FAU

FLORIDA ATLANTIC UNIVERSITY

NEW COURSE PROPOSAL
Graduate Programs

Department Exercise Science & Health Promotion

College Education

*(To obtain a course number, contact **erudolph@fau.edu**)*

UGPC Approval _____
UFS Approval _____
SCNS Submittal _____
Confirmed _____
Banner Posted _____
Catalog _____

Prefix PET **Number** 6388	*(L = Lab Course; C = Combined Lecture/Lab; add if appropriate)* **Lab Code** NA	**Type of Course** Lecture	**Course Title** Skeletal Muscle Plasticity
Credits *(Review Provost Memorandum)* 3 **Effective Date** *(TERM & YEAR)*	**Grading** *(Select One Option)* **Regular** ◉ **Sat/UnSat** ○	**Course Description** *(Syllabus must be attached; see Guidelines)* This course will explore skeletal muscle physiology and adaptation to exercise and disease. Focus will be on pre-clinical rodent models and humans, but also other experimental systems where appropriate. Emphasis will also be placed on skeletal muscle responses occurring at the cell and molecular level.	

Prerequisites	**Corequisites**	**Registration Controls** *(Major, College, Level)*
APK 4110 Exercise Physiology or permission of the instructor.	NA	NA

Prerequisites, Corequisites and Registration Controls are enforced for all sections of course

Minimum qualifications needed to teach course: Member of the FAU graduate faculty and has a terminal degree in the subject area (or a closely related field.)	**List textbook information in syllabus or here** No textbook
Faculty Contact/Email/Phone Dr. Khamoui 7-4450 Dr. Zoeller 7-2549	**List/Attach comments from departments affected by new course** E-mails were sent to all Depts in the College of Education, to the Dean of College of Science, and Dean of College of Nursing. No objections were raised by any unit.

Approved by	***Date***
Department Chair Michael Khamoui	11/14/18 2019
College Curriculum Chair Paul R. Zoeller	1/5/18 2019
College Dean Valerie J. Morton	1/10/19
UGPC Chair Paul R. Zoeller	1/23/19
UGC Chair	1/29/19
Graduate College Dean Khaled Sabbah	1/31/19
UFS President	
Provost	

Email this form and syllabus to UGPC@fau.edu one week before the UGPC meeting.

GRADUATE COLLEGE

JAN 11 2019

Received

PET XXXX Skeletal Muscle Plasticity in Exercise and Disease (3 credits)
Spring XXXX; CRN: XXXXX; Room XX XXX; Day Time
Department of Exercise Science and Health Promotion
College of Education
Florida Atlantic University

Professor: Andy Khamoui, Ph.D.
Assistant Professor, Dept. of Exercise Science & Health Promotion
Office: Fieldhouse 11-A, Room 128-B
akhamoui@fau.edu
561.297.4450 (office)
Office hours Tuesday 2-5pm & Thursday 1-4pm

Course Description: This course will explore skeletal muscle physiology and adaptation to exercise and disease. Focus will be on pre-clinical rodent models and humans, but also other experimental systems where appropriate. Emphasis will also be placed on skeletal muscle responses occurring at the cell and molecular level.

Prerequisite: APK 4110 Exercise Physiology or permission of the instructor.

Textbook: No text is required for this course. All relevant course material will be posted on Canvas.

Evaluation:		
Exams 3 @ 40 points each		120 points
Abstract Write-up	1 @ 30 points	30 points
Seminar presentations	3 @ 10 points each	30 points
		180 points total

Grading Scale:

Grading scale(%): A=100-93, A-=92-90, B+=89-87, B=86-83, B-=82-80, C+=79-77, C=76-73, C-=72-70, D+=69-67, D=66-63, D-62-60, F=≤59

General Guidelines: You are expected to read and follow the syllabus. You are responsible for all information contained in readings, the lecture notes, labs, seminars and anything else verbally communicated by the instructor. Every effort will be made to follow the course schedule verbatim, however, the schedule is tentative and subject to change. Whenever possible, changes will be communicated in advance during class, via e-mail, or Canvas. Make-up examinations are not allowed without proper documentation. Cheating or plagiarism will result in a failing grade on the assignment, exam, or possibly the course. Should you be caught cheating, the Department of Exercise Science and Health Promotion will place a letter in your electronic file. The department reserves the right to dismiss you from the department.

Examinations: Exams will be administered in class and consist of *multiple choice and/or short answer/essay questions*. You are required to take the exam on the designated day and time. Make up tests will not be given unless there is a legitimate excuse (e.g. military commitment, court-imposed legal obligations, or illness requiring a doctor's visit on exam day -appropriate notification and documentation will be required.)

Abstract Write-up: The abstract write-up is based on the in-class activity where you will quantitate myofiber cross-sectional area. Images of muscle fiber cross-sections will be provided, and you will be required to trace individual fiber outlines and calculate mean fiber area using NIH ImageJ software. This software is freely

available for download from the NIH website https://imagej.nih.gov/ij/download.html The images provided to you will come from groups of mice subjected to different treatments, and basic statistics will be performed. The analyzed data will then be used to write your abstract, which *should not exceed 250 words*. This assignment is intended to provide you with an opportunity to refresh your statistical knowledge and succinctly communicate technical information in a format used frequently in science (e.g. conference abstracts, abstract section of journal manuscripts).

Seminar Presentations: You will be required to present 3 PowerPoint presentations throughout the semester on the themes listed in the course schedule. The specific topic must be emailed to the instructor at least 3 days prior to the scheduled presentation for approval. Each presentation should run for approximately 10-15 minutes in duration. The major purposes of these presentations are to comprehend and critique published research, generate ideas, and verbally communicate scientific information.

University Attendance Policy

Students are expected to attend all of their scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of nonattendance. Attendance includes active involvement in class sessions, discussions, and activities, as well as professional conduct in class.

Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations, or participation in University-sponsored activities (such as athletic or scholastic team, musical and theatrical performances, and debate activities). It is the student's responsibility to give the instructor notice prior to any anticipated absence, and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a University-approved reason the opportunity to make up work missed without any reduction in the student's final course grade as a direct result of such absence.

Professional ethics/policies and expectations

Students, as reflective decision-makers, choose to practice ethical behavior during class and in the university community. ESHP students are expected to demonstrate a professional demeanor in their FAU courses including attendance, participation and responsible attention to requirements and deadlines necessary for the successful completion of the ESHP program. ESHP students are also expected to demonstrate a professional demeanor through their actions and sensitivity to the students, teachers and administrators.

Code of Integrity

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty, including cheating and plagiarism, is considered a serious breach of these ethical standards, because it interferes with the University mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the University community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see http://www.fau.edu/regulations/chapter4/4.001_Honor_Code.pdf.

Students with Disabilities

In compliance with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses – Boca Raton,

Davie and Jupiter – however disability services are available for students on all campuses. For more information, please visit the SAS website at www.fau.edu/sas/.

Counseling and Psychological Services (CAPS) Center

Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to http://www.fau,edu/counseling/

Course Schedule

	Topic
1.	Course introduction
2.	Skeletal muscle basics; In vitro and in vivo models of sarcopenia, disuse, injury, and disease. Recommended Reading #1
3.	In vitro and in vivo models of exercise. Recommended Reading #2
4.	Seminar 1: Skeletal muscle as an endocrine organ: role of myokines in inter-organ cross talk
5.	Exam 1
6.	Assessment of skeletal muscle mass Laboratory activity: surgical excision of mouse hindlimb skeletal muscle, tissue mounting
7.	Mechanisms of Protein turnover. Recommended Readings #3 and #4
8.	Laboratory activity: determination of fiber cross-sectional area using NIH ImageJ software, calculating fiber size distribution, statistical analysis, discussion of results
9.	Spring Break
10.	Seminar 2: Mechanisms of exercise-induced hypertrophy
11.	Exam 2
12.	Mitochondrial biogenesis, dynamics, and mitophagy Regulation of muscle mass by mitochondria Recommended Reading #5
13.	Assessment of mitochondrial function Metabolic flexibility Laboratory activity: mitochondrial respiration by high-resolution respirometry
14.	Cancer cachexia
15.	Seminar 3: Mitochondria and skeletal muscle health
16.	Exam 3 (Final exam)

Recommended Reading

The journal articles listed below are highly recommended. They are directly relevant to the topics covered in this course, and they are useful references for in-depth information on skeletal muscle responses to exercise, inactivity, and disease. Commentaries are also listed below which provide insight and opinions from some of the leading researchers in exercise and muscle biology.

1. Egan B, Zierath JR: Exercise metabolism and the molecular regulation of skeletal muscle adaptation. *Cell Metabolism* 17(2):162-184, 2013
2. Camera DM, Smiles WJ, and Hawley JA. Exercise-induced skeletal muscle signaling pathways and human athletic performance. *Free Radical Biology and Medicine* 98:131-143, 2016.

3. Cartee GD, Hepple RT, Bamman MM, and Zierath JR. Exercise promotes healthy aging of skeletal muscle. *Cell Metabolism* 23: 1034-1047, 2016.
4. Neufer PD et al. Understanding the cellular and molecular mechanisms of physical activity-induced health benefits. *Cell Metabolism* 22: 4-11, 2015.
5. Romanello V and Sandri M. Mitochondrial quality control and muscle mass maintenance. *Frontiers in Physiology* 6:422, 2016.

Mikaela Kursell

Subject: FW: New course offering

From: Paul Peluso
Sent: Wednesday, October 10, 2018 6:02 AM
To: Robert Zoeller <rzoeller@fau.edu>
Subject: Re: New course offering

No conflict with Counselor Ed.

Sent from my iPhone

On Oct 10, 2018, at 6:00 AM, Robert Zoeller <rzoeller@fau.edu> wrote:

> Good Morning
>
> I'm contacting you in my role as Graduate Coordinator of the Dept of Exercise Science & Health Promotion, College of Education. We are proposing to formally offer a new Course titled "Skeletal Muscle Plasticity". As you know, the process requires that we check with any units/programs where there may exist a conflict with existing courses or curriculum. That is the purpose of this e-mail. Below is the course description and I have attached a draft of the proposed course syllabus.
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> Course Description: This course will explore skeletal muscle physiology and adaptation to exercise and disease. Focus will be on pre-clinical rodent models and humans, but also other experimental systems where appropriate. Emphasis will also be placed on skeletal muscle responses occurring at the cell and molecular level. Prerequisite: APK 4110 Exercise Physiology or permission of the instructor.
>
> Please let me know whether or not you have any concerns about apparent conflicts by **Friday October 26th**.
>
> If I don't hear from you by that date, I will assume that no conflicts exists and will move forward. Please let me know if you have any questions or other concerns.
>
> Collegially
>
> Dr. Bob Zoeller
> Professor & ESHP Graduate Coordinator
>
> <Khamoui_PET XXXX Skm Plasticity Syllabus.docx>

Mikaela Kursell

Subject: FW: New course offering

From: Dilys Schoorman
Sent: Wednesday, October 10, 2018 6:03 AM
To: Robert Zoeller <rzoeller@fau.edu>
Subject: Re: New course offering

No conflict with CCEI.

Take care,

Dilys

Dilys Schoorman, Ph.D.

Professor and Chair

Department of Curriculum, Culture and

Educational Inquiry

Florida Atlantic University

777 Glades Road

Boca Raton, FL 33431-0991

Tel: 561 297-3965

Fax: 561 297 2925

http://www.coe.fau.edu/faculty/dschoorm/

Visit our department website:

http://www.coe.fau.edu/academicdepartments/ccei/

Visit our Facebook Page:

https://www.facebook.com/fauCCEI?ref+ts&fref+ts

From: Robert Zoeller <rzoeller@fau.edu>
Date: Wednesday, October 10, 2018 at 6:00 AM
Subject: New course offering

Good Morning

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Collegially

Dr. Bob Zoeller
Professor & ESHP Graduate Coordinator

Mikaela Kursell

Subject: FW: New course offering

From: Barbara Ridener
Sent: Wednesday, October 10, 2018 6:22 AM
To: Robert Zoeller <rzoeller@fau.edu>
Subject: Re: New course offering

Bob,

Teaching and Learning does not have a conflict with this course.

Best wishes,

Barbara

On Oct 10, 2018, at 6:00 AM, Robert Zoeller <rzoeller@fau.edu> wrote:

> Good Morning
>
> I'm contacting you in my role as Graduate Coordinator of the Dept of Exercise Science & Health Promotion, College of Education. We are proposing to formally offer a new Course titled "Skeletal Muscle Plasticity". As you know, the process requires that we check with any units/programs where there may exist a conflict with existing courses or curriculum. That is the purpose of this e-mail. Below is the course description and I have attached a draft of the proposed course syllabus.
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> Collegially
>
> Dr. Bob Zoeller
> Professor & ESHP Graduate Coordinator
>
> <Khamoui_PET XXXX Skm Plasticity Syllabus.docx>

Mikaela Kursell

From: Robert Zoeller
Sent: Tuesday, January 8, 2019 2:59 PM
To: Mikaela Kursell
Subject: FW: New course offering

From: Michael Brady
Sent: Wednesday, October 10, 2018 10:07 AM
To: Robert Zoeller <rzoeller@fau.edu>
Subject: RE: New course offering

Hi Bob – I don't see any overlap or conflict with the courses or curriculum in the ESE Department.

Good luck!

Michael P. Brady, PhD
Professor & Chair
Department of Exceptional Student Education
Florida Atlantic University
777 Glades Road
Boca Raton, FL 33431
(561) 297-3281
mbrady@fau.edu

From: Robert Zoeller
Sent: Wednesday, October 10, 2018 6:00 AM
Subject: New course offering

Good Morning

I'm contacting you in my role as Graduate Coordinator of the Dept of Exercise Science & Health Promotion, College of Education. We are proposing to formally offer a new Course titled "Skeletal Muscle Plasticity". As you know, the process requires that we check with any units/programs where there may exist a conflict with existing courses or curriculum. That is the purpose of this e-mail. Below is the course description and I have attached a draft of the proposed course syllabus.

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Collegially

Dr. Bob Zoeller
Professor & ESHP Graduate Coordinator

Mikaela Kursell

From: Robert Zoeller
Sent: Tuesday, January 8, 2019 2:59 PM
To: Mikaela Kursell
Subject: FW: New course offering

From: Robert Shockley
Sent: Wednesday, October 10, 2018 11:55 AM
To: Robert Zoeller <rzoeller@fau.edu>
Subject: RE: New course offering

No conflict with EDLRM. RS

From: Robert Zoeller
Sent: Wednesday, October 10, 2018 6:00 AM
Subject: New course offering

Good Morning

I'm contacting you in my role as Graduate Coordinator of the Dept of Exercise Science & Health Promotion, College of Education. We are proposing to formally offer a new Course titled "Skeletal Muscle Plasticity". As you know, the process requires that we check with any units/programs where there may exist a conflict with existing courses or curriculum. That is the purpose of this e-mail. Below is the course description and I have attached a draft of the proposed course syllabus.

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Collegially

Dr. Bob Zoeller
Professor & ESHP Graduate Coordinator

Mikaela Kursell

From: Robert Zoeller
Sent: Tuesday, January 8, 2019 2:58 PM
To: Mikaela Kursell
Subject: FW: New course offering

-----Original Message-----
From: Marlaine Smith
Sent: Wednesday, October 10, 2018 7:44 AM
To: Robert Zoeller <rzoeller@fau.edu>
Subject: Re: New course offering

No concerns

Sent from my iPhone

> On Oct 10, 2018, at 6:00 AM, Robert Zoeller <rzoeller@fau.edu> wrote:
>
> Collegially