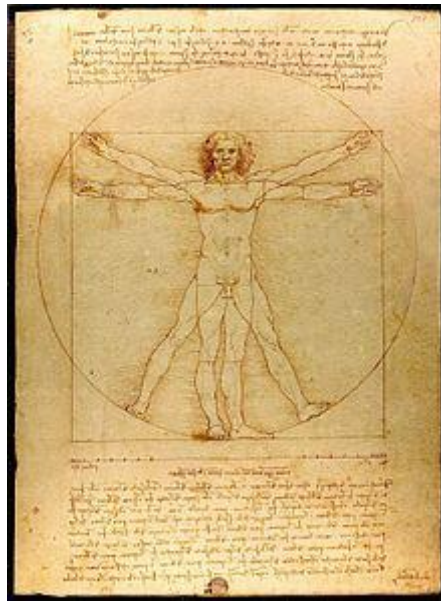


Exercise Physiology Laboratory

HHP 431



The Vitruvian Man drawn by Leonardo da Vinci

Also called: *Canon of Proportions* - based on the correlations of ideal human proportions with geometry described by the ancient Roman architect Vitruvius in *De Architectura*

Taught by:

Kathe A. Gabel, PhD, RD, CSSD

Department of Health and Human Performance

College of Allied Health Professions

Spring, 2012

MSUB
MONTANA STATE UNIVERSITY BILLINGS

MSU – Billings
College of Allied Health Professions
Department of Health and Human Performance
Spring, 2012

Course Rubric & Title:	HHP 431 Exercise Physiology Laboratory
Instructor:	Kathe A. Gabel, PhD, RD, CSSD
Graduate Lab Instructor:	Christopher Jackson, ATC M.S. Graduate Student
Office Hours:	PE 117, MW at 9:00 – 10:00 a.m., by apptmt
Lab Hours:	PE 12, 7:00 or 7:30 a.m. Tuesday, Wednesday and Thursday Variable starting times
Assessments:	PE 12, variable times and days
Phone:	406-657-2927
E-mail:	kgabel@msubillings.edu
Required Lab Packet:	Gabel, K.A., (Spring, 2012) <i>Course Materials for HHP 431</i> .
Catalog Description:	HHP 431 Exercise Physiology, 1 cr. Co- or pre- requisite: HHP 430 Exercise Physiology
Lab Goals:	Upon successful course completion, you will be able to: <ol style="list-style-type: none">1. demonstrate knowledge and comprehension of physiological principles of human movement. 2. demonstrate professional and critical thinking in the application of exercise physiology principles in laboratory and field settings.

Lab Content: Lab topics are organized to introduce and ensure acquisition of basic skills. To achieve competency, the skills are used again during research endeavors scheduled toward the end of the semester.

Lab Policies: Your conduct is to be consistent with the Code of Student Conduct in the current MSU-B Student Handbook.

A student will fail the course if he or she participates in academic dishonesty, i.e. cheating, plagiarism, dishonesty, inappropriate use of electronic devices, or any violation of expectations listed in the MSU-B Student Handbook.

At this level of your education, you are expected to demonstrate professionalism in all behavior, i.e. respect for others, presentation & completion of projects, respect for diverse opinions, depth of inquiry, punctuality and participation in class discussions and activities.

Lab Attendance: Attendance to each lab is expected. Make-up labs are not available.

Lab Accommodations: If you have a documented disability, please contact the office of Disability Support Services (657-2283) during the first week of the course. They can assist you.

Course Evaluation: Grades will be assigned according to the following criteria

Grade	Percent	Points
A	93 – 100	>279
A-	90 – 92	270 - 278
B+	87 – 89	261 - 269
B	83 – 86	249 - 260
B-	80 – 82	240 - 248
C+	77 – 79	231 - 239
C	73 – 76	219 - 230
C-	70 – 72	210 - 218
D+	67 – 69	201 - 209
D	63 – 66	189 - 200
D-	60 – 62	180 - 188
F	<60	<180

Components	Point Value
Lab 1	20
Lab 2	20
Lab 3	20
Lab 4	20
Lab 5	20
Lab 6	20
Lab 7	20
Lab 8 - Quiz 1	10
Lab 9 - Quiz 2	10
Skill & Professional Assessment	40
Research presentation	25
Research team paper	75
Total	300

Your graded performance is determined by scores earned on laboratory reports, quizzes, research paper/presentation, and the final skill and professional assessment.

Except for holidays, lab reports are due every Monday at 5:00 p.m.
For Monday holidays, labs are due on Tuesday at beginning of class time.
20% point reduction will be assigned for each day late.
No credit can be earned for a report or assignment that is 5 days late.

**Protocol – Participation in Human Performance Laboratory Activities
Acknowledgement of Personal Responsibility**

Prior to participating in the lab activities in the Human Performance Laboratory at MSU-Billings,

I, _____(your legal name), agree to the following by initialing each acknowledgement, assumption, and release.

_____ acknowledge that I participate in each lab activity to learn, but can discontinue any activity if experiencing pain or not participate if unsafe for a documented medical condition.

_____ acknowledge that I can discontinue lab activity if experiencing pain or unusual discomfort without prejudice by the graduate teaching assistant or professor.

_____ acknowledge that I have honestly completed the PAR-Q and have met the criteria for participation in lab activities.

_____ acknowledge that I understand that lab participation may involve risk of injury or potential economic loss from injury.

_____ assume any and all risk of personal injuries to myself, including medical or hospital bills, permanent or partial disability, death, and damage to my property, caused by or arising from my participation in an lab activity.

_____ release, waive, discharge, and relinquish MSU-Billings and their representatives from any claim against them arising from my participation in lab activities.

_____ warrant that I am in good health and have no physical condition that would prevent me from participating in the lab activities as listed in the HHP 431 lab manual or revised labs.

This document relieves MSU-Billings and others from liability for personal injury, wrongful death and property damage caused by negligence. I have read this document, and sign it voluntarily.

Printed Name

Your signature

Date

Consent to Participate in HHP 431 Research

You are asked to participate in a study for the project *Undergraduate Research integrated into the Classroom to Investigate the Effects of High Carbohydrate Intake on Concentrations of Lactate and Blood Glucose Before, During, and Post-Exercise in Trained Young Adults*.

This is a project approved and funded by Montana State University-Billings, as part of the RACE grant program for faculty. Your participation is voluntary.

The study is designed to test the effect of a high carbohydrate food item on blood glucose and lactate levels during a graduated test protocol on a cycle ergometer. As you participate in this study, you will be asked to perform the following activities:

- a. After fasting or ingestion of a high carbohydrate food item, volunteer participants will exercise on the cycle ergometer until volitional exhaustion.
- b. Volunteer participants will allow blood sampling (obtained by application of a lancet to a fingertip) before, during, and post-exercise.
- c. Research technicians will be involved testing the exercise protocols, timing of procedures, collecting and analyzing data.
- d. Research technicians will learn how to appropriately prepare the skin; load the glucose and lactate meters; obtain a viable fingertip blood sample; read, record, and interpret results.

Time for participation for this research project is scheduled for an hour plus at 7:00 a.m. on Fridays of selected weeks. Procedures will take place in HHP 12, the Human Performance Laboratory.

Any personal information obtained during the study will be kept confidential and no information will be made public that identifies you as a participant. If any personal information and/or data are disclosed, it will be with your permission only. If you choose to participate, you may withdraw at any time without consequences. If you have any questions or concerns about this study, please visit with me.

I understand the procedures and activities described in this study. I will assume all risks when volunteering to participate in this study.

Printed name of Participant: _____

Signature of Participant: _____ Date: _____

Signature of Researcher: _____ Date: _____

**Tentative Laboratory Schedule for Spring, 2012
Grade Record**

Week	Lab Number Lab Activity	Lab report Due date	Points Possible	Points Earned
Day: 13.1.12	Orientation at 7:30 a.m.	-	-	-
Week 1 15.1.12	Lab 1 at 7:00 a.m. PR and BP	23.1.12 at 5:00 p.m.	20	
Week 2 22.1.12	Lab 2 at 7:00 a.m. Hematology: BG and La	30.1.12 at 5:00 p.m.	20	
Week 3 29.1.12	Lab 3 at 7:00 a.m. Anaerobic Power - Wingate	6.2.12 at 5:00 p.m.	20	
Week 4 5.2.12	Lab 4 at 7:00 a.m. Peak Anaerobic Power – Vertical Jump	13.2.12 at 5:00 p.m.	20	
Week 5 12.2.12	Off-campus tour Aerobic Endurance	Attendance required		
Week 6 19.2.12	Lab 5 at 7:00 a.m. Anthropometric I	27.2.12 at 5:00 p.m.	20	
Week 7 26.2.12	Lab 6 at 7:00 a.m. Anthropometric II	12.3.12 at 5:00 p.m.	20	
4.3.12	Spring Break – no labs			

Week 8 11.3.12	Lab 7 at 7:30 a.m. Flexibility	19.3.12 at 5:00 p.m.	20	
Week 9 18.3.12	Lab 8 Quiz Discussion of scientific process and review of working with data and graphs		10	
Week 10 25.3.12	Lab 9 Quiz In designated groups, teams define a research question, develop hypothesis, and design an experiment.		10	
Week 11 1.4.12	Teams collect data in lab; discuss results and analysis. <i>Skills/Professional Assessments (40 pt)</i>		40	
Week 12 8.4.12	Teams plan research paper and presentation. <i>Skills/Professional Assessments (40 pt)</i>			

Week 13 15.4.12	Research presentations: During class time, teams will present PP slide presentation.	Research Paper: 16.4.12 at 5:00 p.m. Presentations: assigned during lecture time.	25 pt for presentation 75 pt for paper	Papers are due April 16th. 20% point reduction for each day late.
Week 14 22.4.12	Finals week			

Total _____ /300 = _____ %

Guidelines for HHP 431 Lab Reports

1. Please carefully read the instructions for each lab and listen closely to oral instructions.
2. Professional lab reports: The reports are to be typed, (**Times Roman, font 12**), **single spaced paragraphs (single spaced between sentences), double spaced between paragraphs on white paper and paginated.** Please staple pages together in the **upper left hand corner.** Poorly written lab reports will be returned with no points earned. Copying or using any portions of current or former student's lab reports will result in **course failure.**
3. The title page should contain the following information centered on the page:

Title of the Lab (Reflective of lab activities and results)
Date
Your Name
(Graphic depicting the Lab Topic)
Image from: (source)
HHP 431 – Exercise Physiology Laboratory
Department of Health & Human Performance
Montana State University - Billings

4. Please use the following headings for the report sections. Use **complete sentences** for all sections and written discussion.

20 points are awarded for each lab activity and report.
Your team research report should follow the same format as the lab reports.

- (1 pt) **Purpose:** Limit to 2 or 3 sentences.
- (3 pt) **Methods:** Summarize the methods in your own words. Review a research article to get an idea how methods are written. Identify and discuss any modifications to original method, any equipment failure, or procedural errors. When someone else reads your methods, he or she should be able to replicate the laboratory activity.
- (3 pt) **Results:** Report your results in this section. Use subheadings within this section to distinguish the different categories of results. Develop a figure or table for results and write about the content of each figure or table of data, e.g. Table 1 illustrates blood pressure measured while standing, sitting and in a supine position. Place your tables and figures, plus original data sheets, in an Appendix (required for credit in this section). Titles of tables and figures should reflect content in the illustration.
- (6 pt) **Discussion:** Answer all questions in paragraph form, clearly identified with the associated question (Q1, Q2, etc.). Relate your collected data to answers of the listed questions. If results are unexpected, discuss why. Note that application questions and research questions are associated with each lab. For each research question, reference to and discussion of a peer-reviewed article is expected. Please expect to use and cite references within the discussion.
- (1 pt) **Conclusion/Summary:** Consider the relationship between the purpose and your findings. Conclude and summarize your findings in a paragraph or two.
- (1 pt) **References:** Peer-reviewed research references are expected in your report. They are to come from Health and Human Performance **refereed journals**. References should be numbered and listed alphabetically. Provide a reference for the image used on the front page of your report.

Appendix: This is the location for all tables and figures. Please use informational titles for each. See the next page for specific guidelines.

5. Tables and figures: Please place these in the **Appendix** of your report. Tables are labeled at the **top**, while figures are labeled at the **bottom**.

The following example comes from:

Simpson, W.F., Brehm, H.M., Rasmussen, M.L., Ramsay, J., Probst, J.C. (2002). Health and fitness profiles of collegiate undergraduate students. *JEPonline*. 5(3):14-27.

Table 1. Subject demographics from both cohorts (1994 and 1996).

	Males (n=463)	Females (n=428)
Height (m)	1.8 ± 0.07	1.7 ± 0.14
Weight (kg)	77.1 ± 13.9	62.8 ± 10.5
Percent Fat	11.4 ± 4.9	23.3 ± 4.8
BMI (m/kg ²)	23.6 ± 3.9	22.6 ± 3.8
Resting Heart Rate (b/min)	72.3 ± 14.5	76 ± 13.1
Systolic BP (mmHg)	130.1 ± 12.1	119.1 ± 15.6
Diastolic BP (mmHg)	72.8 ± 11.2	67.8 ± 11.1
VO ₂ (ml/kg/min)	47.3 ± 9.9	40.9 ± 9.7

6. Citations (in your text) and references (end of report)

Any information that is not your own thoughts should be cited within the discussion and listed in the references at the end of the report, right before the Appendix.

A helpful website for APA formatting can be found at:

Neyhard, D. and Karper, E. APA Formatting and Style Guide. Retrieved August 20, 2009 from <http://owl.english.purdue.edu/owl/resource/560/01/> Examples from this source follow:

Example of a journal article:

Author, A. A., Author, B. B., & Author, C. C. (Year). Title of article. *Title of Periodical*, volume number(issue number), pages.

Example of an electronic source::

Author, A. A., & Author, B. B. (Date of publication). Title of article. *Title of Online Periodical*, volume number(issue number if available). Retrieved from <http://www.someaddress.com/full/url/>