California State University, Northridge
Department of Kinesiology
Kin 446/446L – Research in Exercise Physiology

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Prerequisite: KIN 346 or equivalent AND certification in CPR. Current CPR must be obtained by the announced date.

Course Objective: Expose the student to advanced topics, theories, and field/laboratory techniques to be applied in exercise physiology research. Concurrent enrollment in 446 and 446L is required. **Significant discussion will occur to explore the students' understanding of the material taught in this class and previous exercise physiology classwork. Emphasis is on functional knowledge – what you need to know and apply.**

Pre-post evaluation of fitness is important to determine the effectiveness of an experimental intervention. Field and/or laboratory evaluations are conducted depending on the experimental conditions.

Labs may involve field test evaluations of aerobic, muscular strength/endurance and body composition. All will participate unless presented with a MD exclusion.

Text books:

1. Powers, SK and ET Howley. **Exercise Physiology, Sixth Edition, McGraw Hill, 2007**
2. **ACSM's Health-Related Physical Fitness Assessment Manual**

LECT Powers and Howley – **selected portions covered in lecture for exams**
LAB ACSM Manual; ALL is appropriate for exams

ALWAYS COME TO LAB DRESSED TO EXERCISE – YOU LEARN THROUGH PARTICIPATION . . . BY DOING

Email Addresses from all – clearly printed – jobs listing

Week of Jan 21
Jan 21 is Martin Luther King Holiday and there is no lecture or lab on this day. Consequently, there is no lab on January 23.

Jan 28
LECT Chapter 1 (Powers and Howley) responsibility of student – Past and Future - perspectives
Internship Possibilities: Loy: Phoenix House (Fall/Spring)/USU Fitness Centre , worKPHT, American Apparel

Who are you? What do you want to do? What populations do you enjoy working with? What's your strength? What's your weakness? What career related experience do you have? – Answer one: my choice

The Perfect Mile - 33 copies Distribute after class to 33. – Count off and come to office.

Sort out lab enrollment
CREATE GROUPS OF 5 within labs for presentations = Total of 5 groups/lab. NOW. Write down your lab partners. Some may disappear.

No lab this week: Start RUNNING NOW

Week of 2/4
LECT Ch. 3 Bioenergetics (Powers and Howley)
LAB Ch. 1 and 2 from ACSM and 1 mile run for time AND pacing

Week of 2/11
LECT Ch. 3 Bioenergetics conclusion (P&H)
Dressed to run: The Mile Run (you should have previously performed this to have some sense of pace). **This is your BEST initial mile run. Heart Rate monitored laps. You will have a partner who will document your HR. See lab information below.**

LAB Ch. 3 Resting and Exercise Blood Pressure and Heart Rate (ACSM)
Heart rate data will be analyzed. Everyone will put their lap by lap data on board. Discussion of BEST effort will occur. How BEST determined? What to do with data with suspect BEST?

Week of 2/18
LECT Ch. 4 Exercise Metabolism (P&H)
LAB Ch. 4 Body Composition (ACSM), 1 mi run for time. Groups of 5 – Fartlek – Stratified group of abilities requiring pushing of slower time individuals. Motivation/Leadership

Week of 2/25
LECT Selected portions of Ch. 9, 10 Circulatory Adaptations and Respiration (P&H)

RETURN PERFECT MILE AND DISTRIBUTE TO REMAINDER OF CLASS

LAB EKG Primer 1 mi run for time – Pursuit – Slower times first, Faster times last; pair up with person(s) next fastest: All working to increase intensity/pace and decrease time. KEEP YOUR EYE ON YOUR TARGET

Week of 3/3
LECT Ch. 14 Patterns in Health and Disease: Epidemiology and Physiology (P&H)
What's the Future for Jobs? – Open Discussion/Questions
LAB Ch. 6 Cardiorespiratory Fitness Measurement (ACSM) – Step test and Rockport - All do both; responsible for explaining test. Pedometers – document steps for 3 d for yourself and 3 d for someone you trust because you have to pay for the pedometer if you lose it – present results next week

Week of 3/17

Spring Break

Week of 3/24

LECT **EXAM I TO INCLUDE ALL MATERIAL COVERED EXCEPT CH. 6 (ACSM) WHICH WILL BE ON NEXT EXAM**

LAB Ch. 6 Cardiorespiratory Fitness Measurement (ACSM) – 12 minute, 1.5 mi – HALF do each test but know all data analysis. Responsible for explaining test. **Pedometer results? Turn in.**

Week of 3/31

NO LAB OR LECTURE – CESAR CHAVEZ HOLIDAY

Week of 4/7

LECT Ch. 15 Work Tests to Evaluate (P&H) **Turn in your typed personal statement.**

LAB Ch. 7 Laboratory Submaximal Exercise Testing - Intro and start of YMCA, Astrand, and Bruce - 3 groups – teach to other groups. Make sure you understand data collection and calculations

ID 2 in each lab for max testing

1 mi run for time (matched pairs racing)

Week of 4/14

LECT Ch. 13 The Physiology of Training: Effect on . . (P&H)

LAB Ch.8 Maximal Exercise Testing of 2 - demonstration

1 mi run for time; Discuss Presentations

Week of 4/21

LECT Ch. 13 Continued and review Box if necessary

Bring <u>The Perfect Mile</u> to class and take the open book, 15 point possible extra credit quiz (15 minutes); turn in your UNDAMAGED book. Now, it's your turn for . . . . The Mile Run.

LAB Review if necessary

Week of 4/28

LECT **Exam II covering material beginning with Ch 15 lecture BUT also to include Ch. 6 (ACSM) from previous week**

LAB **Share Personal Statement**. You will **professionally** state: Your future goal and if you took the 3 immediate steps towards enhancing your future and if not, why not. Being responsible and accountable. Plug in data.

Week of 5/5

LECT **Return/Review of Exam II; CPR Due; 1 min. spot interviews (random 20 selected and see what we can learn from you).**

LAB Presentations by group within lab

FINAL EXAM DAY and TIME: Review of grades. Verify Extra Credit except for 1.5 mi run

Extra Credit 1.5 mile run ON THIS DAY ONLY – NO MAKEUPS, NO CYCLE TEST unless MD exclusion from running (if necessary, after 1.5) presented.

Grades:

Calculators only on exams. No cell phones.

Exam I	150 points
Exam II	150 points
Special Projects	
Presentation	**25 points**
Personal Statement	**25 (-10 if turned in late and -25 if you don't give your presentation- no makeup**)
Total	**350**

-10 for no CPR

-Cannot pass class unless <u>The Perfect Mile</u> is returned undamaged and grades support a pass.

Special Project: Optimizing/Improving Human Performance for your Perfect Mile

The goal is to optimize human performance in 9-10 weeks. Put together the most perfect mile you can within that period. You are the exercise physiologists. YOU are the athletes. You may train with your Team, encourage, motivate, etc. Training methodology should be documented for your presentation. **PERIODIC 1 mi run times included to KEEP YOU HONEST and allow you to use the data to trend.** This is a project that you might speak about when incorporating anecdotal information into your job interviews.

1. Distribute <u>The Perfect Mile.</u> Please take care of the book and don't write in it. It has to last . . . . . .
2. Create a Team (5-6) from your lab
3. You may work out together a minimum of 1 time per week (last 30 minutes of when you are through with the lab exercises for the day will be provided – and on many days time for 1 mi run will occur)
4. Design your team training program, which should be similar although there may be some differences, to bring each of you to your best time – an opportunity to bring experience and knowledge into application or it may be individualized
5. Having previously run to establish your optimal pace, you will run The Mile and from that event, <u>write down what you, an exercise physiologist, perceive as a reasonable but impressive goal that will WOW your audience during your presentation. The established goal time will be a part of your presentation.</u> Doing what you say you can do based on science, your knowledge, and your efforts is important.
6. Turn in your book and take the 15 point extra credit open book quiz. *Turn in your typed* ***personal statement*** *which states 1) a life lesson learned from your reading of <u>The Perfect Mile</u>, 2) a career related goal and 2a****) 3 concrete steps that you will take within the next month towards achieving that career related goal****. This goal setting requires you to*

make a commitment! This personal statement will be shared with the class (25 points – on time and presented)

7. Create your team Powerpoint presentation after completing your Perfect Mile
8. Deliver your presentation as follows: **Powerpoint presentation** – Treat it as a presentation to be made to an audience that you'd like to impress with your abilities as an exercise physiologist. The level should be a professional lay presentation with enough technical jargon to impress, be entertaining and be factually correct!! Graph your mi. run time changes over the weeks. This presentation should take about 12-15 minutes maximum.

Grade on special project consists of the following:

25 points: Each team member speaks for an approximately equivalent time
25 points; Personal statement submitted on time and presented. THIS MUST BE SUBMITTED IN LECTURE CLASS (BY YOU OR SOMEONE). NO EXCEPTIONS. IT'S BEING RESPONSIBLE.

Extra Credit –

15 point quiz on reading of <u>The Perfect Mile</u>. The questions will be easy to answer or look up quickly if you've read the book.

Individual Aerobic Fitness

VO2 max from 1.5 mile time and utilize appropriate table to establish category for aerobic fitness. **25 points for Excellent, 20 for Very Good, 15 for Good, 10 for Average, 7 for Fair**

Grade Scale

A	**94-100%**	**C**	**70-73**
A-	**89-93**	**C-**	**67-69**
B+	**84-88**	**D+**	**64-66**
B	**80-83**	**D**	**60-63**
B-	**77-79**	**D-**	**57-59**
C+	**74-76**	**F**	**<56**

Exams

Exams will cover material from lecture and lab as indicated. Exams will consist of short answer, problem solving, and objective T-F questions. You will be required to conceptualize the information provided in class. All exams should be reviewed upon their return for discussion of any adjustments. **Make-up exams are allowed only if I am notified prior to the exam. There are no make-ups on the oral presentations.**

Laboratory

The lab grade will be the same as lecture with the point total obtained in lab combined with the lecture points and a percentage of the total cumulative calculated as indicated above.

Cheating
Any student caught cheating will automatically fail the course and may be subject to more severe University discipline.