UNIVERSITY OF KENTUCKY

New Course Report

12/4/2014 9:20:31 AM

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1. General Information

1a. Submitted by the College of: HEALTH SCIENCES

Date Submitted: 9/29/2014

1b. Department/Division: Health Sciences - Clinical Science

1c. Contact Person

Name: Esther Dupont-Versteegden

Email: eedupo2@uky.edu

Phone: 859 218 0592

Responsible Faculty ID (if different from Contact)

Name: as above

Email: eedupo2@uky.edu

Phone: 859 218 0592

1d. Requested Effective Date: Specific Term/Year [1] fall 2015

1e. Should this course be a UK Core Course? No

2. Designation and Description of Proposed Course

2a. Will this course also be offered through Distance Learning?: No

2b. Prefix and Number: HHS 402G

2c. Full Title: Muscle Biology

2d. Transcript Title:

2e. Cross-listing:

2f. Meeting Patterns

LECTURE: 3

2g. Grading System: Letter (A, B, C, etc.)

2h. Number of credit hours: 3

2i. Is this course repeatable for additional credit? No

If Yes: Maximum number of credit hours:

If Yes: Will this course allow multiple registrations during the same semester?

2j. Course Description for Bulletin: This course examines the gross as well as microscopic structural properties and the physiological function of skeletal muscle. Students will gain in-depth knowledge about not only normal muscle function, but also about the adaptability and plasticity of skeletal muscle under different environmental circumstances. The comparative biology of structure and function of skeletal muscle will be covered; also the relationship between muscle structure and function as it relates to human health-related issues will be examined and discussed. This course is for undergraduate as well as graduate students and will benefit those interested in health care-related fields (e.g. pre-physical therapy, pre-medicine) as well as students interested in the basic functioning of skeletal muscle.

2k. Prerequisites, if any: One course of general biology (BIO148, BIO 150 or BIO 152), a general anatomy/physiology (i.e., PGY206) course or permission of instructor.

2l. Supplementary Teaching Component:

3. Will this course taught off campus? No

If YES, enter the off campus address:

4. Frequency of Course Offering: Fall,

Will the course be offered every year?: Yes

If No, explain:

5. Are facilities and personnel necessary for the proposed new course available?: Yes

If No, explain:

6. What enrollment (per section per semester) may reasonably be expected?: 25

7. Anticipated Student Demand

Will this course serve students primarily within the degree program?: No

Will it be of interest to a significant number of students outside the degree pgm?: Yes

If Yes, explain: This course will likely be of interest of students in different colleges who are interested in muscle biology from different view points (i.e. biology, kinesiology, engineering) in addition to the human health sciences.

8. Check the category most applicable to this course: Relatively New – Now Being Widely Established,

If No, explain:

9. Course Relationship to Program(s).

a. Is this course part of a proposed new program?: No

If YES, name the proposed new program:

b. Will this course be a new requirement for ANY program?: No

If YES, list affected programs:

10. Information to be Placed on Syllabus.

a. Is the course 400G or 500?: Yes

b. The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if applicable, from **10.a** above) are attached: Yes

Distance Learning Form

Instructor Name:

Instructor Email:

Internet/Web-based: No

Interactive Video: No

Hybrid: No

1.How does this course provide for timely and appropriate interaction between students and faculty and among students? Does the course syllabus conform to University Senate Syllabus Guidelines, specifically the Distance Learning Considerations?

2.How do you ensure that the experience for a DL student is comparable to that of a classroom-based student's experience? Aspects to explore: textbooks, course goals, assessment of student learning outcomes, etc.

3.How is the integrity of student work ensured? Please speak to aspects such as password-protected course portals, proctors for exams at interactive video sites; academic offense policy; etc.

4.Will offering this course via DL result in at least 25% or at least 50% (based on total credit hours required for completion) of a degree program being offered via any form of DL, as defined above?

If yes, which percentage, and which program(s)?

5.How are students taking the course via DL assured of equivalent access to student services, similar to that of a student taking the class in a traditional classroom setting?

6.How do course requirements ensure that students make appropriate use of learning resources?

7.Please explain specifically how access is provided to laboratories, facilities, and equipment appropriate to the course or program.

8.How are students informed of procedures for resolving technical complaints? Does the syllabus list the entities available to offer technical help with the delivery and/or receipt of the course, such as the Information Technology Customer Service Center (http://www.uky.edu/UKIT/)?

9.Will the course be delivered via services available through the Distance Learning Program (DLP) and the Academic Technology Group (ATL)? NO

If no, explain how student enrolled in DL courses are able to use the technology employed, as well as how students will be provided with assistance in using said technology.

10.Does the syllabus contain all the required components? NO

11.I, the instructor of record, have read and understood all of the university-level statements regarding DL.

Instructor Name:

SIGNATURE|KOSKAF0|Karen O Skaff|HHS 402G NEW Dept Review|20140822

SIGNATURE|PNASH|Phyllis J Nash|HHS 402G NEW College Review|20140825

SIGNATURE|ZNNIKO0|Roshan N Nikou|HHS 402G NEW Graduate Council Review|20140926

SIGNATURE|JMETT2|Joanie Ett-Mims|HHS 402G NEW Undergrad Council Review|20141203

Courses | Request Tracking

New Course Form

https://myuk.uky.edu/sap/bc/soap/rfc?services=

Open in full window to print or save

Generate R

Attachments:

Browse... Upload File

	ID	Attachment
Delete	3810	MEMO for HHS 402G approval 9 25 14.pdf
Delete	4134	HHS 402-G syllabus_EDV120214.docx

First 1 Last

Select saved project to retrieve... Get New

(*denotes required fields)

1. General Information

a. * Submitted by the College of: HEALTH SCIENCES Submission Date: 9/29/2014

b. * Department/Division: Health Sciences - Clinical Science

c.

* Contact Person Name: Esther Dupont-Versteegc Email: eedupo2@uky.edu Phone: 859 218 0592

* Responsible Faculty ID (if different from Contact) as above Email: eedupo2@uky.edu Phone: 859 218 0592

d. * Requested Effective Date: ○ Semester following approval OR ◉ Specific Term/Year [1] fall 2015

e.

Should this course be a UK Core Course? ○ Yes ◉ No

If YES, check the areas that apply:

☐ Inquiry - Arts & Creativity	☐ Composition & Communications - II
☐ Inquiry - Humanities	☐ Quantitative Foundations
☐ Inquiry - Nat/Math/Phys Sci	☐ Statistical Inferential Reasoning
☐ Inquiry - Social Sciences	☐ U.S. Citizenship, Community, Diversity
☐ Composition & Communications - I	☐ Global Dynamics

2. Designation and Description of Proposed Course.

a. * Will this course also be offered through Distance Learning? ○ Yes [4] ◉ No

b. * Prefix and Number: HHS 402G

c. * Full Title: Muscle Biology

d. Transcript Title (if full title is more than 40 characters):

e. To be Cross-Listed [2] with (Prefix and Number):

f. * Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours[3] for each meeting pattern type.

3	Lecture		Laboratory[1]		Recitation		Discussion
	Indep. Study		Clinical		Colloquium		Practicum
	Research		Residency		Seminar		Studio
	Other	If Other, Please explain:					

g. * Identify a grading system:

◉ Letter (A, B, C, etc.)
○ Pass/Fail
○ Medicine Numeric Grade (Non-medical students will receive a letter grade)
○ Graduate School Grade Scale

h. * Number of credits: 3

i. * Is this course repeatable for additional credit? ○ Yes ◉ No

If YES: Maximum number of credit hours:

If YES: Will this course allow multiple registrations during the same semester? ○ Yes ○ No

j. * Course Description for Bulletin:

This course examines the gross as well as microscopic structural properties and the physiological function of skeletal muscle. Students will gain in-depth knowledge about not only normal muscle function, but also about the adaptability and plasticity of skeletal muscle under different environmental circumstances. The comparative biology of structure and function of skeletal muscle will be covered; also the relationship between muscle structure and function as it relates to human health-related issues will be examined and discussed. This course is for undergraduate as well as graduate students and will benefit those interested in health care-related fields (e.g. pre-physical therapy, pre-medicine) as well as students interested in the basic functioning of skeletal muscle.

k. Prerequisites, if any:

One course of general biology (BIO148, BIO 150 or BIO 152), a general anatomy/physiology (i.e., PGY206) course or permission of instructor.

l. Supplementary teaching component, if any: ○ Community-Based Experience ○ Service Learning ○ Both

3. * **Will this course be taught off campus?** ○ Yes ◉ No

If YES, enter the off campus address:

4. **Frequency of Course Offering.**

a. * Course will be offered (check all that apply): ☑ Fall ☐ Spring ☐ Summer ☐ Winter

b. * Will the course be offered every year? ◉ Yes ○ No

If No, explain:

5. * **Are facilities and personnel necessary for the proposed new course available?** ◉ Yes ○ No

If No, explain:

6. * **What enrollment (per section per semester) may reasonably be expected?** 25

7. **Anticipated Student Demand.**

a. * Will this course serve students primarily within the degree program? ○ Yes ◉ No

b. * Will it be of interest to a significant number of students outside the degree pgm? ◉ Yes ○ No

If YES, explain:

This course will likely be of interest of students in different colleges who are interested in muscle biology from different view points (i.e. biology, kinesiology, engineering) in addition to the human health sciences.

8. * **Check the category most applicable to this course:**

☐ Traditional – Offered in Corresponding Departments at Universities Elsewhere
☑ Relatively New – Now Being Widely Established
☐ Not Yet Found in Many (or Any) Other Universities

9. **Course Relationship to Program(s).**

a. * Is this course part of a proposed new program? ○ Yes ◉ No

If YES, name the proposed new program:

b. * Will this course be a new requirement [5] for ANY program? ○ Yes ◉ No

If YES [5], list affected programs::

10. **Information to be Placed on Syllabus.**

a. * Is the course 400G or 500? ◉ Yes ○ No
If YES, the *differentiation for undergraduate and graduate students must be included* in the information required in **10.b**. You must include: (i) ident additional assignments by the graduate students; and/or (ii) establishment of different grading criteria in the course for graduate students. (See SR

b. ☑ * The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if appl **10.a** above) are attached.

[1] Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.
[2] The chair of the cross-listing department must sign off on the Signature Routing Log.

[1] In general, undergraduate courses are developed on the principle that one semester hour of credit represents one hour of classroom meeting per week for a semester, exclusive of any laboratory meeting. Laboratory meeting, generally, re two hours per week for a semester for one credit hour. (from SR 5.2.1)
[2] You must also submit the Distance Learning Form in order for the proposed course to be considered for DL delivery.
[3] In order to change a program, a program change form must also be submitted.

Rev 8/09

Submit as New Proposal Save Current Changes

MEMO

September 25, 2014

srstew01@uky.edu
Digitally signed by srstew01@uky.edu
DN: cn=srstew01@uky.edu
Date: 2014.10.02 12:45:38 -04'00'

TO: Sharon R. Stewart, Ed.D., Interim Dean and Professor
FROM: Travis Thomas – Chair Academic Affairs
RE: AA approval of HHS 402G

Dear Dr. Stewart,

The Academic Affairs (AA) Committee has thoroughly reviewed the HHS 402G Muscle Biology new course proposal and the author's response to AA reviewer inquiries. The AA Committee recommends approval of this new course request. We ask that the course author remember to use the revised syllabus submitted to the AA committee on September 23rd, 2014.

Thanks for the opportunity to review this proposal. Please let me know if I can help clarify anything regarding this approval request.

Sincerely,

Travis Thomas, PhD, RD, CSSD, *Chair – CHS Academic Affairs Committee (2013-15)*

HHS402-G
Muscle Biology
Fall, 2015
3 credits

Meeting times: Tue and Thurs 3:00PM to 4:15PM
Meeting Place: CTW415

Instructors: Esther E. Dupont-Versteegden, PhD (Associate Professor, Dept. Rehabilitation Sciences); Robin L. Cooper, PhD (Associate Professor, Biology); Karyn A. Esser, PhD (Professor, Dept. of Physiology); Tim Butterfield, PhD (Assistant Professor, Dept. Rehabilitation Science); Kenneth S. Campbell, PhD (Associate Professor, Dept. of Physiology). Team taught course: hyperlinks above include contact information for each instructor.

Office: C.T. Wethington Building, Room 204L (Dr. Dupont-Versteegden's office)
Office phone: (859) 218-0592
E-mail: eedupo2@uky.edu
Office hours: Course Director has an open door policy, so feel free to stop by the office any time to ask questions, or to clarify something from class or the reading materials. However, when otherwise occupied a meeting should be set up. All other instructors are available by appointment also. It might be useful to form study groups and study together regularly and formulate questions early.

Course Description:
This course examines the gross as well as microscopic structural properties and the physiological function of skeletal muscle. Students will gain in-depth knowledge about not only normal muscle function, but also about the adaptability and plasticity of skeletal muscle under different environmental circumstances. The comparative biology of structure and function of skeletal muscle will be covered; also the relationship between muscle structure and function as it relates to human health-related issues will be examined and discussed. This course is for undergraduate as well as graduate students and will benefit those interested in health care-related fields (e.g. pre-physical therapy, pre-medicine) as well as students interested in the basic functioning of skeletal muscle.

Prerequisite: One course of general biology (BIO148, BIO 150 or BIO 152), a general anatomy/physiology (i.e., PGY206) course or permission of instructor.

Student Learning Outcomes

By the end of this course, students should be able to:

1. Describe concepts related to muscle structure and function and limitations that are shaped by their evolutionary history as assessed by examination

2. Demonstrate understanding of the physiological function of muscles
3. Illustrate how muscles can be studied experimentally
4. Critically analyze research papers in the field of muscle biology
5. Discuss and develop new ideas and suggest future research directions in the field of muscle biology.

Course goals/objectives
The goals of this course are that the learning outcomes will be met by the students

Required materials:
Required textbook:

Skeletal Muscle Structure, Function, and Plasticity. The physiological basis of rehabilitation.
Author(s): Richard L. Lieber PhD
Publication Date: Sep 23, 2009
Format: Book
Edition: Third 2010
ISBN/ISSN: 978-0-7817-7593-9
Cost: ~ $60

Supplementary Materials:
1. Readings from the primary literature will be assigned on occasion. These articles will be posted on Blackboard for you to download and print.

2. Fundamental Biology and Mechanisms of Disease (two volume series)
Editors: Hil & Olson
Release Date: 18 Jul 2012
Academic Press
ISBN: 978-0-1238-1510-1
Pages: 1392
A copy will be held in reserve in the UK Library for student access.

Course Websites: Blackboard: [syllabus, course announcements, study advice, class notes]

Description of Course Activities and Assignments:
The course will be a mix of lecture and student-led discussions. Readings will be taken from the text and from the primary research literature. The instructors will provide greater detail on the term paper, but basically a student will read recent primary research papers on one subject and will explain their meaning and how the topics relate to the field in muscle biology.

Course Assignments:

All students
Summary of a primary research article or research of a muscle disease or comparative muscle review (<500 word undergraduate, 700-1000 word graduate, article for the public, i.e. newspaper or magazine)- 15 points

Class participation (questions in class, paper discussions)- 10 pts
Students are expected to participate in Discussions and ask a question or comment on a discussion at least 2-3 times (5 points each) during each discussion period.

EXAMs- 25 pts each = 75 pts

Undergraduate students will be provided with a Midterm Evaluation (by the midterm date) of course performance based on criteria in syllabus.

Graduate students

All above mentioned assignments plus a research paper for graduate students only:
First draft- 30 pts
Final version – 70 pts

Writing assignments for course

Summary article/newspaper type report:
Undergraduate assignment: Write a summary article for the public, i.e. newspaper or magazine: <500 words
Graduate assignment: Write a 700-1000 word article for the public, i.e. newspaper or magazine.

For graduate students only:
Review article/term paper: There will be one formal manuscript write-up due this semester. The manuscript is intended to mimic the review manuscript writing and submission processes required for scientific publication, and it will utilize results from reviewing scientific literature. The manuscript must be written independently (no group submissions). The draft and final submission dates are listed below in class schedule. The writing format described by the Journal of Comparative Biochemistry and Physiology - Part A: Molecular & Integrative Physiology will be used or Annual Reviews in Physiology. As an example, go to the journal's web page and look up information for authors at:
http://www.elsevier.com/wps/find/journaldescription.cws_home/525464/description
The "guide to authors" provided by the journal provides the formatting guidelines that must be followed for this assignment. Additional information for this assignment will be made available through the course website.

Graduate assignment: The manuscript must include a thorough analysis and evaluation of different views within the field and the synthesis of a new research question pertaining to the discussed topic.

Assignments are considered late after 5pm on the due date and a full letter grade will be subtracted for a late assignment.

Grading:
Table of points to be earned in the class:

	Undergraduate		graduate
summary			
paper	15		15
participation	10		10
tests(3 at 25 points each)	75		75
draft term paper			30
final version term paper			70
total points	100		200

Final grades will be based on total points earned and will be assigned as follows:
Undergraduates:

A = 90 - 100 %
B = 80 – 89.99 %
C = 70 – 79.99 %
D = 60 – 69.99 %
E = less than 60 %

Final grades will be based on total points earned and will be assigned as follows:
Graduate Students:

A = 92 - 100 %
B = 82 – 91.99 %
C = 72 – 81.99 %
E = less than 72 %

Course policies
The exams will allow you to demonstrate your understanding of the material presented in class and in the textbook. Each exam will last 60 min and will involve short answers of a few sentences and/or diagrams and/or multiple choice questions and/or essay questions. Make-up exams are given only in cases that meet criteria for acceptable reasons for excused absences, as stated below in the policy on "Excused Absences." Unexcused absence from an exam will result in a score of zero for that exam. All make-

up exams must be completed within one week of the scheduled exam date. Failing to make up exams will result in a failing grade.
A grade of incomplete (INC) can only be given if a *major* portion (>70%) of the course has been completed at a *passable* level (>70% for undergraduates and >72% for graduates). An INC grade will not be given for poor performance or for lack of attendance. Documentation is required to justify a grade of INC. See the University catalog or schedule of classes for information on withdrawal from the course.

Blackboard/Class Communications
Course announcements, assignments, lecture outlines and additional materials will be posted online using Blackboard. Exams and homework dates will remain fixed. Updates to this syllabus (regarding topics and reading) will be posted; please check periodically. You will also receive important course announcements via your UK e-mail account. If you do not use your UK e-mail account, you need to activate it. It is strongly recommended that you check your e-mail regularly. Instructors may send messages—sometimes with attachments—to the class using this medium. You should also feel free to e-mail instructors if you have any questions or problems. Feel free to call Dr. Dupont-Versteegden as well, if you prefer a more personal communication or set up an appointment.

Attendance policy
Attendance is mandatory for all classes and discussion. Instructor needs to be notified in case of absence. If a class is missed without notification and is an unexcused absence, 5 points will be deducted from the total overall score.

Excused Absences
Students need to notify the professor of absences prior to class when possible. S.R. 5.2.4.2 defines the following as acceptable reasons for excused absences: (a) serious illness, (b) illness or death of family member, (c) University-related trips, (d) major religious holidays, and (e) other circumstances found to fit "reasonable cause for nonattendance" by the professor.

Students anticipating an absence for a major religious holiday are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays no later than the last day in the semester to add a class. Information regarding dates of major religious holidays may be obtained through the religious liaison, Mr. Jake Karnes (859-257-2754).

Students are expected to withdraw from the class if more than 20% of the classes scheduled for the semester are missed (excused or unexcused) per university policy.

Verification of Absences
Students may be asked to verify their absences in order for them to be considered excused. Senate Rule 5.2.4.2 states that faculty have the right to request "appropriate

verification" when students claim an excused absence because of illness or death in the family. Appropriate notification of absences due to university-related trips is required prior to the absence.

Academic Integrity:
You must abide by UK's Code of Conduct (http://www.uky.edu/StudentAffairs/Code/index.html), which prohibits:
1. Academic dishonesty and impropriety, including plagiarism and academic cheating.
2. Interfering or attempting to interfere with or disrupting the conduct of classes or any other normal or regular activities of the University.
Per university policy, students shall not plagiarize, cheat, or falsify or misuse academic records. Students are expected to adhere to University policy on cheating and plagiarism in all courses. The minimum penalty for a first offense is a zero on the assignment on which the offense occurred. If the offense is considered severe or the student has other academic offenses on their record, more serious penalties, up to suspension from the university may be imposed.

Plagiarism and cheating are serious breaches of academic conduct. Each student is advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found at the following website: http://www.uky.edu/Ombud. A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty. It is important that you review this information as all ideas borrowed from others need to be properly credited.

Part II of *Student Rights and Responsibilities* (available online http://www.uky.edu/StudentAffairs/Code/part2.html) states that all academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about the question of plagiarism involving their own work, they are obliged to consult their instructors on the matter before submission.

When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording or anything else from another source without appropriate acknowledgement of the fact, the students are guilty of plagiarism. Plagiarism includes reproducing someone else's work, whether it be a published article, chapter of a book, a paper from a friend or some file, or something similar to this. Plagiarism also includes the practice of employing or allowing another person to alter or revise

the work which a student submits as his/her own, whoever that other person may be.

Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, it must be done by the student, and the student alone. When a student's assignment involves research in outside sources of information, the student must carefully acknowledge exactly what, where and how he/she employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content and phraseology intact is plagiaristic. However, nothing in these Rules shall apply to those ideas which are so generally and freely circulated as to be a part of the public domain (Section 6.3.1).

Please note: Any assignment you turn in may be submitted to an electronic database to check for plagiarism.

Accommodations due to disability:
If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (Room 2, Alumni Gym, 257-2754, email address: jkarnes@email.uky.edu) for coordination of campus disability services available to students with disabilities

Classroom behavior policies:
Use of personal recording devices in class: If a student finds it necessary to photograph, video or audio record portions of a lecture or lab, it is required that the student get the permission of the instructor. It is also expected that such recording will be used as a study aid for the student and not posted in any manner on the internet. Use by other students in the class is allowed, but ALWAYS requires permission of the instructor. Photographs or recordings meant to be used for historical purposes by the class historian should have the permission of faculty members as well.
The use of cellular telephones is not permitted in class.

Tentative Class Schedule:
Exams will be given during class time in the weeks indicated. All material covered in class up until the exam date will be covered on the exam.

Week 1- Introduction to skeletal muscle anatomy; Library research methods
Dr. Cooper
TEXT Chapter 1, pp. 1-39

Week 2- Introduction to skeletal muscle anatomy: Cellular organization
Drs. Esser & Cooper
TEXT Chapter 1, pp. 1-39 & supplemental material

Week 3- Skeletal muscle physiology, Research Paper 1 discussion,
Dr. Cooper
TEXT Chapter 2, pp. 41-90

Week 4- Skeletal muscle physiology/ Sarcomere forces
Dr. Campbell
TEXT Chapter 2, pp. 41-90

Exam 1

Week 5- The production of movement, Research Paper 2 discussion
Dr. Butterfield
TEXT Chapter 3, pp.93-137

All students- Summary of an primary research article or research of a muscle disease or comparative muscle review (<500 word undergraduates and 700-1000 word for graduate students article for the public, i.e. newspaper or magazine due)

Week 6- The production of movement/ Biomechanics
Dr. Butterfield
TEXT Chapter 3, pp.93-137

Week 7- Comparative review of skeletal muscle function
Dr. Cooper
TEXT supplemental material

Week 8- Skeletal muscle adaptation to increased use-overload
Dr. Esser
TEXT Chapter 4, pp.141-180

Week 9- Skeletal muscle adaptation to increased use- exercise
Dr. Esser
TEXT Chapter 4, pp.141-180

Exam 2

Week 10- Skeletal muscle adaptation to decreased use/ disuse.
Dr. Dupont-Versteegden
TEXT Chapter 5, pp.183-226

Graduate students:
Draft of term paper due.

Week 11- Skeletal muscle adaptation to decreased use/ aging and disease.

Dr. Dupont-Versteegden
TEXT Chapter 5, pp.183-226

Week 12- Skeletal muscle response to injury; Draft of research paper due
Dr. Cooper
TEXT Chapter 6, pp.229-268

Week 13- Skeletal muscle adaptation to spasticity.
Dr. Cooper
TEXT Chapter 7, pp.271-290

Week 14- Current research in areas of muscle biology.
All Instructors
TEXT supplemental material

Graduate students: Term paper due.

Week 15- Current research in areas of muscle biology.
All Instructors
TEXT supplemental material

Week 16- Comprehensive overview/current research discussion/evaluation
Dr. Dupont-Versteegden/Dr. Cooper
(finals week)

Final, Exam 3