

1-2014

KIN 321.03: Physiology of Exercise Laboratory

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The University of Montana

Department of Health and Human Performance KiN 321 - Physiology of Exercise Laboratory

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Course Description:

Laboratory session examining the physiological effect of the physical work, activity, and exercise on the functions of the human body. This course will introduce you to some of the fundamental laboratory techniques used in the exercise sciences.

Prereq: BIOL 313 or SC 202N (2 semesters of A&P); HHP 226 (KIN 201); and co-requisite, KIN 320.
Semester: Spring 2014
Credits: 1 credit hour
Time: Section 1: Monday 8:10 – 10:00 AM; Section 2: Wednesday 8:10 – 10:00 AM
Place: McGill 131
Texts: FacPac at the bookstore

References as well as KIN 320 text: Wilmore, Costill and Kenney, Physiology of Sport and Exercise; fifth edition; 2011, Human Kinetics

Objectives:

1. To understand laboratory and research techniques in exercise science.
2. To acquire laboratory skills and experience in the prediction and measurement of aerobic and anaerobic capacity, indirect calorimetry, muscle fuel selection, body composition, and data handling/interpretation.
3. To know how to run a variety of types of testing equipment.
4. To read and interpret scientific writing.

Rationale:

This course is designed to complement KIN 320. For this reason, many of the laboratory techniques referred to in class will be used in the lab. The goal of this course is to use practical laboratory experiences to reinforce some of the fundamental concepts in exercise physiology.

Laboratory Rules:

1. Come dressed and ready to participate. Tennis shoes, shorts, t-shirts (or appropriate outdoor wear). No food or drink of any kind will be allowed in the laboratory area.
2. Labs will be available in your FacPac. You **MUST** bring your copy to class!
3. Lab write up will be due the next time class meets typed and at the beginning of class.
4. Please answer questions correctly and completely. **LAB WRITE-UPS MUST BE TYPED** and must be written **IN YOUR OWN WORDS!**
5. Attendance is mandatory since this is a participation type of class. If you can't make it to a lab you must schedule with me to attend an alternative section with *adequate* notice. Being responsible, taking initiative, and being prepared will improve your lab experience.

Course Evaluation:

Assessment Method	Percent of Total Grade
Lab Reports	70%
Final Exam	20%
Portfolio	10%
Total	100%

Grading Scale:

		A	93-100%	A-	90-92%
B+	88-89%	B	83-87%	B-	80-82%
C+	78-79%	C	73-77%	C-	70-72%
D+	68-69%	D	63-67%	D-	60-62%
F	<60%				

A. Lab Reports: 70% of grade

Lab reports are due at the **beginning** of each successive lab meeting. Late labs are not accepted. To receive a final passing grade for the course **ALL** laboratory reports must be turned in completed. A lab cannot be written unless you attend the lab, therefore, attendance is necessary! The lab report with the lowest score will be eliminated for the calculation of your grade. Attention to detail and high quality work is a must in writing lab reports.

B. Final Exam: 20% of grade

One exam will be given at the end of the semester that will test your retention of important information. Final exam will be on **Thursday, November 21st @ 6:00 PM in ED 123 for all sections**. Request this time off in advance if you work.

C. Portfolio: 10% of grade

A summary of the data you collect on *yourself* including comparisons to population norms will be assembled and handed in at the end of the semester.

D. Participation:

Participation can bump you up or down a grade. Failing to dress for lab, not actively participating in the labs, volunteering as a subject, etc. can negatively influence your final grade. On the contrary, readily volunteering, being prepared for the lab, actively contributing to discussions, etc. may positively influence your grade.

Labs: *Subject to change*. See schedule for order. Come prepared with printed lab report and ready to participate!

Lab 1	Intro, syllabus, graphing, tables, excel [E]
Lab 2	Metabolic equations, practical examples [2]
Lab 3	Blood Pressure and Submax Bike Test [E]
Lab 4	Resting Metabolic Rate and Oxygen Deficit/Debt [2]
Lab 5	Graded exercise test/ $\text{VO}_{2\text{max}}$ testing [2]
Lab 6	Lactate response (Incremental, Resistance, Recovery) [2]
Lab 7	Anaerobic Power (hand grip, wingate, vertical leap) [E]
Lab 8	Pulmonary Function [E]
Lab 9	Body Composition (UWW, Skin Folds, BMI, BIA, W/H) [E]
Lab 10	Altitude/Heat [E]

Brackets indicate number of subjects needed for lab, or 'E' for everyone.

Disclaimers:

You are expected to be at lab and to participate. There will be NO tolerance for any form of cheating!

University required statement:

"All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University.

All Students need to be familiar with the Student Conduct Code. The Code is available for review online at <http://www.umt.edu/SA/VP/SA/index.cfm/page/1321>."

Spring 2014 Lab Schedule

Week	Lab
Jan 27 th and 29 th	First week of Classes – No Labs
Feb 3 rd and 5 th	Syllabus LAB 1 – Graphs and Data Tables LAB 2 – ACSM equations/M
Feb 10 th and 12 th	LAB 3 – Blood pressure and YMCA Submax
Feb 17 th and 19 th	Presidents Day – No Labs
Feb 24 th and 26 th	LAB 4 – O ₂ Deficit and Debt; RMR
Mar 3 rd and 5 th	LAB 5 – VO _{2max}
Mar 10 th and 12 th	LAB 6 – Lactate Threshold
Mar 17 th and 19 th	LAB 7 – Anaerobic Power and Wingate
Mar 24 th and 26 th	LAB 8 – Respiration
Mar 31st and Apr 2nd	Spring Break – No Labs
Apr 7 th and 9 th	Lab 9 – Body Composition
Apr 14 th and 16 th	Lab 9 – Body Composition
Apr 21 st and 23 rd	LAB 10 – Likely Altitude
<i>Wed April 30th</i>	<i>Final @ 6:10 – 8 PM, Room: MCG 210</i> <i>Portfolios Due!</i>