



**Master of Science**

**in**

**Clinical Exercise Physiology**

**Graduate Student 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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## **DEPARTMENT OF KINESIOLOGY MISSION STATEMENT**

“The Department of Kinesiology promotes optimal health and well-being by encouraging life-long movement and activity in a variety of populations through scholarly research, teaching and service.”

For additional information visit: <http://kinesiology.uncc.edu/> OR  
[http://kinesiology.uncc.edu/index.php?option=com\\_content&view=article&id=43&Itemid=75](http://kinesiology.uncc.edu/index.php?option=com_content&view=article&id=43&Itemid=75)

## **DEPARTMENT WEBSITE INFORMATION**

The Master of Science (M.S.) in Clinical Exercise Physiology (CEP) webpage is:  
([http://kinesiology.uncc.edu/index.php?option=com\\_content&task=view&id=37&Itemid=59](http://kinesiology.uncc.edu/index.php?option=com_content&task=view&id=37&Itemid=59))

To locate this webpage from the UNC Charlotte homepage, follow these instructions:

- UNC Charlotte homepage ([www.uncc.edu](http://www.uncc.edu))
- Choose ‘Colleges/Library’ link (select College of Health and Human Services)  
(<http://www.health.uncc.edu/>)
- Choose ‘Academic Units’ link (select Kinesiology)  
(<http://kinesiology.uncc.edu/>)
- Choose ‘Academic Degree Programs’ link (select MS in Clinical Exercise Physiology)  
([http://kinesiology.uncc.edu/index.php?option=com\\_content&task=view&id=37&Itemid=59](http://kinesiology.uncc.edu/index.php?option=com_content&task=view&id=37&Itemid=59))

On the CEP website students will find:

- An overview of the program
- Admission procedures including requirements and application process
- Graduation requirements and link to documents
- Curriculum (including course progression and capstone experience)
- Graduate Program Coordinator contact information

On the Kinesiology webpage students will find:

- Degrees and programs offered within the department
- The Department’s mission/vision statements
- Departmental faculty, staff and advisory board information
- Research and Scholarship including the Biodynamics and Exercise Physiology Research Laboratories
- Student resources including the Departmental plagiarism tutorial and CHHS Student Handbook

For more information visit: (<http://kinesiology.uncc.edu/>)

## **DEPARTMENT HISTORY**

In 1965, Dr. Harvey Murphy was hired to develop, coordinate, and implement all aspects of the campus recreational, athletic, and health and physical education efforts. Initially, Dr. Murphy's efforts were conducted in the "Area" of Health and Physical Education in the "Division" of Education and included not only the academic courses in Health and Physical Education, but also encompassed Intercollegiate Athletics and campus Intramurals. In 1969, the Area of Health and Physical Education was moved to the Division of Social and Behavioral Sciences. In 1972, the "Department" of Health and Physical Education was established within the College of Human Development and Learning which became the College of Education and Allied Professions in 1985. Reflecting the evolution of both Health Education and Physical Education from school-based activities to lifelong concerns, the Department transitioned to the Department of Health Promotion and Kinesiology in 1993 and then moved to the College of Nursing and Health Professions in 1995 which became the College of Health and Human Services in 2002.

Dr. Murphy's retirement in 1996 as Professor and Chair of the Department of Health Promotion and Kinesiology began a new era for the Department. Dr. Tim Lightfoot took over leadership of the Department as Chair in 1996 (a position he held for 9 years), which would soon experience another shift in its educational mission and philosophy. Given the evolution of rapidly divergent philosophical underpinnings of the two areas in Health Promotion and Kinesiology, in 2002, the Health Promotion faculty moved to the new Department of Health Behavior and Administration and the Department now focused its research, teaching, curricula, and service exclusively in Kinesiology. As can be appreciated by this history, this Department has always served as an incubator for other university activities with the best examples being the development and spin-off of the UNC Charlotte Athletic Department in 1973, Intramurals and Recreational Services in 1975, and Health Behavior and Administration in 2002, which later became the Department of Public Health Sciences in 2008.

While the Department had continuously offered activity courses to the students to encourage physical activity within the University since 1965, in 1983 the Department established its first academic program, an M.Ed. in Health Education. This degree, while popular over the years, evolved along with the encompassed disciplines, being renamed Health Promotion in 1989, converted to a Masters of Science degree in 1997, and was revised with the addition of three specialty areas and three graduate certificate programs in 2000. Two of the specialty areas, Clinical Exercise Physiology and Community Health, both rapidly grew and established a need for stand-alone graduate education in each area. With the transition to the Department of Kinesiology (from Health Promotion and Kinesiology), the M.S. in Clinical Exercise Physiology was developed from 2002-2004 and was officially implemented as a degree program in January 2005.

In 1994, after a seven-year effort, the undergraduate degree in Health Fitness was established and quickly grew to approximately 200 students by the Fall of 1996. A "pre" Health Fitness designation was added in 1998 and concentration areas were added to the degree in 1997. One concentration area, Athletic Training, was first offered as an internship program for several years for students seeking NATABOC certification. Five years later, Athletic Training was spun off into its own degree granting program in the Fall 2002 and later became nationally accredited by CAAHEP in October 2003. Also, to reflect the true unified base education for our students, the "pre" Health

Fitness designation was changed to Pre-Kinesiology in 2003 and is used to denote all first- and second-year students in Kinesiology.

The start of the 2005-2006 academic year would begin another chapter in the storied history of the Department of Kinesiology as Dr. Mitch Cordova was hired as Chair to start the Fall 2005 semester. During the Spring 2006 semester, the Department took another major step forward in refining and improving its degree programs. The BS degree in Health Fitness experienced a significant curriculum revision that resulted in a BS degree in Exercise Science. The change in the degree name was done to better reflect the content of the revised program. During the 2007-2008 academic year, the Department created a new BS degree program in Respiratory Therapy and hired its first Program Director. Due to a large amount of interest expressed by local practicing Respiratory Therapists to offer the program online, the Department quickly transitioned the newly developed “seated” curriculum to an online program at the start of the 2008-2009 academic year. The BSRT program graduated its first student in December 2008. During the 2008-2009 academic year, the Department also achieved three more milestones in its history. The Athletic Training Education program received its first CAATE-Accreditation for a 10 year period (the maximum amount of time possible) and the Exercise Science and Clinical Exercise Physiology Education Programs received their initial 5-year accreditations from CAAHEP.

In addition to our formal academic programs, the Department of Kinesiology has played a major role in the development and support of other academic programs on campus. The Department continues to offer the state-mandated Health and Physical Education methods courses for the College of Education students, and Department faculty have played key roles in Interdisciplinary PhD Programs in Biomedicine and Health Services Research. Particularly, the Department graduated its first PhD student from the Biomedicine Program in May 2007. Until 2002, Kinesiology played a significant role in the development and maintenance of the MHA program, with delivery of all campus Epidemiology courses and the Information Resources Management course. Additionally, the Department continues to offer the longest running set of experiential physical activity courses on campus that are critical to teaching behaviors and skills to the University community that are essential for healthy living. Due to the expansion of research faculty hired since Fall 2005, the Department significantly enhanced its research infrastructure by creating the Biodynamics (located in Belk Gym) and Exercise Physiology Research (located in Cameron) Laboratories, both of which are 2500sq ft in size and contain state of the art equipment. The creation of these laboratories has significantly increased the Department’s research profile.

As can be appreciated, the mission of the Department of Kinesiology and its place in the University has grown over the years. The Department has been successful in continuing our original mission of providing physical and health education to the university community, as well as developing our mission of providing unique, contemporary, and innovative educational degree programs across sub-disciplines in Kinesiology and providing a fertile incubator for new ideas and entities that then provide value to the University. Our recent emphasis on conducting cutting-edge scholarship in Kinesiology rounds-out our mission and as such, we anticipate that Kinesiology will continue to be a leader within the University in the future.

## M.S. in Clinical Exercise Physiology Faculty And Staff Information

<p><b>Dr. Joe Coyle</b> Lecturer in Kinesiology in the Respiratory Therapy Baccalaureate Program Associate Graduate Faculty Belk Gym Room 245 704 687 2881 <a href="mailto:jcoyle7@uncc.edu">jcoyle7@uncc.edu</a></p>	<p>Dr. Coyle joined the faculty at UNCC full time in 2008. Dr. Coyle has been an Anesthesiologist and Critical Care physician at Carolinas Medical Center for 20 years. He specializes in anesthesia for cardiac and thoracic surgery and pediatric anesthesia. He has long been involved with Respiratory Therapy; he was Medical Director of Respiratory Therapy at Carolinas Medical Center for 15 years, and he serves on the North Carolina Respiratory Board as Chairman. Dr. Coyle also serves as a Commissioner on CoARC which is the national accrediting body for Respiratory Care education. Dr. Coyle has had a lifelong interest in Quality Improvement. He served as the Chairman of the QA Committee in the Anesthesiology Department at CMC as well as in his prior work at The Cleveland Clinic and Bethesda Naval Hospital. In the BSRT Program Dr. Coyle teaches Pharmacology, Cardio-pulmonary physiology, Critical Care Pathophysiology, Monitoring, and Evidence-based Medicine.</p>
<p><b>Dr. Mitchell Cordova</b> Department Chair Professor Belk Gym Room 226A 704-687-3176 <a href="mailto:mcordova@uncc.edu">mcordova@uncc.edu</a></p>	<p>Dr. Cordova serves as Professor, Director of the Biodynamics Research Laboratory and Chairperson of the Department of Kinesiology at The University of North Carolina at Charlotte. Additionally, he is an affiliate researcher within the Center for Biomedical Engineering Systems and Program Faculty within Biomedicine and Health Services Research PhD programs at UNC Charlotte. Prior to his arrival at UNC Charlotte in Fall 2005, Dr. Cordova served 8 years on faculty and as Department Chair at Indiana State University. Dr. Cordova earned his BS degree in Athletic Training from East Stroudsburg University, his Masters degree in Athletic Training from Indiana State University and his Doctor of Philosophy degree in Biomechanics from The University of Toledo. Dr. Cordova is a Certified Athletic Trainer and Licensed Athletic Trainer in North Carolina. He is also a Fellow of the American College of Sports Medicine and National Athletic Trainers' Association. He is an Associate Editor for the <i>Journal of Athletic Training</i> and serves on the Editorial Board for the <i>Journal of Sport Rehabilitation</i>. Further, he serves as a manuscript reviewer for many other journals in Sports Medicine, Exercise Science, and Neurophysiology. His research focus involves investigating the neuromechanical consequences of lower extremity joint injury and pathology.</p>
<p><b>Dr. Rebecca S. Greiner</b> Associate Graduate Faculty <a href="mailto:rgreiner@uncc.edu">rgreiner@uncc.edu</a></p>	<p>Dr. Greiner received her PhD in Nutritional Biochemistry from Cornell University and subsequently did post-doctoral research at the NIAAA/NIH and UNC-Chapel Hill. Her research interests include the genetic and epigenetic effects of omega-3 fatty acids as well as their role in growth, development and cancer.</p>

<p><b>Dr. Reuben Howden</b> Assistant Professor Belk Gym Room 237 704-687-3583 <a href="mailto:rhowden@uncc.edu">rhowden@uncc.edu</a></p>	<p>Dr. Howden joined the Department in August of 2008 as an Assistant Professor. Dr. Howden obtained his PhD in 2002 from De Montfort University, in Bedford, UK and after which spent the next six years as a Visiting Fellow and Research Fellow at the National Institute of Environmental Health Sciences (NIEHS) under the direction of Professor Steven Kleeberger. Dr. Howden has been studying cardiovascular genetics using a number of different models including: understanding the effects of oxygen exposure on cardiopulmonary function.</p>
<p><b>Dr. Tricia Hubbard</b> Assistant Professor Belk Gym Room 240A 704-687-6202 <a href="mailto:thubbar1@uncc.edu">thubbar1@uncc.edu</a></p>	<p>Dr. Hubbard joined our faculty in August 2005 to be the Director of the Athletic Training Education Program (ATEP). Dr. Hubbard received her doctorate from Pennsylvania State University and has an incredibly productive research program, working primarily in the area of ankle instability and osteoarthritis. Dr. Hubbard is a certified and licensed Athletic Trainer.</p>
<p><b>Dr. Susan Tsivitse</b> Assistant Professor Graduate Program Coordinator Belk Gym Room 238 704-687-2731 <a href="mailto:susantsivitse@uncc.edu">susantsivitse@uncc.edu</a></p>	<p>Dr. Tsivitse joined our faculty in August of 2006 as an Assistant Professor. Dr. Tsivitse received her doctorate in the area of Applied Physiology from the University of Toledo, and completed a postdoctoral fellowship at Stanford University School of Medicine. Dr. Tsivitse's research focus is the role of developmental signaling pathways in regulating skeletal muscle stem cells following physiological stimuli.</p>
<p><b>Dr. Michael Turner</b> Associate Professor Belk Gym Room 240B 704-687-4698 <a href="mailto:miturner@uncc.edu">miturner@uncc.edu</a></p>	<p>Hired in June 1998, Dr. Turner's specialty is Exercise Physiology and he has researched extensively the effect of exercise on the physiology of aging. Dr. Turner has his doctorate from the University of Tennessee, did a three year National Institutes of Health postdoctoral research fellowship at Washington University under Dr. J. Hollozy, and was an Assistant Professor at Wichita State and Director of their Geriatric Wellness programs. In addition to his other duties, Dr. Turner is also Director of our Functional Health Laboratory and is a Registered Clinical Exercise Physiologist. Dr. Turner currently is investigating the role of genetic factors and physical activity on the decline of cardiac function with aging.</p>
<p><b>Dr. Erik Wikstrom</b> Assistant Professor Belk Gym Room 226B 794-687-3764 <a href="mailto:ewikstrom@uncc.edu">ewikstrom@uncc.edu</a></p>	<p>Dr. Wikstrom joined our faculty in August 2008 as an Assistant Professor. Dr. Wikstrom came to UNC Charlotte after several years as the Director of Undergraduate Athletic Training at the University of Florida where he earned his doctorate in Health and Human Performance. Dr. Wikstrom's research focuses on the interactions between musculoskeletal biomechanics and sensorimotor control of the lower extremity following injury with particular emphasis on the coordination of balance. Dr. Wikstrom is also a certified and licensed Athletic Trainer.</p>
<p><b>Ms. Kelly Koher</b> Administrative Assistant Belk Gym Room 226 704-687-4700 <a href="mailto:kkoher@uncc.edu">kkoher@uncc.edu</a></p>	<p>Ms. Koher joined our department in January 2010 and is the dedicated Administrative Assistant that tends to the department's needs and concerns. Kelly supports not only the Chair of the department but the overall well being of the department itself. She serves as a coordinator between the students and our faculty in most daily affairs.</p>

## **CLINICAL EXERCISE PHYSIOLOGY OUTCOME GOALS**

The Master of Science in Clinical Exercise Physiology is designed to prepare students to become Registered Clinical Exercise Physiologists (RCEP) through education in 6 of the major practice areas. These 6 practice areas include:

Cardiovascular	Musculoskeletal
Pulmonary	Neuromuscular
Metabolic	Neoplastic, Immunologic, Hematologic

Becoming a RCEP upon completion of this program will qualify students for employment in a variety of settings, including:

- Inpatient & outpatient clinical/rehabilitation settings  
(e.g. Cardiopulmonary rehab programs)
- General wellness/fitness commercial & corporate settings
- Industrial settings that provide health care services for both diseased & healthy populations.

Through the Clinical Exercise Physiology program, the student will become proficient in all of the required ACSM RCEP Knowledge, Skills, and Attributes (KSAs) and the educational objectives (ACSM's Resources for CEP, Am. Coll. of Sp. Med., 2002, Appendix A) in the following areas:

1. Pathophysiology
2. Aspects of the Physical Examination
3. Diagnostic Techniques
4. Exercise Prescription and Programming
5. Emergency Procedures
6. Administ. Testing and Rehab. Programs
7. Clinical Exercise Physiology
8. Medical and Surgical Treatments
9. Exercise/Fitness/Functional Testing
10. Education and Counseling
11. Quality Assurance/Outcome Assessment
12. Pharmacology

In addition to the classroom and lab experience, all students will gain invaluable clinical experience by completing 600 practicum hours in a variety of clinical settings.

For more information visit the MS CEP website:

[http://kinesiology.uncc.edu/index.php?option=com\\_content&task=view&id=37&Itemid=59](http://kinesiology.uncc.edu/index.php?option=com_content&task=view&id=37&Itemid=59)

## **COURSE INFORMATION**

The Clinical Exercise Physiology Master's Degree Program requires a minimum of 36 semester hours of graduate credit, including 24 hours of core courses, a minimum of 3 hours of Clinical Practicum, 6 hours of electives, and 3 hours of either the Research Thesis option or an additional elective course. (*UNC Charlotte Graduate Catalog*)

### **Core Courses (24 credit hours)**

KNES 6285	Advanced Cardiopulmonary Physiology (3)
KNES 6120	Advances in Clinical Exercise Physiology (3)
KNES 6280	Advanced Exercise Physiology (3)
KNES 6121	Clinical Practice in Exercise Physiology (3)
KNES 6134	Exercise Prescription for Cardiopulmonary and Metabolic Disorders (3)
KNES 6292	Exercise Prescription for Musculoskeletal Disorders (3)
KNES 5232	Physiology of Human Aging (3)
NURS 6160	Research Methods in Health Professions (3)

### **Clinical Practicum (3 credit hours)**

KNES 6490	Advanced Practicum in Clinical Exercise Physiology (1)
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Each credit hour of KNES 6490 corresponds to 200 hours spent in a clinical facility to be assigned by the Practicum Supervisor. Each student must complete a minimum of 3 credit hours, corresponding to 600 clinical hours, in order to be eligible to sit for the Registered Clinical Exercise Physiologist Exam (RCEP) as well as for graduation with a Master's Degree in Clinical Exercise Physiology.

### **Capstone Experience (3 credit hours)**

The student is required to complete one of the following two options.

OPTION A     KNES 6900     Research Thesis (3)

OPTION B     Completion of an additional elective course and satisfactory completion of a comprehensive competency examination.

### **Suggested Electives**

Whereas Health Care is often the function of a multidisciplinary health team, students are encouraged to interact and take courses in other health care disciplines. Possible areas of interaction are with the Biology and Biotechnology Programs, the Public Health program, the Social Work programs, and the Gerontology program.

Below is a list of suggested electives, although other courses may be taken if approved by the student's advisor. **Please note: all elective courses must be approved by the student's advisor prior to class registration, even if the class appears on the Suggested Electives list.**

### **Suggested Electives**

KNES 6099	Neuromechanics of Human Movement (3)
KNES 6260	Clinical Exercise Nutrition (3)
KNES 6469	Directed Independent Study (3)
KNES 6899	Special Topics in Exercise Physiology (3)
HLTH 5299	Epidemiology (3)
HLTH 6222	Health Promotion Analysis (3)
BIOL 5171	Cell Physiology (3)
BIOL 5199	Molecular Biology (3)
BIOL 5260	Population Genetics (3)
BIOL 6050	Advanced Human Physiology (Special Topics) (3)
BIOL 6050	Pathophysiology (Special topics) (3)

## PROGRESSION OF CLASSES

For students taking nine (9) credits per term:

### First Year – 23 credits

Fall	KNES 6120	Advances in Clinical Exercise Physiology (3)
	NURS 6160	Research Methods in Health Professions (3)
	KNES 6121	Clinical Practice in Exercise Physiology (3)
Spring	KNES 6134	Exercise Prescription for Cardiopulmonary and Metabolic Disorders (3)
	KNES 6280	Advanced Exercise Physiology (3)
	Elective	To be agreed upon with advisor (3)
	KNES 6490	Advanced Practicum in Clinical Exercise Physiology (1)
Summer	KNES 6292	Exercise Prescription for Musculoskeletal Disorders (3)
	KNES 6490	Advanced Practicum in Clinical Exercise Physiology (1)

### Second Year – 13 credits

Fall	KNES 5232	Physiology of Human Aging (3)
	Elective	To be agreed upon with advisor (3)
	KNES 6490	Advanced Practicum in Clinical Exercise Physiology (1)
Spring	KNES 6285	Advanced Cardiopulmonary Physiology (3)
	and	
	6900 / 6886	OPTION A - Research Thesis (3)
	or	
Elective	OPTION B - To be agreed upon with advisor (3)	

**Total credits** 36

## PRACTICUM INFORMATION

The Master's Degree in CEP is designed to prepare students to become Registered Clinical Exercise Physiologists and be employed in inpatient and outpatient clinical / rehabilitation settings, general wellness / fitness commercial and corporate settings, and industrial settings that provide health care services for both diseased and healthy populations. In order to ensure that the CEP Master's Degree Program continues to produce RCEP professionals of the highest quality, each student is required to complete 600 clinical hours (3 credit hours) of on-site practical experience. The practical experience element of the program is essential in preparing students to confidently and competently fulfill the role of RCEP and ensure that students are able to practically apply the principles and concepts taught in the classroom setting.

Upon completion of nine credit hours within the CEP Master's Degree Program, evidence of basic mastery in Exercise Physiology, and approval of the Practicum Supervisor, each student is eligible to register for KNES 6490 and begin the clinical experience. The student is expected to contact the Practicum Supervisor during the semester preceding that in which the student wishes to register for KNES 6490. **The Practicum Supervisor is responsible for assigning each student to a clinical site.**

Over the course of the 600 clinical hours, the student will gain experience working within the cardiovascular, pulmonary, metabolic, orthopedic / musculoskeletal, neuromuscular, and immunological / hematological practice areas. Prior to beginning the first set of clinical hours, each student will receive a copy of the *Advanced Practicum in CEP Practicum Handbook* ([http://kinesiology.uncc.edu/index.php?option=com\\_content&task=view&id=52&Itemid=82](http://kinesiology.uncc.edu/index.php?option=com_content&task=view&id=52&Itemid=82)) which contains detailed information regarding the clinical experience. Questions not addressed in the Practicum Handbook may be directed to the student's advisor or the Practicum Supervisor. There is an affiliation agreement (contract) between UNC-Charlotte and that agency and a preceptor letter is sent to that agency prior to the student starting their Practicum hours.

Each student is responsible for producing documentation pertaining to proof of current CPR certification (either Red Cross or American Heart Association), current professional liability insurance, and current immunizations before the Practicum can begin. In addition, a clinical background check and a nine panel drug screening may be required for some of the practicum sites. UNC Charlotte is not involved with criminal background checks and drug screening requirements and, thus, the responsibility of compliance lies solely with the student. Documentation must be provided to both the Practicum Supervisor, as well as the Clinical Preceptor associated with the student's assigned clinical site. Liability insurance is available at a very reasonable rate through the department and interested students should contact the department secretary for more information. (*Adapted from the Department of Kinesiology Clinical Exercise Physiology M.S. KNES 6490 Practicum Handbook.*)

## **CAPSTONE EXPERIENCE DETAILS**

The plan of study for a Master's Degree in Clinical Exercise Physiology may include either the completion of a thesis (OPTION A) or the completion of an additional elective course and comprehensive competency examination (OPTION B). The thesis and non-thesis approaches are designed to meet the needs of students preparing for different types of careers and represent qualitatively different educational experiences. Consequently, the Department of Kinesiology and the Dean of the Graduate School discourage any switching from one plan to another. If a switch from a thesis to non-thesis plan is approved, the grade of I for the thesis work will be changed to W on the transcript with no refund of tuition for the course(s). (*Adapted from UNC Charlotte Graduate Catalog*)

### **OPTION A – Research Thesis**

Students choosing to pursue OPTION A should allow a minimum of two semesters to complete the research thesis. Please note that thesis proposals must be submitted to and accepted by the research thesis committee one semester prior to the defense of the thesis. Most thesis topics are under the Research Agenda of the Kinesiology Graduate Faculty. Although the Progression of Classes reflects only one semester of KNES 6900 / 6886, students should be aware that preparation and approval of the thesis proposal occurs during the semester prior to that in which KNES 6900 / 6886 is actually taken. The following dates should be kept in mind for submitting various portions of the research thesis to the appropriate committees.

	<b>Proposed Graduation</b> (Exact dates will vary from year to year)	
	<b>Fall</b>	<b>Spring</b>
Research thesis due to committee members by:	October 11	March 11
Research thesis defense no later than:	November 1	April 1
Research thesis due to Graduate School by:	December (2 weeks before the end of the semester)	May (2 weeks before the end of the semester)

At the time that the graduate program approves the student's thesis topic, the Petition for Topic Approval must be filed with the Graduate School. The thesis should be submitted for final approval by the student's thesis committee at least three weeks before the date of the oral examination in which the thesis is defended. Following the successful completion of this defense, the master's candidate must submit three unbound copies of the approved and error-free thesis to the Graduate School no later than the filing date indicated in the University Calendar. (*UNC Charlotte Graduate Catalog*).

The student is responsible for understanding all policies and requirements set forth by the Clinical Exercise Physiology Master's Degree Program and UNC Charlotte regarding the thesis option of the Capstone Experience. Please reference the University Calendar and the *Manual of Basic Requirements for Theses and Dissertations*, which may be electronically retrieved at <http://graduateschool.uncc.edu/graduation/manual.html> for the most accurate information regarding thesis deadlines and procedures.

A sample one-year research thesis timeline is presented below. Please remember that the following dates are meant for reference purposes only and the student is responsible for confirming all dates with his or her advisor and the Graduate School.

<b>Sample Research Thesis Timeline</b>		
<b>Proposed Graduation Date</b>		<b>Activity</b>
<b>Fall</b>	<b>Spring</b>	
April 1	September 1	Student generates research problems and discusses them with faculty member. Faculty member in consultation with the student's academic program advisor recommends commencement of a research prospectus.
April 15	September 15	Student asks faculty members to serve on the research thesis committee and selects a chair. Student files for admission to candidacy (if not already filed).
May 1	October 1	Student submits research thesis prospectus to the research thesis committee chair. Student begins a comprehensive review of the literature.
May 1 - 15	October 1 - 15	Chair circulates prospectus to other committee members for comments. Chair returns research thesis prospectus to student with recommended corrections.
May 15	October 15	Research thesis prospectus meeting is held. A contract is prepared. Student files petition for topic approval with the Graduate School.
May 15 - June 15	October 15 - November 15	Student works on first three chapters (research thesis proposal).
June 15	November 15	Student submits first draft of thesis proposal to chair. Chair reviews research thesis proposal and notes any suggested revisions, corrections, or additions.
June 30	November 30	Student makes corrections required by chair. Student calls committee members and schedules a research thesis proposal meeting.
July 1	December 1	Student distributes copies of revised research thesis proposal to all committee members (2 weeks prior to meeting).

July 15	December 15	Proposal meeting is held. Committee members make suggestions and corrections to research thesis proposal. If research thesis proposal is approved, the members sign form to allow student to continue. Student seeks human subjects committee and agency IRB approval, if appropriate.
August 1 - September 30	January 1 - February 28	Student implements research thesis proposal and collects data (after human subjects committee approval has been obtained), analyzes data with help of technical advisor, and writes chapters four and five of research thesis.
October 1	March 1	Student submits copy of completed research thesis to the committee chair for initial approval. Student makes necessary corrections or revisions.
October 1 - 11	March 1 - 11	Student resubmits revised research thesis to chair for approval (maybe more than once). Once approved, student arranges research thesis defense.
October 11	March 11	Student delivers copies of research thesis to all committee members (3 weeks prior to defense). Faculty make recommendations for changes. Research thesis defense is scheduled and announced to all college faculty.
November 1	April 1	Research thesis is defended.
November 15 - December 1	April 15 - May 1	Student completes rewrites and seeks final approval from chair and committee members. Thesis document prepared and required number of copies are made after appointment for format evaluation by the Graduate School.
December (2 weeks before end of semester)	May (2 weeks before end of semester)	Student obtains signatures from all committee members. Student submits research thesis to the Graduate School. <b>Consult the semester Schedule of Classes for exact due date.</b>

### OPTION B – Comprehensive Competency Examination

As an alternative to completing a Research Thesis, students may choose to complete OPTION B. Students who choose OPTION B must complete an additional 3 credit hour elective class and pass a written comprehensive competency examination. The written comprehensive exam is the prestigious Registered Clinical Exercise Physiologist examination (RCEP), administered by the American College of Sports Medicine. Successful completion of the ACSM RCEP examination will provide the student with the designation of Registered Clinical Exercise Physiologist credential, a certification that will be of great benefit in the professional setting. Obtaining the RCEP credential is highly valuable and will allow career advancement over other certifications. During the student's last Practicum, they apply to sit for the RCEP exam by submitting required paperwork to ACSM (found on the ACSM's website:

[http://www.acsm.org/AM/Template.cfm?Section=Registered\\_Clinical\\_Exercise\\_Physiologist](http://www.acsm.org/AM/Template.cfm?Section=Registered_Clinical_Exercise_Physiologist)). The student may need a letter from the Graduate Coordinator to ACSM since a requirement to sit for the RCEP exam is a Master's Degree which the student will not have yet). There is no limit in the number of trials for the student to take the RCEP exam. ACSM requires a 2 week sit-time between each test attempt. More information regarding the ACSM RCEP examination may be found in the Certification section of the ACSM website: [http://www.acsm.org/Content/NavigationMenu/Certification/GetCertified/Get\\_ACSM\\_Certified11.html](http://www.acsm.org/Content/NavigationMenu/Certification/GetCertified/Get_ACSM_Certified11.html).

The RCEP exam is an extremely difficult test which entails intense preparation for months prior to the test. The course work and Practicum experience adequately prepares the student for the exam but the student also needs to devote significant personal study-time. The recommended study material to pass the RCEP exam is the "ACSM Resource Manual for Guidelines for Exercise Testing and Prescription". This manual is a more detailed version of the Guidelines book and is highly recommended.

The deadline for the student to pass the RCEP exam and graduate for that semester is the last day of class (the day prior to Reading Day and Finals Week) for that semester. For Summer semester, the last day to take the RCEP exam is the last day of class prior to finals. Please refer to the UNCC’s academic calendar for the specific dates. See table below for proposed dates for 2010 – 2011 academic year. Refer to UNCC’s Academic Calendar. Be sure to comply with deadlines for graduate school paperwork. \*\*\*\* Please note that the Graduate Coordinator and Graduate Faculty are not on 12 month contracts and may not be readily available during summer months; therefore the student will need ample time to obtain signatures.

Should the student not pass the RCEP examination after multiple attempts, the student has an option to pass a comprehensive competency examination prepared by the faculty. The student has one attempt to take the faculty-prepared comprehensive exam which is offered during the Fall and Spring Semester. The faculty-driven comprehensive exam is not available during the Summer. It is an 8h, one-day exam in which the student is given 1 question from each of the core courses that is written and graded by the instructor who teaches that course. The comprehensive exam may include components of the RCEP exam. If the student does not pass the exam during the 1 attempt, they fail the MS-CEP program. There is at least a four-week preparation period between the student notifying the Graduate Program Coordinator of the desire to take the faculty-driven comprehensive exam and the date set for the exam. This time period is needed for the student to properly prepare for the exam and for the graduate faculty to design the exam for the student. The earliest a student may take the faculty-driven comprehensive exam is week 4 of the Fall or Spring semester (with a prior four-week preparation period). The latest that the student can take the faculty-driven comprehensive is week 15 of the Fall or Spring semester (to allow for ample time for grading and discussion of the exam by the graduate faculty prior to any graduate school deadlines). Dates may vary pending on the Graduate Coordinator’s schedule. Table below shows estimated dates for 2010 – 2011 academic year. Please refer to academic calendar for confirmed dates.

	<b>Proposed Graduation Semester (exact dates vary year to year)</b>		
	<b>Fall</b>	<b>Spring</b>	<b>Summer</b>
Final date to notify Graduate Coordinator of passing RCEP exam	Last day of class (December 8, 2010)	Last day of class (May 3, 2010)	Last day of class for Summer Session II; not including finals (August 5, 2011)
Earliest date to take the faculty-driven comprehensive exam	Week 4 of the semester (including a 4 week preparation period)	Week 4 of the semester (including a 4 week preparation period)	Not available during summer
Deadline of taking the faculty-driven comprehensive exam	Week 15 of the semester	Week 15 of the semester	Not available during summer

## **GRADUATION INFORMATION**

### **General deadlines and information**

It is University policy that the graduate student is enrolled during the semester they expect to graduate. If you have completed all of the course requirements and Practicums, you may register for the 1h KNES 7999-001 titled the Graduate Residency Continuation Credit. Contact the Chair of the Kinesiology Dept (Dr. Cordova) for the “permit to register” for that course.

If a student anticipates a Summer graduation, that student is able to walk during the Spring College of Health and Human Services awards ceremony but not the Spring University Graduation Ceremony. In order for a student to walk in the Spring University Graduation Ceremony, they would need to successfully complete all curriculum requirements including passing the comprehensive exam or successfully complete the thesis requirements. Please remember there is a graduation fee. (*Adapted from UNC Charlotte Graduate Catalog 2009 – 2010, p.41*).

Caps and gowns are available at the Campus Bookstore several months prior to commencement. Information about commencement is available on the Registrar's website under General Information.

**Graduation Fee:** Each member of the graduating class is automatically charged a graduation fee at the time he/she applies for the degree. This fee includes the cost of the diploma and the cap and gown. No reduction of the fee is allowed for those receiving degrees in *Absentia*. The cost of renting a master's hood is in addition to the graduation fee. Information for this can be found at: <http://www.uncc.edu/graduation> (Retrieved from <http://graduateschool.uncc.edu/graduation/information.html>)

### **Paperwork needed for graduation**

The Application for Admission to Candidacy Upon successful completion of a minimum of 18 semester hours of graduate work and in no case later than four weeks prior to the beginning of the semester in which he/she expects to complete all requisites for the degree, a student should file for admission to candidacy on a form supplied by the Graduate School. This application is a check sheet approved by the Graduate Program Coordinator and college dean listing all course work to be offered for the degree (including transferred credit and courses in progress). (*Retrieved from UNC Charlotte Graduate Catalog 2009 – 2010, p.40*). The student will need to fill out the form and meet with the Graduate Coordinator to obtain their signature. Please refer to the graduate school website to obtain the form and view the deadlines for this document: <http://graduateschool.uncc.edu/graduation/information.html>

Report of Comprehensive Examination, Report, or Thesis Defense Each student should submit an application for his/her degree on a form obtained from the Graduate School or the Graduate School's website no later than the filing date specified in the University Calendar. The application must be accompanied by the filing fee in effect at the time of the application (*Retrieved from UNC Charlotte Graduate Catalog 2009 – 2010, p.34*). The student will need to fill out the application, include a copy of the summary output of the of RCEP exam (or faculty-driven comprehensive examination) and obtain the signature of the Graduate Program Coordinator and 3 graduate faculty members of the Kinesiology Dept. Application for Degrees must be submitted to the Graduate School by the published deadlines or the student will be cleared for the next available graduation. Notification that documents have been received and approved will be made to students by the Graduate School via email or surface mail. Likewise, you will be notified accordingly if additional information is needed in order to be cleared for graduation. Refer to the graduate school graduation website to obtain the document and the deadlines of this document: <http://graduateschool.uncc.edu/graduation/information.html>

### **Thesis Deadlines**

Students choosing OPTION A, must be cognizant of several deadlines, including the date the research thesis is due to the committee members, the date of the research defense, and the date the research thesis is due to the Graduate School. The link for thesis deadlines to the graduate school is located here: <http://graduateschool.uncc.edu/graduation/information.html>.

At the time that the graduate program approves the student's thesis topic, the Petition for Topic Approval must be filed with the Graduate School. This form is available in the Graduate School and on the Graduate School website: <http://graduateschool.uncc.edu/academics/forms.html>

The thesis should be submitted for final approval by the student's thesis committee at least three weeks before the date of the oral examination in which the thesis is defended. Following the successful completion of this defense, the master's candidate must submit three unbound copies of the approved and error-free thesis to the Graduate School no later than the filing date indicated in the University Calendar. (*Retrieved from UNC Charlotte Graduate Catalog 2009 – 2010, p.41*). For specific guidelines, please refer to the *Graduate School's Manual of Basic Requirements for Theses and Dissertations*, which may be electronically retrieved at <http://graduateschool.uncc.edu/graduation/manual.html>.

The Master's Thesis must be submitted in final form by the published deadlines or the student will be cleared for the next available graduation. Please reference the section Capstone Experience Details, subsection OPTION A – Research Thesis, within the COURSE INFORMATION portion of this handbook (pages 11-13) for a sample research thesis timeline based upon the student's proposed graduation date.

### **TIME FRAME FOR DEGREE COMPLETION**

University policy requires that no course listed on a master's student's candidacy form be older than six years at the time of graduation. This policy is in place because of the University's interest in a degree being current when it is awarded. Courses that exceed this time limit must be revalidated or retaken, whichever the graduate program decides necessary, if they are to count in a degree program.

To revalidate a course, the student, along with the Graduate Program Coordinator and the course instructor, prepare a revalidation plan that must be reviewed and approved by the Dean of the Graduate School. This plan often involves taking a special examination designed by the faculty of the graduate program. Once the plan has been completed, the Graduate Program Coordinator must notify the Dean of the Graduate School in writing.

Students may not revalidate courses with a grade of C or lower, courses that are internships or other forms of practicum, or courses taken at other institutions. Additionally, no more than 25% of the courses on a student's program of study may be revalidated and for master's students no course older than eight years may be revalidated. (*Retrieved from UNC Charlotte Graduate Catalog 2009 – 2010, p.41*).

This policy may be found in the Academic Regulations and Degree Requirements of the Graduate Catalogue, located electronically at <http://graduateschool.uncc.edu/academics/catalog.html>.

### **ADVISING INFORMATION**

Upon acceptance into the program, each student is assigned an advisor with whom the student is encouraged to develop a strong working relationship. The name and contact number of the advisor is listed under "Faculty Contact" at the bottom of the student's letter of acceptance into the CEP Master's Degree Program. While the advisor assumes the responsibility of providing academic and professional guidance, the responsibility of initiating contact with the advisor lies solely with the student. Students are expected to meet with their advisors on a regular basis to plan their progression through their program of study. Any course substitution and all electives must be approved by the academic advisor. (*Adapted from UNC Charlotte Graduate Catalog 2009 – 2010, p.40*).

## **GRADING POLICIES**

Instructors assign grades on the basis of their evaluation of the academic performance of each student enrolled in their courses. At the end of the term, the grades are reported to the Registrar's Office which is responsible for maintaining student academic records and making grades available to students. (*Retrieved from UNC Charlotte Graduate Catalog 2009 – 2010, p.35*).

The CEP Master's Degree Program follows all grading policies set forth by UNC Charlotte. Please reference the Graduate Catalogue for specific information related to:

- Final Grade Changes and Appeals from Final Course Grades
- Grade Point Average
- Repeating a Graduate Course

CEP graduate students are expected to satisfactorily complete a minimum of 36 credit hours of approved graduate level courses with a GPA of 3.0 or better in the courses within their degree plan of study in order to graduate. The grades for all courses attempted, whether or not within the plan of study, however, will remain on the transcript and will be included in the calculation of the student's GPA as it is reported on the transcript. No more than six hours evaluated as C may be counted toward the minimum hours required for the master's degree. (*Adapted from UNC Charlotte Graduate Catalog 2009 – 2010, p.37*).

## **ACADEMIC STANDING**

Students enrolled in any graduate program must maintain satisfactory progress toward the degree. Students are expected to achieve a commendable or satisfactory grade (*A* or *B*) in all course work attempted for graduate credit. Students who fail to maintain satisfactory progress toward their degree or who do not achieve commendable or satisfactory grades in all their graduate course work are subject to suspension and/or termination from their program of study. (*Retrieved from UNC Charlotte Graduate Catalog 2009 – 2010, p.37*). Students who receive more than 2 C's will be suspended from the program and will need to perform the appeal procedure.

The CEP Master's Degree Program follows all academic standing, suspension, and appeal policies set forth by UNC Charlotte with the exception of the number of Cs allowed for the MS-CEP program. As previously stated, students who receive more than 2 C's will be suspended from the program. that the CEP Master's Degree Program Please refer to the Graduate Catalogue for specific information regarding:

- Academic Suspension
- Appeal Procedure
- Appeal of Academic Suspension for the Purpose of Reinstatement
- Academic Termination
- Readmission of Terminated Graduate Student
- Appeal of Academic Termination for the Purpose of Reinstatement
- Graduate School Appeals Committee

### **Repeating a Graduate Course**

A graduate student will be allowed to repeat a maximum of two courses in which the student has been assigned a grade of *C*, *U* or *N* (but not an *D*). If the course grade has resulted in suspension of enrollment, the student must appeal to be reinstated in order to repeat the course. A given course may be repeated one time only. Each grade earned in a repeated course is computed into the grade point average. The record of the first

attempt will remain a part of the student's permanent record and will count in the number of marginal (C) grades accumulated. Successfully repeating a course does not change the number of marginal (C) grades accumulated. Enrollment will be terminated if a student receives a grade of U in a repeated course for which the student previously earned a U or N. (Retrieved from UNC Charlotte Graduate Catalog 2009 – 2010, p.37).

### **DEPARTMENT OF KINESIOLOGY POLICIES** (Reaffirmed 3/2/05)

- 1) If an ATRN, EXER or RESP course that is required for one of our department's majors is attempted at UNC Charlotte and results in a grade of "D" or "F," the course cannot be taken at another institution and transferred into the program. Exceptions may be made for those students who are academically suspended and then complete an AA or AS degree at another institution and then reenter UNC Charlotte. (Oct. 1997). No KNES course may be taken at another institution and transferred into the program.
- 2) Students caught violating the Academic Integrity policy will be enforced as to the UNC Charlotte policy. (Feb. 2004)
- 3) If a course sequence is published (e.g. Athletic Training/Exercise Science B.S. degrees), students will not be allowed to deviate from this sequence without approval through a majority vote from the Department faculty. The Department Chair shall not have the authority to sign-off on sequence exceptions. (Oct. 1997)
- 4) Students requesting a special exception and/or a waiver from a Department policy, shall complete a Academic Petition form and deliver a one-page justification to the Department Chair. The Department Chair shall bring this exception/waiver request to the next scheduled faculty meeting for discussion and a vote by a 2/3 majority of the department faculty. (Sept. 1996)
- 5) No student shall be allowed to walk in commencement exercises if they have not completed all requirements for their degree. However, students within two semesters of completing their degree requirements may participate in the College Convocation held each May. (April 2000). Students in the MS-CEP program cannot walk in commencement exercises unless they have either passed their Comprehensive Competency Examination or completed their Research Thesis.
- 6) Students will not be allowed to transfer "major" coursework from other Universities into the upper division of their program (ATRN, EXER, RESP). Students can request a special exception to this policy by using the process in Policy #4 above. (Sept. 1998, March 2010)
- 7) Students will only be granted transient study status if the approval is received before the course is taken. (Sept. 1996)
- 8) To challenge a course, the student does the following:
  - a) Pays the University Challenge Fee;
  - b) Delivers the Challenge Form (indicating payment of fee) to the Department Chair;
  - c) As soon as possible, the Department Chair will arrange for the student to take the mid-term and final exams from the course being challenged;
  - d) To receive credit for the challenged course, the student must receive at least a 70% score on each of the mid-term and final;
  - e) The Department Chair, when notified of the student's score, will indicate the decision of the Challenge Form and return the Form to the Registrar's Office;
  - f) The Department Chair shall then notify the student of the Challenge outcome. (March 1997)

- 9) In general, the Department will not approve auditing of any course except upon instructor approval. . (Sept 1996)
  - 10) If, in following the University's Incomplete policy, the instructor decides to offer a grade of "Incomplete" to a student the instructor and the student must sign an agreement delineating the requirements needed to complete the courses in addition to a timeline. Copies of this agreement should be filed with the Department Chair (who will file it in the faculty member's personnel file) and in the student's file if the student is completing a major in the department. (Sept 2002)
  - 11) Where possible, the Department will strive to reserve space in its Lifetime Movement courses to accommodate Pre-Kinesiology students (Feb 2003)
  - 12) Students shall conduct themselves at Clinical/Internship/Practicum sites in a professional manner, observing all rules and regulations of the site as well as the University. Violation of this policy will result in immediate removal from the site with no guarantee of further placement at another site. Additionally, if appropriate, the Student will be subject to actions under the The Code of Student Responsibility (Policy Statement #104) and The Code of Student Academic Integrity (Policy Statement 3105). (Sept 1996)
- In general, cell phones shall not be allowed to be used in classrooms (Sept 2004), and computers may be used upon instructor approval. March 2010)
- 13) It is recognized that providing timely and accurate advising is a responsibility of the program coordinators and / or other assigned faculty/staff in the Department. Upon questioning, students should be immediately directed to their advisor for answers. (Oct. 1997, March 2010)
  - 14) All faculty and part-time faculty agree to abide by the Departmental Teaching Handbook. (Sept 1998)
  - 15) In general, curriculum changes shall not be made that will negatively affect current students. In some instances, where the changes will benefit the current students, the students will have the option of electing to have the new curriculum change apply to their program. (Sept 1996)
  - 16) MS-CEP students need to present ACSM documentation for proof of passing the RCEP exam. If a student cannot pass the RCEP in two trials then they must pass the faculty administered comprehensive exam or they are terminated from the program.
  - 17) An MS-CEP student will be terminated from the program if they obtain more than 2 Cs.

### **GRADUATE ASSISTANTSHIPS**

Graduate Assistantships are available in many departments throughout the university. The Department of Kinesiology offers three different Graduate Assistantships: Graduate Teaching Assistant, Graduate Research Assistant, and Affiliate Assistant.

Eligibility for graduate assistantships includes:

- Baccalaureate degree, or a baccalaureate degree and work experience, that equips them for the assignment.
- Admission to full standing in a graduate degree program
- A 3.0 GPA or better and a 1000 GRE score or better

**Graduate Teaching Assistant:** This assistantship requires teaching undergraduate activity courses while under the supervision of a full-time faculty member.

**Graduate Research Assistant:** This assistantship involves working on a research team gathering data and conducting research for a funded faculty member in the Kinesiology Department.

**Graduate Affiliate Assistant:** This assistantship is off campus and includes working at the Senior Center to implement exercise programs for elderly populations.

For more information and Graduate Assistantship applications, visit the Graduate School webpage at: <http://graduateschool.uncc.edu/funding/assistantships-a-employment.html> and contact the Graduate Program Coordinator.

## **MISCELLANEOUS DEADLINES AND FORMS**

For a complete list of commonly needed forms, please access the Graduate School Forms section of the Graduate School website, which may be electronically retrieved at:

<http://graduateschool.uncc.edu/academics/forms.html>

### **Class Registration Timeline**

Registration policies and procedures for each term are described on the Registrar's website, which may be electronically retrieved at <http://www.registrar.uncc.edu/students/register.htm>.

### **Health Insurance Enrollment or Waiver**

Each semester every student must either accept or waive health insurance provided by UNC Charlotte. Your student account will be billed unless you take action to decline the health insurance option. Students may accept or waive health insurance by accessing the appropriate electronic forms under the Student Health Insurance option on the Health Services website, which may be electronically retrieved at <http://studenthealth.uncc.edu/>. **The student is responsible for verifying all insurance information with Student Health Services.**

### **Immunization Forms**

Immunizations must be current and records filed with Health Services. Immunization forms may be found on the Student Health Services Homepage: <http://studenthealth.uncc.edu/>. **The student is responsible for verifying all immunization requirements with Student Health Services.**

## **LIBRARY INFORMATION**

### **J. Murrey Atkins Library**

Phone: (704) 687-2030

Webpage: <http://library.uncc.edu>

### **Library Hours**

Normal Hours:	Sunday	11:00 AM – Midnight
	Monday	7:30 AM – Midnight
	Tuesday	7:30 AM – Midnight
	Wednesday	7:30 AM – Midnight
	Thursday	7:30 AM – Midnight
	Friday	7:30 AM – 8:00 PM
	Saturday	10:00 AM – 8:00 PM

For exceptions to Normal Hours please visit:

<http://library.uncc.edu/display/?dept=library&format=open&page=3194>

### Most Commonly Used Databases

Many Databases are available on the J. Murrey Atkins Library website, but some of the most common and valuable databases for Science fields include:

- CINAHL, Nursing & Allied Health:  
<http://web.ebscohost.com/ehost/search?vid=1&hid=106&sid=1ee5e17c-0f3c-4ee8-83d6-3dd7662f20ea%40sessionmgr104>
- Medline (via PubMed): <http://www.ncbi.nlm.nih.gov/sites/entrez?db=PubMed>
- Web of Science:  
[http://apps.isiknowledge.com/WOS\\_GeneralSearch\\_input.do?product=WOS&search\\_mode=GeneralSearch&SID=1FICJK7794Ccaj2J9kM&preferencesSaved=](http://apps.isiknowledge.com/WOS_GeneralSearch_input.do?product=WOS&search_mode=GeneralSearch&SID=1FICJK7794Ccaj2J9kM&preferencesSaved=)
- For more information regarding electronic resources, visit: <http://library.uncc.edu/find/>

### Referencing Formats

For information on referencing formats (APA, MLA, AMA, ASA, & Turabian) and internal citations, go to <http://library.uncc.edu/csguides/>.

### Interlibrary Loans

Many peer-reviewed articles are available on-line or in the library, however, some articles are not available. In this case students may want to take advantage of the interlibrary loan. This allows students to borrow the materials needed from other libraries.

For more information on procedures for procurement of articles via interlibrary loan, visit:

<http://library.uncc.edu/ill/>.

### UNC Charlotte Writing Resources Center

This service is free and available to all UNC Charlotte students. It provides consultations in which students may receive assistance with writing processes. For more information, visit: <http://library.uncc.edu/wrc/>.

## **PLAGIARISM TUTORIAL**

UNC Charlotte and The Department of Kinesiology place a high level of responsibility on all students in regards to academic integrity. The *University Regulations of Student Conduct* outlines the academic integrity policy and may be found at: <http://www.legal.uncc.edu/policies/ps-105.html>.

The Department of Kinesiology requires all students (Graduate and Undergraduate) to participate in the “Plagiarism Tutorial”. This may be accessed under Student Resources via the Kinesiology home page (<http://kinesiology.uncc.edu/>).

## **REGISTERED CLINICAL EXERCISE PHYSIOLOGY SCOPE OF PRACTICE**

The ACSM Registered Clinical Exercise Physiologist (RCEP) is an allied health professional who works in the application of physical activity and behavioral interventions for those clinical conditions for which they have been shown to provide therapeutic and/or functional benefit. Persons for whom RCEP services are appropriate may include, but are not limited to, those individuals with cardiovascular, pulmonary, metabolic, orthopedic, musculoskeletal, neuromuscular, neoplastic, immunologic, or hematologic disease. The RCEP provides primary and secondary prevention strategies designed to improve fitness and health in populations ranging from children to older adults. The RCEP performs exercise screening, exercise and fitness testing, exercise prescription, exercise and physical activity counseling, exercise supervision, exercise and health education/promotion, and measurement and evaluation of exercise and physical activity related outcome measures. The RCEP works individually or as part of an interdisciplinary team in a clinical, community, or public health setting. The practice and supervision of the RCEP is guided by published professional guidelines, standards, and applicable state and federal regulations.” (ACSM’s Guidelines for Exercise Testing and Prescription, 8<sup>th</sup> edition, , pg. 312, 2009)

## **KSA’s**

KSA’s are a list of required competencies to be covered in one or more classes throughout your graduate education. This list is information that is crucial to the practice of clinical exercise physiology, as laid out by our governing body (ACSM). By reviewing this complete list of KSA’s, you will gain a solid understanding of what is to be expected of you throughout the program, as well as what you can expect to learn throughout the program.

	<b>GENERAL POPULATION/CORE: EXERCISE PHYSIOLOGY AND RELATED EXERCISE SCIENCE</b>
1.1.1	Describe the acute responses to aerobic, resistance, and flexibility training on the function of the cardiovascular, respiratory, musculoskeletal, neuromuscular, metabolic, endocrine, and immune systems.
1.1.2	Describe the chronic effects of aerobic, resistance, and flexibility training on the structure and function of the cardiovascular, respiratory, musculoskeletal, neuromuscular, metabolic, endocrine, and immune systems.
1.1.3	Explain differences in typical values between sedentary and trained persons in those with chronic diseases for oxygen uptake, heart rate, mean arterial pressure, systolic and diastolic blood pressure, cardiac output, stroke volume, rate pressure product, minute ventilation, respiratory rate, and tidal volume at rest and during submaximal and maximal exercise.
1.1.4	Describe the physiological determinants of $VO_2$ , $mVO_2$ , and mean arterial pressure and explain how these determinants may be altered with aerobic and resistance exercise training.
1.1.5	Describe appropriate modifications in the exercise prescription due to environmental conditions in individuals with chronic disease.

1.1.6	Explain the health benefits of a physically active lifestyle, the hazards of sedentary behavior, and summarize key recommendations of US national reports of physical activity (e.g. US Surgeon General, Institute of Medicine, ACSM, AHA)
1.1.7	Explain the physiological adaptations to exercise training that may result in improvement in or maintenance of health, including cardiovascular, pulmonary, metabolic, orthopedic/musculoskeletal, neuromuscular, and immune system health.
1.1.8	Explain the mechanisms underlying the physiological adaptations to aerobic and resistance training including those resulting in changes in or maintenance of maximal and submaximal oxygen consumption, lactate and ventilatory (anaerobic) threshold, myocardial oxygen consumption, heart rate, blood pressure, ventilation (including ventilatory threshold), muscle structure, bioenergetics, and immune function.
1.1.9	Explain the physiological effects of physical inactivity, including bed rest, and methods that may counteract these effects.
1.1.10	Recognize and respond to abnormal signs and symptoms during exercise.
	<b>GENERAL POPULATION/CORE: PATHOPHYSIOLOGY AND RISK FACTORS</b>
1.2.1	Describe the epidemiology, pathophysiology, risk factors, and key clinical findings of cardiovascular, pulmonary, metabolic, orthopedic/musculoskeletal, neuromuscular, and NIH diseases
	<b>GENERAL POPULATION/CORE: HEALTH APPRAISAL, FITNESS AND CLINICAL EXERCISE TESTING</b>
1.3.1	Conduct pre-test procedures including: explaining test procedures, obtaining informed consent, obtaining a focused medical history, reviewing results of prior tests and physical exam, assessing disease-specific risk factors, and presenting concise information to other health care providers and third party payers.
1.3.2	Conduct a brief physical examination including evaluation of peripheral edema, measuring blood pressure, peripheral pulses, respiratory rate, and auscultating heart and lung sounds.
1.3.3	Calibrate lab equipment used frequently in the practice of clinical exercise physiology (e.g. motorized/computerized treadmill, mechanical cycle ergometer and arm ergometer, electrocardiograph, spirometer, respiratory gas analyzer (Metabolic cart).
1.3.4	Administer exercise tests consistent with US nationally accepted standards for testing.
1.3.5	Evaluate contraindications to exercise testing.
1.3.6	Appropriately select and administer functional tests to measure individual outcomes and functional status including the 6 minute walk, Get Up and Go, Berg Balance Scale, Physical Performance Test, etc.
1.3.8	Interpret the variables that may be assessed during clinical exercise testing including maximal oxygen consumption, resting metabolic rate, ventilatory volumes and capacities, respiratory exchange ratio, ratings of perceived exertion and discomfort (chest pain, dyspnea, claudication), ECG, heart rate, blood pressure, rate pressure product, ventilatory (anaerobic) threshold, oxygen saturation, breathing reserve, muscular strength, muscular endurance, and other common measures employed for diagnosis and prognosis of disease.
1.3.9	Determine atrial and ventricular rate from rhythm strip and 12-lead ECG and explain the clinical significance of abnormal atrial or ventricular rate (e.g. tachycardia, bradycardia).
1.3.10	Identify ECG changes associated with drug therapy, electrolyte abnormalities, subendocardial and transmural ischemia, myocardial injury, and infarction, and explain the clinical significance of each.
1.3.11	Identify SA, AV, and bundle branch blocks from a rhythm strip & 12-lead ECG, and explain the clinical significance of each.
1.3.12	Identify sinus, atrial, junctional, and ventricular dysrhythmias from a rhythm strip & 12-lead ECG, and explain the clinical significance of each.
1.3.14	Determine an individual's pre-test and post-test probability of CHD, identify factors associated with test complications, and apply appropriate precautions to reduce risks to the individual.
1.3.16	Identify probable disease-specific endpoints for testing in an individual with cardiovascular, pulmonary, metabolic, orthopedic/musculoskeletal, neuromuscular, and NIH disease.
1.3.17	Select and employ appropriate techniques for preparation and measurement of ECG, heart rate, blood pressure, oxygen saturation, RPE, symptoms, expired gases, and other measures as needed before, during, and following exercise testing.
1.3.18	Select and administer appropriate exercise tests to evaluate functional capacity, strength, and flexibility in individuals with cardiovascular, pulmonary, metabolic, orthopedic/musculoskeletal, neuromuscular, and NIH disease.

1.3.19	Discuss strengths and limitations of various methods of measures and indices of body composition.
1.3.20	Appropriately select, apply, and interpret body composition tests and indices.
1.3.21	Discuss pertinent test results with other health care professionals.
	<b>GENERAL POPULATION/CORE: EXERCISE PRESCRIPTION AND PROGRAMMING</b>
1.7.3	Determine the appropriate level of supervision and monitoring recommended for individuals with known disease based on disease-specific risk stratification guidelines and current health status.
1.7.4	Develop, adapt, and supervise appropriate aerobic, resistance, and flexibility training for individuals with cardiovascular, pulmonary, metabolic, orthopedic/musculoskeletal, neuromuscular, and NIH disease.
1.7.6	Instruct individuals with cardiovascular, pulmonary, metabolic, orthopedic/musculoskeletal, neuromuscular, and NIH disease in techniques for performing physical activities safely and effectively in an unsupervised exercise setting.
1.7.7	Modify the exercise prescription or discontinue exercise based upon individual symptoms, current health status, musculoskeletal limitations, and environmental considerations.
1.7.8	Extract and interpret clinical information needed for safe exercise management of individuals with cardiovascular, pulmonary, metabolic, orthopedic/musculoskeletal, neuromuscular, and NIH disease.
1.7.9	Evaluate individual outcomes from serial outcome data collected before, during, and after exercise interventions.
	<b>GENERAL POPULATION/CORE: HUMAN BEHAVIOR AND COUNSELING</b>
1.9.1	Summarize contemporary theories of health behavior change including social cognitive theory, theory of reasoned action, theory of planned behavior, transtheoretical model, health belief model, and apply techniques to promote healthy behaviors including physical activity.
1.9.2	Describe characteristics associated with poor adherence to exercise programs.
1.9.3	Describe the psychological issues associated with acute and chronic illness such as anxiety, depression, social isolation, hostility, aggression, and suicidal ideation.
1.9.4	Counsel individuals with cardiovascular, pulmonary, metabolic, orthopedic/musculoskeletal, neuromuscular, and NIH disease on topics such as disease processes, treatments, diagnostic techniques, and lifestyle management.
1.9.6	Explain factors that may increase anxiety prior to or during exercise testing and describe methods to reduce anxiety.
1.9.7	Recognize signs and symptoms of failure to cope during personal crises such as job loss, bereavement, and illness.
	<b>GENERAL POPULATION/CORE: SAFETY, INJURY PREVENTION, AND EMERGENCY PROCEDURES</b>
1.10.1	List routine emergency equipment, drugs, and supplies present in an exercise testing laboratory and therapeutic exercise session area.
1.10.2	Provide immediate responses to emergencies including basic cardiac life support, AED, activation of EMS, and joint immobilization.
1.10.3	Verify operating status of emergency equipment including defibrillator, laryngoscope, oxygen, etc.
1.10.4	Explain Universal Precautions procedures and apply as appropriate.
1.10.5	Develop and implement a plan for responding to emergencies.
1.10.6	Knowledge of advanced cardiac life support procedures.
	<b>GENERAL POPULATION/CORE: PROGRAM ADMINISTRATION, QUALITY ASSURANCE AND OUTCOME ASSESSMENT</b>
1.11.1	Describe appropriate staffing for exercise testing and programming based on factors such as individual health status, facilities, and program goals.
1.11.2	List necessary equipment and supplies for exercise testing and programs.
1.11.3	Select, evaluate, and report treatment outcomes using individual-relevant results of tests and surveys.
1.11.4	Explain legal issues pertinent to health care delivery by licensed and non-licensed health care professionals providing rehabilitative services and exercise testing and legal risk management techniques .
1.11.5	Identify individuals requiring referral to a physician or allied health services such as physical therapy, dietary counseling, stress management, weight management, and psychological and social services.

1.11.6	Develop a plan for individual discharge from therapeutic exercise program, including community referrals.
	<b>CARDIOVASCULAR: EXERCISE PHYSIOLOGY AND RELATED EXERCISE SCIENCE</b>
2.1.2	Describe the potential benefits and hazards of aerobic, resistance, and flexibility training in individuals with cardiovascular diseases.
2.1.4	Explain how cardiovascular diseases may affect the physiologic responses to aerobic and resistance training.
2.1.5	Describe the immediate and long-term influence of medical therapies for cardiovascular diseases on the responses to aerobic and resistance training.
	<b>CARDIOVASCULAR: PATHOPHYSIOLOGY AND RISK FACTORS</b>
2.2.1	Describe the epidemiology, pathophysiology, rate of progression of disease, risk factors, and key clinical findings of cardiovascular diseases.
2.2.2	Explain the ischemic cascade and its effect on myocardial function.
2.2.4	Explain methods of reducing risk in individuals with cardiovascular diseases.
	<b>CARDIOVASCULAR: HEALTH APPRAISAL, FITNESS AND CLINICAL EXERCISE TESTING</b>
2.3.1	Describe common techniques used to diagnose cardiovascular disease, including graded exercise testing, echocardiography, radionuclide imaging, angiography, pharmacologic testing, and biomarkers (e.g., Troponin, CK, etc), and explain the indications, limitations, risks, and normal and abnormal results for each.
2.3.2	Explain how cardiovascular disease may affect physical examination findings.
2.3.4	Recognize and respond to abnormal signs and symptoms in individuals with cardiovascular diseases such as pain, peripheral edema, dyspnea, fatigue.
2.3.5	Conduct and interpret appropriate exercise testing methods for individuals with cardiovascular diseases.
	<b>CARDIOVASCULAR: MEDICAL AND SURGICAL MANAGEMENT</b>
2.6.2	Explain the common medical and surgical treatments of cardiovascular diseases.
2.6.3	Apply key recommendations of current U.S. clinical practice guidelines for the prevention, treatment, and management of cardiovascular diseases (e.g., AHA, ACC, NHLBI).
2.6.4	List the commonly used drugs (generic and brand names) in the treatment of individuals with cardiovascular diseases, and explain the indications, mechanisms of actions, major side effects, and the effects on the exercising individual.
2.6.5	Explain how treatments for cardiovascular disease, including preventive care, may affect the rate of progression of disease.
	<b>CARDIOVASCULAR: EXERCISE PRESCRIPTION AND PROGRAMMING</b>
2.7.2	Design, adapt, and supervise an appropriate Exercise Prescription (e.g. aerobic, resistance, and flexibility training) for individuals with cardiovascular diseases.
2.7.4	Instruct an individual with cardiovascular disease in techniques for performing physical activities safely and effectively in an unsupervised setting.
2.7.5	Counsel individuals with cardiovascular disease on the proper uses of sublingual nitroglycerin.
	<b>PULMONARY: (e.g. Obstructive and Restrictive Lung Diseases) EXERCISE PHYSIOLOGY AND RELATED EXERCISE SCIENCE</b>
3.1.1	Describe the potential benefits and hazards of aerobic, resistance, and flexibility training in individuals with pulmonary diseases.
3.1.2	Explain how pulmonary diseases may affect the physiologic responses to aerobic, resistance, and flexibility training.
3.1.3	Explain how scheduling of exercise relative to meals can affect dyspnea
3.1.5	Describe the immediate and long-term influence of medical therapies for pulmonary diseases on the responses to aerobic, resistance, and flexibility training.
	<b>PULMONARY: PATHOPHYSIOLOGY AND RISK FACTORS</b>
3.2.1	Describe the epidemiology, pathophysiology, rate of progression of disease, risk factors, and key clinical findings of pulmonary diseases.

3.2.3	Explain methods of reducing risk in individuals with pulmonary diseases.
	<b>PULMONARY: HEALTH APPRAISAL, FITNESS AND CLINICAL EXERCISE TESTING</b>
3.3.1	Explain how pulmonary disease may affect physical examination findings.
3.3.3	Have knowledge of lung volumes and capacities (e.g., tidal volume, residual volume, inspiratory volume, expiratory volume, total lung capacity, vital capacity, functional residual capacity, peak flow rate, diffusion capacity) and how they may differ between normals and individuals with pulmonary disease.
3.3.4	Recognize and respond to abnormal signs and symptoms to exercise in individuals with pulmonary diseases.
3.3.5	Describe common techniques and tests used to diagnose pulmonary diseases, and explain the indications, limitations, risks, and normal and abnormal results for each.
3.3.6	Conduct and interpret appropriate exercise testing methods for individuals with pulmonary diseases.
	<b>PULMONARY: MEDICAL AND SURGICAL MANAGEMENT</b>
3.6.3	Explain how treatments for pulmonary disease, including preventive care, may affect the rate of progression of disease.
3.6.5	Explain the common medical and surgical treatments of pulmonary diseases.
3.6.6	List the commonly used drugs (generic and brand names) in the treatment of individuals with pulmonary diseases, and explain the indications, mechanisms of actions, major side effects, and the effects on the exercising individual.
3.6.7	Apply key recommendations of current U.S. clinical practice guidelines (e.g. ALA, NIH, NHLBI) for the prevention, treatment, and management of pulmonary diseases.
	<b>PULMONARY: EXERCISE PRESCRIPTION AND PROGRAMMING</b>
3.7.2	Design, adapt, and supervise an appropriate exercise prescription (e.g. aerobic, resistance, and flexibility training) for individuals with pulmonary diseases.
3.7.4	Instruct an individual with pulmonary diseases in proper breathing techniques and exercises and methods for performing physical activities safely and effectively.
3.7.5	Knowledge of the use of supplemental oxygen during exercise and its influences on exercise tolerance.
	<b>METABOLIC: (e.g. Diabetes, Hyperlipidemia, Obesity, Frailty, Chronic Renal Failure, Metabolic Syndrome) EXERCISE PHYSIOLOGY AND RELATED EXERCISE SCIENCE</b>
4.1.1	Explain how metabolic diseases may affect aerobic endurance, muscular strength and endurance, flexibility, and balance.
4.1.2	Describe the immediate and long-term influence of medical therapies for metabolic diseases on the responses to aerobic, resistance, and flexibility training.
4.1.3	Describe the potential benefits and hazards of aerobic, resistance, and flexibility training in individuals with metabolic diseases.
	<b>METABOLIC: PATHOPHYSIOLOGY AND RISK FACTORS</b>
4.2.1	Describe the epidemiology, pathophysiology, rate of progression of disease, risk factors, and key clinical findings of metabolic diseases.
4.2.5	Describe the probable effects of dialysis treatment on exercise performance, functional capacity, and safety, and explain methods for preventing adverse effects
4.2.6	Describe the probable effects of hypo/hyperglycemia on exercise performance, functional capacity, and safety, and explain methods for preventing adverse effects
4.2.7	Explain methods of reducing risk in individuals with metabolic diseases.
	<b>METABOLIC: HEALTH APPRAISAL, FITNESS AND CLINICAL EXERCISE TESTING</b>
4.3.1	Describe common techniques and tests used to diagnose metabolic diseases, and explain the indications, limitations, risks, and normal and abnormal results for each.
4.3.3	Explain appropriate techniques for monitoring blood glucose before, during, and after an exercise session.
4.3.4	Recognize and respond to abnormal signs and symptoms in individuals with metabolic diseases.
4.3.5	Conduct and interpret appropriate exercise testing methods for individuals with metabolic diseases.

	<b>METABOLIC: MEDICAL AND SURGICAL MANAGEMENT</b>
4.6.2	Apply key recommendations of current U.S. clinical practice guidelines (e.g. ADA, NIH, NHLBI) for the prevention, treatment, and management of metabolic diseases
4.6.3	Explain the common medical and surgical treatments of metabolic diseases.
4.6.4	List the commonly used drugs (generic and brand names) in the treatment of individuals with metabolic diseases, and explain the indications, mechanisms of actions, major side effects, and the effects on the exercising individual.
4.6.5	Explain how treatments for metabolic diseases, including preventive care, may affect the rate of progression of disease.
	<b>METABOLIC: EXERCISE PRESCRIPTION AND PROGRAMMING</b>
4.7.2	Design, adapt, and supervise an appropriate Exercise Prescription (e.g. aerobic, resistance, and flexibility training) for individuals with metabolic diseases.
4.7.4	Instruct individuals with metabolic diseases in techniques for performing physical activities safely and effectively in an unsupervised exercise setting.
4.7.5	Adapt the exercise prescription based on the functional limits and benefits of assistive devices (e.g. wheelchairs, crutches, and canes).
	<b>ORTHOPEDIC/MUSCULOSKELETAL: (e.g. low back pain, osteoarthritis, rheumatoid arthritis, osteoporosis, amputations, vertebral disorders) EXERCISE PHYSIOLOGY AND RELATED EXERCISE SCIENCE</b>
5.1.1	Describe the potential benefits and hazards of aerobic, resistance, and flexibility training in individuals with orthopedic/musculoskeletal diseases.
5.1.4	Explain how orthopedic/musculoskeletal diseases may affect aerobic endurance, muscular strength and endurance, flexibility, balance, and agility.
5.1.5	Describe the immediate and long-term influence of medical therapies for orthopedic/musculoskeletal diseases on the responses to aerobic, resistance, and flexibility training.
	<b>ORTHOPEDIC/MUSCULOSKELETAL: PATHOPHYSIOLOGY AND RISK FACTORS</b>
5.2.1	Describe the epidemiology, pathophysiology, risk factors, and key clinical findings of orthopedic/musculoskeletal diseases.
	<b>ORTHOPEDIC/MUSCULOSKELETAL: HEALTH APPRAISAL, FITNESS AND CLINICAL EXERCISE TESTING</b>
5.3.1	Recognize and respond to abnormal signs and symptoms to exercise in individuals with orthopedic/musculoskeletal diseases.
5.3.2	Describe common techniques and tests used to diagnose orthopedic/musculoskeletal diseases.
5.3.3	Conduct and interpret appropriate exercise testing methods for individuals with orthopedic/musculoskeletal diseases.
	<b>ORTHOPEDIC/MUSCULOSKELETAL: MEDICAL AND SURGICAL MANAGEMENT</b>
5.6.1	List the commonly used drugs (generic and brand names) in the treatment of individuals with orthopedic/musculoskeletal diseases, and explain the indications, mechanisms of actions, major side effects, and the effects on the exercising individual.
5.6.2	Explain the common medical and surgical treatments of orthopedic/musculoskeletal diseases.
5.6.3	Apply key recommendations of current U.S. clinical practice guidelines (e.g. NIH, National Osteoporosis Foundation, Arthritis Foundation) for the prevention, treatment and management of orthopedic/musculoskeletal diseases.
5.6.4	Explain how treatments for orthopedic/musculoskeletal disease may affect the rate of progression of disease.
	<b>ORTHOPEDIC/MUSCULOSKELETAL: EXERCISE PRESCRIPTION AND PROGRAMMING</b>
5.7.1	Explain exercise training concepts specific to industrial or occupational rehabilitation, which includes work hardening, work conditioning, work fitness, and job coaching.
5.7.2	Design, adapt, and supervise an appropriate Exercise Prescription (e.g. aerobic, resistance, and flexibility training) for individuals with orthopedic/musculoskeletal diseases.

5.7.3	Instruct an individual with orthopedic/musculoskeletal disease in techniques for performing physical activities safely and effectively in an unsupervised exercise setting.
5.7.4	Adapt the Exercise Prescription based on the functional limits and benefits of assistive devices (e.g. wheelchairs, crutches, and canes).
	<b>NEUROMUSCULAR: (e.g. Multiple Sclerosis, Muscular Dystrophy and other myopathies, Alzheimer's, Parkinson's Disease, Polio and Post Polio Syndrome, Stroke and Brain Injury, Cerebral Palsy, Peripheral Neuropathies)</b> <b>EXERCISE PHYSIOLOGY AND RELATED EXERCISE SCIENCE</b>
6.1.1	Describe the potential benefits and hazards of aerobic, resistance, and flexibility training in individuals with neuromuscular diseases.
6.1.4	Explain how neuromuscular diseases may affect aerobic endurance, muscular strength and endurance, flexibility, balance, and agility.
6.1.5	Describe the immediate and long-term influence of medical therapies for neuromuscular diseases on the responses to aerobic, resistance, and flexibility training.
	<b>NEUROMUSCULAR: PATHOPHYSIOLOGY AND RISK FACTORS</b>
6.2.1	Describe the epidemiology, pathophysiology, risk factors, and key clinical findings of neuromuscular diseases.
	<b>NEUROMUSCULAR: HEALTH APPRAISAL, FITNESS AND CLINICAL EXERCISE TESTING</b>
6.3.1	Recognize and respond to abnormal signs and symptoms to exercise in individuals with neuromuscular diseases.
6.3.2	Describe common techniques and tests used to diagnose neuromuscular diseases.
6.3.3	Conduct and interpret appropriate exercise testing methods for individuals with neuromuscular diseases.
	<b>NEUROMUSCULAR: MEDICAL &amp; SURGICAL MANAGEMENT</b>
6.6.1	Explain the common medical and surgical treatments of neuromuscular diseases.
6.6.2	List the commonly used drugs (generic and brand names) in the treatment of individuals with neuromuscular disease, and explain the indications, mechanisms of actions, major side effects, and the effects on the exercising individual.
6.6.3	Apply key recommendations of current U.S. clinical practice guidelines (e.g. NIH) for the prevention, treatment and management of neuromuscular diseases.
6.6.4	Explain how treatments for neuromuscular disease may affect the rate of progression of disease.
	<b>NEUROMUSCULAR: EXERCISE PRESCRIPTION AND PROGRAMMING</b>
6.7.1	Adapt the Exercise Prescription based on the functional limits and benefits of assistive devices (e.g. wheelchairs, crutches, and canes).
6.7.3	Design, adapt, and supervise an appropriate Exercise Prescription (e.g. aerobic, resistance, and flexibility training) for individuals with neuromuscular diseases.
6.7.4	Instruct an individual with neuromuscular diseases in techniques for performing physical activities safely and effectively in an unsupervised exercise setting.
	<b>NEOPLASTIC, IMMUNOLOGIC, &amp; HEMATOLOGIC: (e.g. cancer, anemia, bleeding disorders, HIV, AIDS, organ transplant, Chronic Fatigue Syndrome, fibromyalgia):</b> <b>EXERCISE PHYSIOLOGY AND RELATED EXERCISE SCIENCE</b>
7.1.1	Explain how NIH diseases may affect the physiologic responses to aerobic, resistance, and flexibility training.
7.1.2	Describe the immediate and long-term influence of medical therapies for NIH on the responses to aerobic, resistance, and flexibility training.
7.1.3	Describe the potential benefits and hazards of aerobic, resistance, and flexibility training in individuals with NIH diseases.
	<b>NEOPLASTIC, IMMUNOLOGIC &amp; HEMATOLOGIC: PATHOPHYSIOLOGY AND RISK FACTORS</b>
7.2.1	Describe the epidemiology, pathophysiology, risk factors, and key clinical findings of NIH diseases.
	<b>NEOPLASTIC, IMMUNOLOGIC &amp; HEMATOLOGIC: HEALTH APPRAISAL, FITNESS AND CLINICAL EXERCISE TESTING</b>
7.3.1	Recognize and respond to abnormal signs and symptoms to exercise in individuals with NIH diseases.

7.3.2	Describe common techniques and tests used to diagnose NIH diseases.
7.3.3	Conduct and interpret appropriate exercise testing methods for individuals with NIH diseases.
	<b>NEOPLASTIC, IMMUNOLOGIC &amp; HEMATOLOGIC: MEDICAL AND SURGICAL MANAGEMENT</b>
7.6.1	List the commonly used drugs (generic and brand names) in the treatment of individuals with NIH disease, and explain the indications, mechanisms of actions, major side effects, and the effects on the exercising individual.
7.6.2	Apply key recommendations of current U.S. clinical practice guidelines (e.g. ACS, NIH) for the prevention, treatment, and management of NIH diseases.
7.6.3	Explain the common medical and surgical treatments of NIH diseases.
7.6.4	Explain how treatments for NIH disease may affect the rate of progression of disease.
	<b>NEOPLASTIC, IMMUNOLOGIC &amp; HEMATOLOGIC: EXERCISE PRESCRIPTION AND PROGRAMMING</b>
7.7.1	Design, adapt, and supervise an appropriate exercise prescription (e.g. aerobic, resistance, and flexibility training) for individuals with NIH diseases.
7.7.4	Instruct an individual with NIH diseases in techniques for performing physical activities safely and effectively in an unsupervised exercise setting.

## **CERTIFICATION OPPORTUNITIES**

### **American College of Sports Medicine (ACSM) Certifications**

#### **ACSM Registered Clinical Exercise Physiologist (RCEP)**

“The CEP works in the application of physical activity and behavioral interventions for those clinical situations where it has been shown to provide therapeutic and/or functional benefit”.

- Minimum Requirements:
  - Master’s Degree from a college or university in Exercise Science, Movement Science, Exercise Physiology, or Kinesiology
  - Current certification as a Basic Life Support Provider or CPR for the Professional Rescuer
  - One of the following: ACSM Exercise Specialist certification (current or expired) OR 600 hours of clinical experience.
  
- Exam Cost: [http://www.acsm.org/AM/Template.cfm?Section=Exam\\_Fees](http://www.acsm.org/AM/Template.cfm?Section=Exam_Fees)
  - ACSM Member \$239.00
  - Non-member \$299.00
  - Written re-test \$155.50
  - ACSM Exercise Specialist save \$30 on application
  
- For more information & exam updates visit: <http://www.acsm.org/certification/getcertified.htm>

## ACSM Certified Clinical Exercise Specialist (CES)

- “The ACSM Certified Clinical Exercise Specialist® is proficient in: working with individuals with controlled cardiovascular pulmonary and/ or metabolic disease, performing clinical exercise testing and data interpretation, Conducting and interpreting ECGs at rest and during exercise”
- Minimum Requirements:
  - Bachelor’s Degree in an allied health field from a regionally accredited college or university.
  - Minimum of 600 hours of practical experience in a clinical exercise program.
  - Current certification as a Basic Life Support Provider or CPR for the Professional Rescuer.
- Exam Costs: [http://www.acsm.org/AM/Template.cfm?Section=Exam\\_Fees](http://www.acsm.org/AM/Template.cfm?Section=Exam_Fees)
  - ACSM Member \$239.00
  - Non-member \$299.00
  - Written Re-test \$155.50
- For more information & exam updates visit:  
[http://www.acsm.org/AM/Template.cfm?Section=Get\\_Certified#CLINICAL\\_CERTIFICATIONS](http://www.acsm.org/AM/Template.cfm?Section=Get_Certified#CLINICAL_CERTIFICATIONS)

## ACSM/ACS Certified Cancer Exercise Trainer (CET)

- “A CET is a fitness professional who trains men and women who were recently diagnosed with cancer and have not yet begun treatment, are receiving treatment, have completed treatment or are a survivor experiencing chronic or late effects from disease or treatment; and are apparently healthy or have the presence of known stable cardiovascular disease with low risk for complications with vigorous exercise and do not have any relative or absolute contraindications for exercise testing”.
- Minimal Requirements:
  - An ACSM or NCCA-accredited certification **AND**
  - Certification in Adult CPR & AED **AND**
  - Bachelor's Degree (in any field) **AND** 500 hours of experience training older adults or individuals with chronic conditions **OR** 10,000 hours of experience training older adults or individuals with chronic conditions
- Exam Costs: [http://www.acsm.org/AM/Template.cfm?Section=Exam\\_Fees](http://www.acsm.org/AM/Template.cfm?Section=Exam_Fees)
  - ACSM Member \$150.00
  - Other eligible candidates \$195.00
  - Re-test \$125.00

## ACSM Health Fitness Specialist (HFS)

- “ The ACSM Certified Health Fitness Specialist (HFS) is a degreed health and fitness professional qualified to pursue a career in university, corporate, commercial, hospital, and community settings”

- Minimum Requirements:
  - Associate Degree or Bachelor Degree in a health-related field from a regionally accredited college or university.
  - Possess current Adult CPR certification that has a practical skills examination component.
- Exam Costs: [http://www.acsm.org/AM/Template.cfm?Section=Exam\\_Fees](http://www.acsm.org/AM/Template.cfm?Section=Exam_Fees)
  - ACSM Member \$219.00
  - Non-member \$279.00
  - Written Re-test \$150.00
- For more information & exam updates visit:  
[http://www.acsm.org/AM/Template.cfm?Section=Get\\_Certified#CLINICAL\\_CERTIFICATIONS](http://www.acsm.org/AM/Template.cfm?Section=Get_Certified#CLINICAL_CERTIFICATIONS)

### **ACSM Certified Personal Trainer (CPT)**

- “The ACSM Certified Personal Trainer is a fitness professional involved in developing and implementing an individualized approach to exercise leadership in healthy populations and/or those individuals with medical clearance to exercise”.
- Minimum Requirements:
  - 18 years of age or older
  - High school diploma or equivalent
  - Current Adult CPR certification that has a practical skills examination component.
- Exam Costs: [http://www.acsm.org/AM/Template.cfm?Section=Exam\\_Fees](http://www.acsm.org/AM/Template.cfm?Section=Exam_Fees)
  - ACSM Member \$219.00
  - Non-member \$279.00
  - Written Re-test \$150.00
- For more information & exam updates visit:  
[http://www.acsm.org/AM/Template.cfm?Section=Get\\_Certified#CLINICAL\\_CERTIFICATIONS](http://www.acsm.org/AM/Template.cfm?Section=Get_Certified#CLINICAL_CERTIFICATIONS)

### **National Strength and Conditioning Association (NSCA) Certifications**

#### **Certified Strength & Conditioning Specialist ® (CSCS ®)**

- This certification “identifies individuals who possess the knowledge and skills to design and implement safe and effective strength and conditioning programs”.

- Minimum Requirements:
  - CPR certification, AND
  - 1 of the following:
    - BA/BS degree
    - Enrolled as a college senior at an accredited college or university
    - Hold a degree in Chiropractic medicine
- For more information:
  - NSCA Certification Commission (NSCA certifying body)
    - (402) 476-6669           OR           (888) 746-2378
    - (402) 476-7141 (fax)
    - *commission@nsca-cc.org* (email)
  - NSCA website: *www.nasca-cc.org*

### **NSCA-Certified Personal Trainer ® (NSCA-CPT ®)**

- “The NSCA-CPT ® credential is designed for professionals who work one-on-one with their clients in a variety of environments, including YMCA’s, schools, health/fitness clubs and clients’ homes”.
- Minimum Requirements:
  - CPR certification
- For more information:
  - NSCA Certification Commission (NSCA certifying body)
    - (402) 476-6669           OR           (888) 746-2378
    - (402) 476-7141 (fax)
    - *commission@nsca-cc.org* (email)
  - NSCA website: *www.nasca-cc.org*

### **FREQUENTLY ASKED QUESTIONS**

The Graduate School provides an “Ask A Question” feature on the Graduate School homepage. For general questions, please feel free to utilize this application, which may be electronically retrieved at <http://www.uncc.edu/gradmiss/index.asp>. A list of frequently asked questions pertaining specifically to the Clinical Exercise Physiology Master’s Degree Program have been included below.

- **Do I need to take classes in a certain order?**

Yes, classes should be taken in a certain order. To view the class order designed by the Graduate Faculty, please reference PROGRESSION OF CLASSES on page 10.

- **Can electives be taken at other colleges/universities?**

Electives may not be taken at other educational institutions unless approved by the Graduate Faculty. Please contact your advisor for more information.

- **What electives are available or recommended for the CEP program?**

Since Health Care is a multidisciplinary field, students are encouraged to take courses in other health care disciplines. For a list of recommended electives, please see the *Suggested Electives* section of COURSE INFORMATION on page 8.

- **What is a thesis?**

A research thesis is a document that presents your research and experimental findings. The thesis represents the culmination of your research and is the final requirement (in lieu of the comprehensive competency examination) in obtaining your CEP Master's Degree.

- **If I'm not required to complete a thesis, what would be the benefit of choosing this path?**

You are not required to complete a thesis and may choose to take a comprehensive competency examination instead (see *OPTION B – Comprehensive Competency Examination* under CAPSTONE EXPERIENCE DETAILS on page 11). Those who are interested in continuing their graduate education by pursuing a doctoral degree will benefit from choosing Option A instead of Option B. You will gain experience in research preparation and conduct, data interpretation, and communication of your research findings. If you are entertaining the idea of pursuing a PhD, completing a thesis for the CEP Master's Degree Program is an excellent experience to prepare you for such a future endeavor. Please refer to *OPTION A – Research Thesis* within the CAPSTONE EXPERIENCE DETAILS section on page 11 for specific thesis information and deadlines.

- **How does this major prepare me for the RCEP exam?**

The M.S. in Clinical Exercise Physiology program prepares you for the RCEP exam through education in the six major practice areas and coverage of the required competencies (KSA's) for the practice of Clinical Exercise Physiology. You will also gain invaluable clinical experience through the completion of three clinical practicum rotations. For more information see CLINICAL EXERCISE PHYSIOLOGY OUTCOME GOALS on page 8, as well as RCEP KSA's on page 22.

- **When do I take the RCEP exam?**

Should you choose to take the comprehensive competency examination and not complete a thesis, the examination must be taken during your final semester in the master's program. You will need to submit paperwork to ACSM approximately three months prior to the examination date. For example, if you plan to take the examination in May, you will need to have all paperwork filed with ACSM by February. You are responsible, however, for verifying all deadlines and test dates with your advisor and ACSM. For more information see *OPTION B – Comprehensive Competency Examination* under CAPSTONE EXPERIENCE DETAILS on page 11, as well as CERTIFICATION OPPORTUNITIES on page 29.

- **How much does the RCEP exam cost?**

The cost of the RCEP exam may vary from year to year. The current cost for members is \$239.00 and \$299.00 for non-members. Please reference <http://www.acsm.org/certification/getcertified.htm> for the most recent pricing information. For additional information regarding the RCEP exam, please refer to the *ACSM Registered Clinical Exercise Physiologist* section under CERTIFICATION OPPORTUNITIES in the handbook on page 29.

- **What is the procedure for obtaining a practicum? When do I start and can all three rotations be completed at the same site?**

After you have completed nine credit hours within the CEP Master's Degree Program and have approval of the Practicum Supervisor, you are eligible to begin the clinical experience. You will need to contact the Practicum Supervisor the semester during which you will complete nine credit hours to request placement at a practicum site for the following semester. When the University Calendar dictates you are to register for classes for the following semester, be sure to register for KNES 6490, as this is the 1 credit hour course associated with all practicum. The Practicum Supervisor will contact you via email and assign you to a specific clinical site. You will be responsible for contacting the Clinical Preceptor at your assigned site and arranging an interview. If both you and the Clinical Preceptor are satisfied with the placement, you will be notified to arrange your schedule at the practicum site. Since the practicum portion of the program is designed to provide experience within different practice areas you may not complete all three rotations at the same site. You may be assigned to the same facility, but each 200 clinical hour segment must be performed in a different program/site within that facility. For more information, please reference the PRACTICUM INFORMATION section on page 10.

- **Does prior clinical experience (working in Athletic Training, cardiac rehabilitation, etc) count towards clinical experience hours?**

You may be eligible to obtain credit for 200 clinical hours (1 credit hour) to be applied toward the CEP Master's Degree Program requirements if your documentation for prior clinical experience is approved by the Graduate Faculty. You are not eligible, however, to obtain credit within the CEP Program for any hours that have been used to satisfy the requirements of another program.

- **What certifications or extra qualifications will I need to participate in the practicum?**

In order to participate in the practicum, you must complete nine credit hours within the CEP Master's Degree Program, demonstrate basic mastery of Exercise Physiology, and have approval of the Practicum Supervisor. You must provide proof of current CPR certification, current professional liability insurance, and current immunizations to both the Practicum Supervisor and the Clinical Preceptor at your assigned clinical site. Some clinical sites may also require criminal background checks and drug screening. For more information, please reference the PRACTICUM INFORMATION section on page 10.

- **What kind of liability insurance do I need to have?**

Affordable liability insurance is available through the department. Please contact the department secretary for more information.

- **What is the maximum length of time that I can take to complete my degree?**

According to UNC Charlotte policy, courses older than six years will not count toward your master's degree. The University has policies in place for revalidating or retaking certain courses. For more information, please reference the TIME FRAME FOR DEGREE COMPLETION section on page 16.

- **When is my graduation application due?**

You must file both an Admission to Candidacy and Application for Degree with the Graduate School prior to graduation. The Admission to Candidacy application is due no later than four weeks prior to the beginning of the semester in which you expect to complete all requisites for the degree. The Application for Degree must be submitted no later than the filing date specified in the University Calendar, usually several months prior to graduation. The Graduate School regularly communicates deadline reminders via email. Make sure that the Graduate School has an updated address for email that you check on a regular basis. If you use an email account other than that which is provided you by the University, make sure to forward your University email to that account to ensure you will receive communication from the Graduate School. Responsibility lies with you to be aware of all deadlines and to verify that you have everything in order for graduation. For additional information, please reference GRADUATION INFORMATION on pages 14.

- **Are independent studies available?**

Independent studies are available and must be approved by both your advisor and the instructor of the independent study. If you are interested in an independent study, please discuss this option with your advisor.

- **Is there an opportunity to study abroad?**

No, the CEP Master's Program does not provide an opportunity to study abroad.

- **What type of jobs am I qualified for after getting my masters in CEP?**

Upon completion of the M.S. in Clinical Exercise Physiology program, you have many options or career paths available to you. You may choose work in one of the following areas: inpatient/outpatient clinical/rehabilitation settings; general wellness/fitness commercial/corporate settings; industrial settings servicing both diseased and healthy populations; and teaching. For more information see CLINICAL EXERCISE PHYSIOLOGY OUTCOME GOALS on page 8, as well as CERTIFICATION OPPORTUNITIES on page 29.

- **What is the average salary for an RCEP?**

It is hard to determine the average salary for an RCEP. Many variables affect salary rates, such as geographical location, experience level, and type of facility. Unfortunately we do not have a solid answer for students on this question. It is suggested, however, that you conduct your own research on geographical areas and types of facilities in which you wish to work.