BIOE 133: EXERCISE PHYSIOLOGY LECTURE AND LABORATORY
SUMMER SESSION II 2015

Lecture: Tues/Thurs 9:00am – 12:30pm *Location*: Long Marine Lab COH 118
Lab: Tues/Thurs 1:30pm – 4:30pm *Location*: COH 118 & UCSC Fitness Center

Course Website: https://ecommons.ucsc.edu

Co-Instructors: Dr. Jen Maresh email: jmaresh@ucsc.edu Office: LML – COH148A
Office Hours: Wednesdays 12-2pm OR by appointment

Dr. Nicole Thometz email: nthometz@ucsc.edu Office: LML – COH251
Office Hours: Mondays 2-4pm OR by appointment

Course Text Books:

***Exercise Physiology: Nutrition, Energy , and Human Performance* (2015) 8th Ed., by McArdle, Katch & Katch**. This textbook serves as a general reference that describes the major physiological processes associated with human exercise and performance. You should use this text to help clarify concepts presented in class.

The Sports Gene: Inside the Science of Extraordinary Athletic Performance* (2014), by David Epstein.** This text is an ***ABSOLUTE REQUIREMENT for the course. In this New York Times Bestseller, David Epstein explores the effects of genetics (nature) and sports training (nurture) on human athletic performance. Coming from a background of investigative journalism, Epstein uses a combination of sports anecdotes and scientific studies to explore the question: What makes the difference between an amateur and a professional athlete?

Course Goals: This course is designed to provide students with an in-depth examination of the biochemical and physiological processes associated with human athletic performance. Students should come away from with course with a solid understanding of fuels & fuel utilization, energy, metabolism, cardiovascular and respiratory dynamics during activity, skeletal muscle structure and function, the integration of organ systems for exercise, and the effects of training on exercise performance. Traditional lectures will be supplemented with in-class discussions of interesting and current topics in sports physiology. Students are expected to not only gain a strong grasp of the course material, but to be able to discuss such material in a logical, meaningful, and respectful way. The laboratory portion of the class is designed for students to gain a comprehensive understanding of how real scientists conduct focused examinations of physiological performance during exercise. Active participation of each student in laboratory exercises is required.

*This syllabus is tentative and subject to change

COURSE SCHEDULE*

			READING/HW
WEEK 1			
July 28th	Tues	Lecture: Physique & Body Composition (Maresh)	**EP CH 28-30**
	Tues	Lab: Body Composition (LML)	*SG CH 1-2*
July 30th	Thurs	Lecture: Fuels & Energy (Thometz)	**EP CH 1-5**
	Thurs	Lab: Flexibility, Strength, & Endurance (EFH)	*SG CH 3-4*
WEEK 2			
August 4th	Tues	Lecture: Energy & Exercise (Maresh)	**EP CH 6-11**
	Tues	Lab: VO_2 Max (EFH)	*SG CH 5-6*
August 6th	Thurs	Lecture: Pulmonary Physiology (Thometz)	**EP CH 12-14**
	Thurs	Lab: Spirometry & Respiratory Function (EFH)	*SG CH 7-8*
WEEK 3			
August 11th	Tues	Lecture: **MIDTERM**	
	Tues	Lab: '*The Big Bang of Body Types*' (LML)	
August 13th	Thurs	Lecture: Cardiovascular Physiology (Maresh)	EP **CH 15-17**
	Thurs	Lab: Exercise, Heart Rate, & Recovery (EFH)	*SG CH 9-10*
WEEK 4			
August 18th	Tues	Lecture: Skeletal, Neural, & Endocrine Physiology (Thometz)	EP **CH 18-20**
	Tues	Lab: (1) Writing Assignment Class Discussion (LML)	*SG CH 11-12*
		(2) Working with and Analyzing Data	*Written Assignment DUE*
August 20th	Thurs	Lecture: Training & Applied Physiology (Maresh)	EP **CH 21-23**
	Thurs	Lab: Group Project I – data collection (LML then EFH)	*SG CH 13-14*
WEEK 5			
August 25th	Tues	Lecture: Exercise Performance (Thometz)	EP **CH 24-26**
	Tues	Lab: Group Project II – data analysis & synthesis (LML)	*SG CH 15-16*
August 27th	Thurs	Lecture: **FINAL EXAM**	
	Thurs	Lab: Group Project Presentation (LML)	Turn in Abstracts & Group Data

LML = Long Marine Lab
EFH = UCSC Fitness Center
EP = Exercise Physiology 8th Ed.
SG = The Sports Gene

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Lecture Discussions: *The Sports Gene* delves into ideas that are meant to provoke discussion about the contribution of genetics and/or training to the performance of elite athletes – an oftentimes complicated and controversial subject. In so doing, the author describes anecdotes as well as scientific studies that touch on how sensitive topics such as race, gender and body type play out in athletics. The purpose of the class discussions is to encourage you to think critically about the conclusions the author draws as well as the evidence used to support those conclusions. While we will encourage you to express your thoughts on what you've read, we expect you do so with maturity and sensitivity; disrespect to the feelings of your classmates absolutely will not be tolerated. To ensure engaging discussions, it is imperative that you read the assigned chapters before class. For this reason, you will be required to submit short answers to a small number of questions by midnight the night before in class discussions using the following online form: http://goo.gl/forms/iRUXGRmlbB.

Laboratory Goals and Expectation: Laboratory sessions will consist of hands-on studies of the human body's response to exercise – i.e., YOUR body's response to exercise. For this reason, **participation as a subject of study is critical and absolutely required for success in this course**. To help foster a supportive environment that encourages participation and performance, you will work with the same lab group throughout the quarter. If you are squeamish about pushing yourself to the limits of performance in order to learn something about how your body works during activity, then this is not the course for you. Similarly, **attendance is an absolute requirement – as this is a summer course, there will be no time for makeup labs**. However, the workload for the lab component of this course is relatively light compared to other science labs. Most assignments consist of the submission of data collected during the lab as well as short answers to a page of questions meant to help you evaluate the physiology behind your results. Students will also submit one formal lab report (written assignment) and participate in a group project and presentation.

Exam Policies: Summer session is very face-paced. Therefore, no exams will be given prior to the specified dates and **no makeup exams will be given**, except in case of serious accident, illness, or death in the family. In such cases **verification will be required**, and the instructors must be notified within 24 hours of the exam.

Midterm: the midterm will cover material introduced in the first half of the course.

Final Exam: the final exam will cover all material introduced in class but an emphasis will be on material covered during the second half of the course.

*NOTE: **We will <u>NOT</u> hold review sessions prior to exams.** Summer session is very fast-paced for everyone. Laboratory assignments, writing assignments, discussions, and in-class work are intended to prepare students for the exams. Keep up with the reading and homework assignments as they are assigned and come to office hours if you have any questions or need assistance.

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GRADING:

LECTURE:	**% of Final Grade**
Sport's Gene Chapter Surveys	10
Leading Group Discussion	5
Midterm	40
Final	40
Discussions/In-Class Participation	5
TOTAL	**100%**

LABORATORY:	**% of Final Grade**
Body Composition Lab	5
Flexibility Strength and Endurance Lab	10
VO_2 Max Lab	10
Spirometry Lab	10
Exercise HR and Recovery Lab	15
Data Analysis Lab	10
Formal Writing Assignment	10
Group Project Abstract	10
Group Project Presentation	20
TOTAL	**100%**

Academic Integrity: Plagiarism is a very serious form of cheating and cheaters will receive a grade of zero for the assignment or exam, and may receive a grade of zero for the course. Plagiarism occurs when one uses the exact words or work of others without giving credit, or copies writing from the literature verbatim or near verbatim and submits it as their own (it is also wrong to copy almost directly from an article where only the sentence order or word order has been changed. You must write in your own words!)**.** Cheating also includes (but is not restricted to): copying from a classmate's exam with or without their consent, allowing another student to copy from your exam, turning in work that is not yours, and completing work for another student. All cases of cheating will be discussed with the student and then reported to the university - for possible additional disciplinary action according to the university's Policy on Academic Integrity: http://www.ucsc.edu/academics/academic_integrity/undergraduate_students/

DRC Students: Please be sure to introduce yourselves to your instructors (after or before class) in the first week of class and let us know how we may facilitate your learning experience. Furthermore, please bring your DRC forms so we can make arrangements for the midterm and final well ahead of schedule.
Students with disabilities who may need accommodations please see us as soon as possible during office hours or make an appointment by email.

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