, and discharge planning for programs for individuals with cardiovascular diseases and disabilities. (See Core Quality Assurance, Outcome Assessment, and Discharge Planning.)

1.12 **Cardiovascular Administration of Testing and Rehabilitation Programs.** Knowledge, skills, and abilities used in the management of rehabilitation programs and exercise testing laboratories in the areas of cardiovascular rehabilitation. (See Core Administration of Testing and Rehabilitation Programs.)

2.0 PULMONARY PRACTICE AREA

2.4 **Pulmonary Aspects of the Physical Examination.** Basic knowledge, skills, and abilities related to the pulmonary physical exam in individuals with chronic pulmonary diseases and disabilities.
2.4.1 Basic knowledge of and ability to understand the results of pulmonary physical examination, including lung sounds.
2.4.2 Basic skills in and abilities to obtain measures of respiratory rate, oxygen saturation, dyspnea ratings, and lung sounds for the purpose of identifying the associated contraindications to an exercise test or therapeutic exercise session.
2.4.3 Basic knowledge of and ability to identify signs and symptoms of various chronic pulmonary diseases, including hypoxemia and hypercapnea, bronchospasm, and right-sided congestive heart failure.

2.5 **Pulmonary Medical and Surgical Treatments.** Basic knowledge of techniques and understanding of key findings in reports of medical and surgical treatments used in the management of individuals with chronic pulmonary diseases and disabilities.
2.5.1 Basic knowledge of the techniques and ability to understand the key findings associated with the administration of various types of bronchodilator therapy (e.g. beta-agonist, anti-inflammatory agents).
2.5.2 Basic knowledge of techniques and ability to understand key findings in reports of bronchoscopy (diagnostic and laser) treatment.

2.5.3 Basic knowledge of techniques and ability to understand key findings in reports of bronchial provocation therapy.
2.5.4 Basic knowledge of techniques and ability to understand key findings in reports of lung surgery, including volume reduction, resection, and transplantation.

2.6 **Pulmonary Diagnostic Techniques.** Basic knowledge of techniques and understanding of key findings in reports of diagnostic techniques and specific knowledge and abilities to administer certain techniques used in the management of individuals with pulmonary diseases and disabilities.
2.6.1 Basic knowledge of techniques and ability to understand key findings in reports of bronchial provocation tests, arterial blood gases, and pulse oximetry.
2.6.2 Basic knowledge of techniques and ability to understand key findings in reports of laboratory tests used in the diagnosis of pulmonary disease, including CBC, hematocrit, hemoglobin, and electrolytes.
2.6.3 Basic knowledge of techniques and ability to understand key findings in reports of imaging modalities (scan, radionuclide, ventilation-perfusion scans, etc.)
2.6.4 **Pulmonary Function Testing.** Knowledge, skills, and abilities in pulmonary function testing of individuals with chronic pulmonary disease.
2.6.4.1 Knowledge of lung volumes and capacities (tidal volume, residual volume, inspiratory volume, expiratory volume, total lung capacity, vital capacity, and functional residual capacity).
2.6.4.2 Ability to understand and explain key findings from reports of the results of the above tests.

2.7 **Pulmonary Exercise/Fitness/Functional Testing.** Knowledge, skills, and abilities used in administering cardiopulmonary exercise tests for individuals with chronic pulmonary disease.
2.7.1 Knowledge of and ability to employ appropriate techniques for measurement of oxyhemoglobin saturation, arterial blood gases when appropriate, and expired gases at appropriate intervals during the exercise test.
2.7.2 Knowledge of and ability to identify probable end points for testing individuals with chronic pulmonary diseases and disabilities.
2.7.3 Knowledge of, and ability to administer basic pulmonary function tests (forced vital capacity and forced expiratory volumes) in the context of cardiopulmonary exercise testing.

2.8 **Pulmonary Exercise Prescription and Programming.** Knowledge, skills, and abilities in prescribing and supervising exercise programs for individuals with chronic pulmonary diseases and disabilities.
2.8.1 Knowledge of and ability to design an aerobic and strength training program for individuals with chronic pulmonary diseases, including lung resection, transplantation surgery and lung volume reduction surgery.
2.8.2 Ability to supervise exercise programs for patients following and acute exacerbation of underlying chronic lung disease, including lung resection, transplantation surgery, and lung volume reduction surgery.
2.8.3 Ability to supervise outpatient exercise programs for individuals with chronic pulmonary disease.

2.9 **Pulmonary Education and Counseling.** Knowledge, skills, and abilities in conducting education programs and counseling individuals with pulmonary disease and disabilities.

2.10 **Pulmonary Emergency Procedures.** Basic knowledge, skills, and abilities to respond with appropriate emergency procedures for use prior to, during, or after administration of an exercise test or therapeutic exercise session for individuals with pulmonary diseases and disabilities. (See Core Emergency Procedures.)

2.11 **Pulmonary Quality Assurance, Outcome Assessment, and Discharge Planning.** Knowledge, skills, and abilities in quality assurance, outcome assessment, and discharge planning for programs for individuals with pulmonary diseases and disabilities. (See Core Quality Assurance, Outcome Assessment, and Discharge Planning.)

2.12 **Pulmonary Administration of Testing and Rehabilitation Programs.** Knowledge, skills, and abilities used in the management of rehabilitation programs and exercise testing laboratories in the areas of pulmonary rehabilitation. (See Core Administration of Testing and Rehabilitation Programs.)

3.0 METABOLIC PRACTICE AREA

3.4 **Metabolic Aspects of the Physical Examination.** Basic knowledge, skills, and abilities related to the physical examination of individual with metabolic diseases and disabilities.
3.4.1 Basic knowledge of and ability to understand the results of a physical exam in individuals with diabetes, obesity, and renal failure.
3.4.2 Basic knowledge of and ability to understand the signs and symptoms of individuals with diabetes, obesity, and renal failure, including hypo/hyperglycemia, ketoacidosis, retinal changes, peripheral neuropathies, and orthopedic problems (i.e., Charcot's joint, ulcers).
3.4.3 Ability to recognize signs and symptoms in individuals with renal disease, including fluid overload, loss of appetite, leg weakness, fatigue, lightheadedness/dizziness, low hematocrit, elevated creatinine, hypertension, and hypotension.

3.5 **Metabolic Medical and Surgical Treatments.** Basic knowledge of techniques and understanding of key findings in reports of medical and surgical treatments used in the management of individuals with metabolic diseases.

3.5.1 Basic knowledge of techniques and understanding of key findings in reports of insulin pump implant, pancreas, transplant, retinal laser repair, cardiovascular surgeries for secondary cardiovascular complications, amputation, vascular surgeries and dialysis for secondary renal failure.

3.5.2 Basic knowledge of techniques and understanding of key findings in reports of medical and surgical procedures used in the management of obesity (i.e., stomach stapling, jejunoileal bypass, starvation/modified fast diets, gastroplasties, jaw wiring, intragastric balloons, fat excision, and antiobesity medications).

3.5.3 Basic knowledge of techniques and understanding of key findings in reports of treatment options for renal disease, including pre-end-stage dietary intervention, hemodialysis, peritoneal dialysis (cycle and ambulatory), and kidney transplantation.

3.5.4 Basic knowledge of the following dialysis access sites, including fistula/grafts for hemodialysis, cubclavia catheter for temporary access, and peritoneal dialysis catheter.

3.5.5 Basic knowledge of techniques and understanding of key findings in reports of amputation; laser surgery, cardiac-disease-related surgery, vascular surgeries, and graft surgery/declotting procedures.

3.6 **Metabolic Diagnostic Techniques.** Basic knowledge of the techniques and understanding of key findingns in reports of diagnostic techniques and specific knowledge and abilities in certain techniques currently used in the management of individuals with metabolic diseases.

3.6.1 Basic knowledge of techniques and understanding of key findings in reports of routine diagnostic tests for individuals with diabetes and renal disease.

3.6.2 Specific knowledge of techniques and ability to determine blood glucose using monitoring instruments and techniques used in assessment of individuals with diabetes.

3.6.3 Basic knowledge of techniques and understanding of key findings in reports of tests for glomerular filtration rate (GFR), blood urea nitrogen (BUN), creatinine/dialysis adequacy (kT/v or urea reduction rate), and hematocrit.

3.6.4 **Body Composition Testing.** Knowledge, skills, and abilities in administering body composition tests for individuals with metabolic diseases.

3.6.4.1 Knowledge of the theories and limitations of measurement of body composition by various methods.

3.6.4.2 Knowledge of and skills and abilities in body densitometry techniques (i.e., body pod and hydrostatic weighing)

3.6.4.3 Knowledge of and skills and abilities in various anthropometric techniques (i.e., skinfold, height/weight, body mass index [BMI], and body circumference measurements).

3.6.4.4 Knowledge of radiometry techniques (i.e., CT, MRI, and DEXA).

3.6.4.5 Knowledge of and skills and abilities in bioelectrical impedance techniques.

3.6.4.6 Ability to choose the appropriate method to evaluate body composition for particular individuals with metabolic disease.

3.6.4.7 Ability to interpret the results of various body composition tests and to provide appropriate goals for the individual with various metabolic diseases and disabilities.

3.7 **Metabolic Exercise/Fitness/Functional Testing.** Knowledge, skills, and abilities used in administering exercise, fitness, work simulation, and/or functional tests for individuals with metabolic diseases.

3.7.1 Knowledge of the probable effects of hypo/hyperglycemia, obesity, and ESRD on the exercise performance, functional capacity, and safety.

3.7.2 Knowledge of differences in test protocol and procedures when testing involves individuals who are amputees or have peripheral vascular disease, neuropathy, orthopedic limitations, or vision impairments.

3.7.3 Ability to perform appropriate techniques for measurement of glucose monitoring prior to exercise testing.

3.7.4 Ability to identify probably end points for testing a variety of individuals with metabolic disease

3.8 **Metabolic Exercise Prescription and Programming.** Knowledge, skills, and abilities in prescribing and supervising exercise programs for individuals with metabolic diseases and disabilities.

3.8.1 Ability to supervise exercise programs for indviduals with diabetes, obesity and renal failure.

3.8.2 Ability to adapt exercise prescriptions for complications of metabolic diseases such as amputations, retinopathy, autonomic neuropathies, vision impairment, during hemodialysis treatments, leg fistula, blunted heart rate response, and abnormal blood pressure responses (both hypertension and hypotension).

3.8.3 Ability to instruct and individual with metabolic diseases in techniques for performing physical activities safely and effectively in an unsupervised exercise setting.

3.8.4 Knowledge of the stresses and the time requirements associated with the various treatment options for individuals with renal disease.

3.9 **Metabolic Education and Counseling.** Knowledge, skills, and abilities in conducting education programs and counseling individuals with metabolic diseases and disabilities. (Also see Core Education and Counseling)

3.9.1 Knowledge and understanding of the detection and treatment guidelines for obesity as stated in the 1998 NIH "Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults" (NHLBI 1998).

3.9.2 Knowledge and understanding of the screening and treatment guidelines for dyslipidemia as stated in the National Cholesterol Education Program (NCEP).

3.9.3 Knowledge and understanding of the diagnosis, classification, and treatment guidelines for diabetes as summarized by the American Diabetes Association (1997).

3.9.4 Knowledge and understanding of counseling and education of patients with renal failure.

3.10 **Metabolic Emergency Procedures.** Basic knowledge, skills, and abilities, to respond with appropriate emergency procedures for use prior to, during, or after administration of an exercise test or therapeutic exercise sessions for individuals with metabolic diseases and disabilities. (See Core Emergency Procedures.)

3.11 **Metabolic Quality Assurance, Outcome Assessment, and Discharge Planning.** Knowledge, skills, and abilities in quality assurance, outcome assessment, and discharge planning for programs for individuals with metabolic diseases and disabilities. (See Core Quality Assurance, Outcome Assessment, and Discharge Planning.)

3.12 **Metabolic Administration of Testing and Rehabilitation Programs.** Knowledge, skills, and abilities used in the management of rehabilitation programs and exercise testing laboratories in the areas of metabolic rehabilitation.(See Core Administration of Testing and Rehabilitation Programs.)

4.0 MUSCULOSKELETAL PRACTICE AREA

4.4 Musculoskeletal Aspects of the Physical Examination. Basic knowledge, skills, and abilities related to the physical examination of individuals with musculoskeletal diseases and disabilities.

4.4.1 Basic knowledge of and ability to understand the result of a musculoskeletal examination.

4.4.2 Basic skills in and abilities to perform range-of-motion, flexibility, muscular strength, and muscular endurance measurements.

4.4.3 Basic skills in and abilities to perform a basic posture evaluation.

4.5 **Musculoskeletal Medical and Surgical Treatments.** Basic knowledge of techniques and ability to understand key findings in reports of medical and surgical treatments used in the management of individuals with musculoskeletal diseases and disabilities.

4.5.1 Basic knowledge of techniques and ability to understand key findings in reports of spinal surgeries, including: microdiscectomy, diskectomy, spinal decompression, spinal fusion, internal fixation, and laminectomy.

4.5.2 Basic knowledge of techniques and ability to understand key findings in reports of joint-replacement surgeries.

4.5.3 Basic knowledge of techniques and ability to understand key findings in reports of surgical approaches for the treatment of ulnar neuropathies, carpal tunnel syndrome, and cubital tunnel syndrome.

4.5.4 Basic knowledge of and ability to understand key findings in reports of bone fracture setting, amputations, and joint stabilization, including taping, casting, pins, and rods.

4.5.5 Basic knowledge of techniques and ability to understand key findings in reports of ligament- and tendon-repair surgeries.

4.5.6 Basic knowledge of techniques and ability to understand key findings in repost of arthroscopic join surgeries.

4.6 **Musculoskeletal Diagnostic Techniques.** Basic knowledge of techniques and ability to understand key findings in reports of diagnostic techniques and specific knowledge and abilities in certain diagnostic modalities currently used in the management of individuals with musculoskeletal diseases and disabilities.

4.6.1 Basic knowledge techniques and ability to understand key findings in reports of an EMG.

4.6.2 Basic knowledge of techniques and understanding of pain assessment tools (e.g., Waddell's nonorganic physical signs in low back pain, visual analog scales, SF-36, Oswetry Disability Questionnaire, anatomic pain distribution, and Beck Depression Inventory).

4.6.3 Basic knowledge of techniques and ability to understand reports of bone-density measurements.

4.6.4 Basic knowledge of techniques and ability to understand reports of MRI, CT, bone scan, or x-ray.

4.7 **Musculoskeletal Exercise/Fitness/Functional Testing.** Knowledge, skills, and abilities used in administering exercise, fitness, work simulation, and/or functional tests in individuals with musculoskeletal diseases and disabilities.

4.7.1 Knowledge of the contraindications for maximal lifting tests.

4.7.2 Ability to perform maximal lift tests in the following planes: floor to knuckle, knuckle to shoulder, shoulder to overhead, single arm carry, and double arm carry.

4.7.3 Ability to calculate the recommended weight limit (RWL) for manual material handling tasks.

4.7.4 Skill in assessing patient's ability to perform essential vocational functions.

4.7.5 Ability to administer maximal grip strength tests.

4.7.6 Ability to administer orthopedic and musculoskeletal exercise tests using a variety of modes and protocols.

4.7.7 Ability to identify probable end points for exercise testing individuals with orthopedic and musculoskeletal disease and chronic pain.

4.7.8 Ability to perform immediate postexercise procedures and various approaches to cool-down following orthopedic and musculoskeletal exercise testing.
4.7.9 Ability to record, organize and perform necessary calculations of exercise test data for summary presentation.
4.7.10 Ability to administer balance tests.

4.8 **Musculoskeletal Exercise Prescription and Programming.** Knowledge, skills, and abilities in prescribing and supervising exercise programs for individuals with musculoskeletal diseases and disabilities.
4.8.1 Ability to select appropriate exercise equipment and/or exercise activities for individuals with musculoskeletal injuries or disabilities.
4.8.2 Skill in developing frequency, intensity, and duration of exercise in supervised programs.
4.8.3 Ability to teach and maximize compliance with independent exercise programs.
4.8.4 Knowledge of concepts related to industrial or occupational rehabilitation, which includes work hardening, work conditioning, work fitness, and job coaching.

4.9 **Musculoskeletal Education and Counseling.** Knowledge, skills, and abilities in conducting education programs and counseling individuals with musculoskeletal disease and disabilities. (See Core Education and Counseling).

4.10 **Musculoskeletal Emergency Procedures.** Basic knowledge, skills, and abilities to respond with appropriate emergency procedures for use prior to, during, or after administration of an exercise test or therapeutic exercise session for individuals with musculoskeletal diseases and disabilities. (See Core Emergency Procedures.)

4.11 **Musculoskeletal Quality Assurance, Outcome Assessment, and Discharge Planning.** Knowledge, skills, and abilities in quality assurance, outcome assessment, and discharge planning for exercise programs for individuals with musculoskeletal diseases and disabilities.

4.12 **Musculoskeletal Administration of Testing and Rehabilitation Programs.** Knowledge, skills, and abilities use din the management of rehabilitation programs and exercise testing laboratories in the areas of musculoskeletal rehabilitation. (See Core Administration of Testing and Rehabilitation Programs.)

5.0 NEUROMUSCULAR PRACTICE AREA

5.4 **Neuromuscular Aspects of the Physical Examination.** Basic knowledge, skills, and abilities related to the neuromuscular physical examination of individuals with neuromuscular diseases and disabilities.
5.4.1 Ability to understand the report of the muscle strength exam in each of the above conditions.
5.4.2 Ability to understand the classification of muscle stretch reflexes (deep tendon reflexes) in the above conditions.
5.4.3 Ability to understand the terminology used in describing abnormal sensation.
5.4.4 Skills and abilities to identify spasticity, increased and decrease muscle tone, tremor, weakness, and sensory loss.

5.5 **Neuromuscular Medical and Surgical Treatments.** Basic knowledge of techniques and the ability to understand key findings in reports of various medical and surgical treatment sued in the management of individuals with neuromuscular diseases.
5.5.1 Ability to understand key findings in medical reports describing a spinal fusion.
5.5.2 Ability to understand key findings in reports of brain surgery for aneurysm clipping and tumor removal.
5.5.3 Ability to understand key findings in reports of nerve and motor point blocks with phenol or Botox (botulinum toxin) for spasticity.
5.5.4 Basic knowledge of the purposes of epidural catheterization of the spine and sympathetic blocks. Skill to recognize the results of tendon-release procedures.

5.6 **Neuromuscular Diagnostic Techniques.** Basic knowledge of the techniques and ability to understand the key findings in reports of diagnostic techniques used in the management of individuals with neuromuscular diseases and disabilities.
5.6.1 Ability to understand key findings in reports of needle electromyography and nerve conduction studies.
5.6.2 Ability to understand key findings in reports of x-rays after spinal cord injury.
5.6.3 Ability to understand key findings in reports of scans for a brain hemorrhage in a stroke.
5.6.4 Ability to understand key findings in reports of angiograms and MRIs for cerebral aneurysms.
5.6.5 Ability to understand key findings in reports of Doppler studies and angiograms for peripheral vascular disease and carotid artery stenosis.
5.6.6 Ability to understand key findings in report so lumbar spinal fluid tap for infections and multiple sclerosis.
5.6.7 Ability to understand key findings in reports of cognitive/neurophychological testing.
5.6.8 Electromyography. Basic knowledge, skills, and abilities in clinical assessment of neuromuscular disease using surface electromyography (EMG).
5.6.8.1 Ability to understand the percent of maximum contraction using EMG.
5.6.8.2 Ability to understand motor unit recruitment patterns using EMG.
5.6.8.3 Ability to understand muscle fatigue or motor facilitation with the EMG.
5.6.8.4 Ability to understand the basic principles of biofeedback utilizing surface EMG.

5.7 **Neuromuscular Exercise/Fitness/Functional Testing.** Basic knowledge, skills, and abilities used in administering exercise, fitness, work simulation, and/or functional tests for individuals with neuromuscular diseases.

5.7.1 Basic knowledge of the functional limits and benefits of assistive devices (e.g., wheelchairs, crutches, canes) for daily activities.
5.7.2 Basic knowledge of the limitations placed on exercise testing methods by orthotic devices.
5.7.3 Basic knowledge of the relative effort of using these assistive devices in comparison to the effort of walking.
5.7.4 Ability to use the results of self-selected speed of ambulation with and without the use of an assistive device to determine patient function in a community setting (e.g., shopping, commuting).
5.7.5 Ability to determine performance capabilities of self-care, household duties, yard work, recreation for fitness, and occupational simulation skills.
5.7.6 Basic knowledge of the precautions and contraindications (absolute and relative) for exercise testing of the above conditions.
5.7.7 Ability to identify specialized equipment and adaptations for metabolic testing in the above conditions.
5.7.8 Basic knowledge of differences in test protocol and procedures in the above conditions.
5.7.9 Ability to modify test protocols and procedures for patients with neuromuscular limitations, including tests involving treadmill, cycle and arm ergometry, and with assertive devices.

5.8 **Neuromuscular Exercise Prescription and Programming.** Basic knowledge, skills, and abilities in prescribing and supervising exercise programs for individuals with neuromuscular diseases and disabilities. (Also see Core Exercise Prescription and Programming)
5.8.1 Ability to develop exercise prescriptions for the above conditions.
5.8.2 Ability to instruct and individual with neuromuscular disease in techniques for performing physical activities safely and effectively in an unsupervised setting.
5.8.3 Ability to supervise a small group exercise session for individuals with neuromuscular disease and/or disabilities.
5.8.4 Knowledge of environmental (temperature, humidity) controls during exercise in patients with the above conditions.

5.9 **Neuromuscular Education and Counseling.** Basic knowledge, skills, and abilities in conducting education programs and counseling individuals with neuromuscular disease and disorders. (See Core Education and Counseling.)

5.10 **Neuromuscular Emergency Procedures.** Basic knowledge, skills, and abilities to respond with appropriate emergency procedures for use prior to, during, or after administration of an exercise test or therapeutic exercise session for individuals with neuromuscular diseases and disabilities. (See Core Emergency Procedures.)

5.11 **Quality Assurance, Outcome Assessment, and Discharge Planning for Neuromuscular Programming.** Basic knowledge, skills, and abilities in quality assurance, outcome assessment, and discharge planning for programs for individuals with neuromuscular diseases and disabilities. (See Core Quality Assurance, Outcome Assessment, and Discharge Planning.)

5.12 **Administration of Neuromuscular Testing and Rehabilitation Programs.** Basic knowledge, skills, and abilities used in the management of rehabilitation programs and exercise testing laboratories in the areas of neuromuscular rehabilitation. (See Core Administration of Testing and Rehabilitation Programs).

6.0 NEOPLASTIC, IMMUNOLOGIC, AND HEMATOLOGIC (NIH) DISORDERS PRATICE AREA

6.4 **NIH Disorder Physical Examination.** Basic knowledge, skills, and abilities related to the physical examination for individuals
with NIH disorders.
6.4.1 Basic knowledge of and ability to understand the results of a physical examination on a patient with cancer, anemia, sickle-cell anemia, HIV disease, and CFS.
6.4.2 Basic knowledge of the signs and symptoms associated with NIH disorders.

6.5 **NIH Disorder Medical and Surgical Treatments.** Basic knowledge of techniques and understanding of key findings in reports of medical and surgical treatments used in the management of individuals with NIH Disorders.
6.5.1 Basic knowledge of techniques and ability to understand key findings in reports of basic types of cancer treatment techniques, including radiation, systemic therapy, and surgery.
6.5.2 Basic knowledge of techniques and ability to understand key findings in reports of results of tests used to control and treat anemia, including nutrient supplementation, management of gastrointestinal bleeding, and transfusion.
6.5.3 Basic knowledge of techniques and ability to understand key findings in reports of results of tests used to manage HIV disease, including medications, nutritional therapy, psychological interventions, and treatment of opportunistic infections and cancers.
6.5.4 Basic knowledge of CFS management, including medications and interventions varied to meet predominant symptoms.

6.6. **NIH Disorder Diagnostic Techniques.** Basic knowledge of techniques and ability to understand key findings in reports of assessment techniques used on patients with NIH disorders.
6.6.1 Basic knowledge of criteria used to assess iron deficiency and anemia.
6.6.2 Basic knowledge of techniques and ability to understand key findings of lab reports of tests for complete blood count (CBC) and other clinical laboratory reports and determine iron-deficiency and sickle-cell anemia.
6.6.3 Basic knowledge of techniques and ability to understand the screening guidelines for cancer.

6.6.4 Basic knowledge of techniques and ability to understand lab reports of leukocyte and lymphocyte subset blood counts from clinical laboratory reports, and note normal and abnormal values, especially for T helper cell counts ($CD3^+$, CD4) in patients with HIV disease.

6.6.5 Ability to determine whether an individual has CFS using CDC criteria (major symptom and physical criteria).

6.7 **NIH Disorder Exercise/Fitness/Functional Testing.** Knowledge, skills, and abilities in conducting exercise, fitness, work simulation, and/or functional tests for individuals with NIH disorders.

6.7.1 Knowledge of the indications and contraindications (absolute and relative) for graded exercise testing in patients with cancer, anemia, HIV disease, and CFS.

6.7.2 Knowledge of the probable effects of NIH disorders on exercise performance, functional capacity, and safety.

6.7.3 Knowledge of the use of Universal Precautions in the exercise testing of individuals with HIV disease.

6.8 **NIH Exercise Prescription and Programming.** Knowledge, skills, and abilities in prescribing and supervising exercise programs for individuals with NIH disorders.

6.8.1 Ability to develop exercise prescriptions for individuals with NIH disorders that are safe (e.g., avoidance of high-intensity exercise and dehydration in persons with sickle-cell disease).

6.8.2 Ability to supervise exercise programs for an individual or group with an NIH disorder.

6.8.3 Ability to instruct individuals with NIH disorders in techniques for performing physical activities safely and effectively in an unsupervised exercise setting.

6.9 **NIH Disorder Education and Counseling.** Knowledge, skills, and abilities in conducting education programs and counseling individuals with NIH disorders. (See Core Education and Counseling.)

6.10 **NIH Disorder Emergency Procedures.** Basic knowledge, skills, and abilities to respond with appropriate emergency procedures for use prior to, during, or after administration of an exercise test or therapeutic exercise sessions for individuals with NIH disorders. (See Core Emergency Procedures.)

6.11 **NIH Disorder Quality Assurance, Outcome Assessment, and Discharge Planning.** Knowledge, skills, and abilities in quality assurance, outcome assessment, and discharge planning for programs for individuals with NIH disorders. (See Core Quality Assurance, Outcome Assessment, and Discharge Planning).

6.12 **NIH Disorder Administration of Testing and Rehabilitation Programs.** Knowledge, skills, and abilities used in the management of rehabilitation programs and exercise testing laboratories in the areas of NIH Disorders. (See Core Administration of Testing and Rehabilitation Programs).

Appendix E – Student Clinical Experience Schedule agreement

By this agreement, (Preceptor Name) and (Student Name) state that the clinical experience for (Student Name) will begin on (date) and will conclude (date). Within this timeframe, (student name) will be present at the Clinical Site on (days of week) at the following times: (hours of presence). This schedule will result in a total of (number of hours) hours per week of the clinical experience*. This schedule can be amended by agreement of the Preceptor and Student at any time during the semester.

Agreed to on (date) by:

_____ _____

Signature of Preceptor Signature of Student

Reviewed by Practicum Supervisor:_____ _____

Signature of Practicum Supervisor Date

*Students should not generally commit to more than 20 hours of clinical experience per week. Exceptions to this policy can be requested via a written request from the student to the Practicum Supervisor. Generally, failure of the student to complete sufficient hours earlier in the semester will not be considered a valid reason for suspension of the 20 hr/week policy.

Appendix F – Example format for Student Hour Logbook

Student Name:						
Date	**Time Start**	**Time End**	**Total Time**	**Clinical Site**	**General Activities/Practice Area**	**Running Hour Total**
Signature and Title of Verifying Professional:						

Appendix G – Example format for Student Clinical Journal

Student Name:
Date(s):
Clinical Site:
Journal of Clinical Activity: Include in this journal, a discussion of any activities that you participated in during each day of your clinical experience. Explain the activity, what you did, how your performance was with respect to expectations, and how many clinical hours you worked that day. You can also discuss other observations or personal feelings that were experienced during the day. On Fridays, after discussing the activities for that day, write a paragraph summarizing the week's activities and how you feel about your performance as a professional.

Appendix H – Preceptor evaluation of Student

Student Evaluation by Clinical Preceptor
Clinical Exercise Physiology
Department of Kinesiology

Student's Name:_____Date: _____

Clinical Site:_____

Clinical Site Preceptor:_____

Practicum Supervisor:_____

Please check the appropriate box that best represents your evaluation of the student.

	Excellent (5)	Good (4)	Average (3)	Below Average (2)	Poor (1)	Not Applicable
Working relationship with On-site Preceptor						
Working relationship with staff						
Working relationship with employees						
Dependability						
Attitude towards tasks						
Initiative						
Trustworthy?						
Judgment						
Professional appearance?						
Acceptance of criticism						
Sets realistic goals						
Identifies new opportunities to contribute						
Follows instructions from supervisor						
Ability to learn						
Quality of work						

Discuss the student's performance during the clinical experience.

What are the student's greatest weaknesses?

What are the student's greatest strengths?

Describe the student's performance since the midterm evaluation (NA on midterm evaluation):

Other comments:

Your overall evaluation of the student as a potential employee (5 = high and 1 = low)?

5 4 3 2 1

Clinical Site Preceptor Date

Student Date

Appendix I – ACSM RCEP Code of Ethics

A. Principles and purposes: Preamble—These principles are intended to aid Fellows and members of the College individually and collectively to maintain high level of ethical conduct. These are not laws but standards by which a Fellow or a member may determine the propriety of his/her conduct, relationship with colleagues, with members of allied professions, with the public, and with all persons in which a professional relationship has been established. The principal purpose of the College is the generation and dissemination of knowledge concerning all aspects of persons engaged in exercise with full respect for the dignity of people.

Section 1: members should strive continuously to improve knowledge and skill and make available to their colleagues and the public the benefits of their professional expertise.

Section 2: members should maintain high professional and scientific standards and should not voluntarily collaborate professionally with anyone who violates this principle.

Section 3: The College, and its members, should safeguard the public and itself against members who are deficient in ethical conduct.

Section 4: The ideals of the College imply that the responsibilities of each Fellow or member extend not only to the individual, but also to society with the purpose of improving both the health and well-being of the individual and the community.

B. Maintenance of Good-standing in Regulated Professions: Any Fellow or member required by law to be licensed, certified or otherwise regulated by any governmental agency in order to practice his or her profession must remain in good-standing before that agency as a condition of continued membership in the College. Any expulsion, suspension, probation or other sanction imposed by such governmental agency on any Fellow or member is grounds for disciplinary action by the College.

C. Public Disclosure of Affiliation: Other than for commercial venture, any member or Fellow (FACSM) may disclose his/her affiliation with the College in any context, oral or documented, provided it is currently accurate. In doing so, no member or Fellow may imply College endorsement of whatever is associated in context with the disclosure, unless expressly authorized by the College. Disclosure of affiliation in connection with a commercial venture may be made provided the disclosure is made in a professionally dignified manner, is not false, misleading or deceptive, and does not imply licensure for the attainment of specialty or diploma status. Members who are currently ACSM Certified or Registered may disclose their certification status and Fellows may disclose their Fellow status. Because membership and fellowship in ACSM is granted to individuals, disclosure of affiliation and/or use of the initials ACSM are not to be made as part of a firm, partnership or corporate name. Violation of this article may be grounds for disciplinary action.

D. Discipline: Any Fellow or member of the College may be disciplined or expelled for conduct which, in the opinion of the Board of Trustees, is derogatory to the dignity of or inconsistent with the purposes of the College. The expulsion of a Fellow or member may be ordered upon the affirmative vote of two-thirds of the members of the Board of Trustees present at a regular or a special meeting, and only after such Fellow or member has been informed of the charges preferred against him and has been given an opportunity to refute such charges before the Board of Trustees. Other disciplinary action such as reprimand, probation, or censure may be recommended by the Committee on Ethics and Professional Conduct and ordered following the affirmative vote of two-thirds of the members of the Board of Trustees present at a regular or special meeting or by mail ballot, provided a quorum takes action.

(*American College of Sports Medicine – 10/9/04)*

Appendix J – RCEP Scope of Practice

The Clinical Exercise Physiologist is an allied health professional who uses exercise and physical activity to assess and treat patients at risk of or with chronic diseases or conditions where exercise has been shown to provide therapeutic and/or functional benefit. Patients for whom RCEP services are appropriate may include, but are not limited to, persons with cardiovascular, pulmonary, metabolic, cancerous, immunologic, inflammatory, orthopedic, musculoskeletal, neuromuscular, gynecological, and obstetrical diseases and conditions. The RCEP provides scientific, evidence-based primary and secondary preventive and rehabilitative exercise and physical activity services to populations ranging from children to older adults. The RCEP performs exercise screening, exercise testing, exercise prescription, exercise and physical activity counseling, exercise supervision, exercise and health education/promotion, and evaluation of exercise and physical activity outcome measures. The RCEP works individually and as part of an interdisciplinary team in clinical, community, and public health settings. The practice and supervision of the RCEP is guided by published professional guidelines, standards, and applicable state and federal regulations. The practice of clinical exercise physiology is restricted to patients who are referred by and are under the care of a licensed physician.

(American College of Sports Medicine – 10/9/04)

Appendix K – Drug Screening and Criminal Background Check Form

DRUG SCREENING AND CRIMINAL BACKGROUND CHECK
ACKNOWLEDGEMENT AND AGREEMENT

UNC CHARLOTTE COLLEGE OF HEALTH AND HUMAN SERVICES
EDUCATION PROGRAMS REQUIRING EXTERNAL HEALTH OR HUMAN SERVICE AGENCIES

_____ _____
Student's Printed Name CHHS Program

1. I understand and acknowledge that the UNC Charlotte College of Health and Human Services (CHHS) has affiliated with several health care and human services facilities (hereinafter " Agecnies") to provide internships, field placements or clinical experiences for students in the CHHS (hereinafter "Students"). I further understand and acknowledge that the Agencies have a compelling interest in the integrity of their services and the health and safety of their patients, others who may come into contact with Students, and the Students themselves.

2. I understand and acknowledge that in order to protect their interests, many Agencies require Students to comply with their drug testing and/or criminal background check policies and to undergo drug testing and/or criminal background checks as conditions of participating in their education programs. In addition, such Agencies often require that Students submit to the required drug testing and/or criminal background checks at the Students' own expense. I understand that the CHHS will provide Students with information to obtain the drug testing and/or criminal background checks required by the Agencies.

3. I understand and acknowledge that a Agency may, in accordance with its policies, reject or expel a Student from its Agency based on the results of the drug testing and/or criminal background checks.

4. I am or will be enrolled as a student in the CHHS, and I plan to participate as a Student in a educational experience at an Agency .

5. Because participation in agency-related educational programs is a degree requirement for students in the CHHS program indicated above, I understand that I may be required to undergo a criminal background check and/or drug screening as a condition of my participation in an internship, field placement or clinical experience at an external health and human service agency.

6. **As a condition of participating as a Student in an education program, I hereby agree to comply with the criminal background check requirements at each Agency to which I am assigned. If the Agency facilitates criminal background checks, I agree to comply with such requirements and follow the procedures set forth by the Agency . If the Agency requires that I undergo a criminal background check prior to my placement, I agree to undergo a criminal background check by a CHHS-approved agency at my own expense. I will then submit my original results to the Agency, which shall determine whether the results of my criminal background check are acceptable.**

7. **I hereby agree to comply with the drug screening test requirements at each Agency to which I am assigned. If the Agency facilitates drug screening, I agree to comply with such requirements and follow the procedures set forth by the Agency . If the requires that I undergo drug screening prior to my placement, I agree to undergo drug testing by a CHHS approved testing laboratory at my own expense. I will then submit my original results to the, which shall determine whether the results of my drug screening are acceptable.**

8. **I have read both the CHHS Criminal Background Check and Drug Screening Policy and this Acknowledgement and Agreement, and I understand its contents. I have had the opportunity to ask questions of and discuss the Policy and this Acknowledgement and Agreement with appropriate administrators in the College of Health and Human Services. I understand that I am responsible for meeting the requirements set forth in the Policy and this Acknowledgment and Agreement.**

_____ _____
Student's Signature Date