



08/2011

Fall 2011

## EXSC 640: Physical Activity and Health - 3 hours

**Meeting Time:** Tues: 12:00–1:40 p.m. (280 MCKB) and Thurs: 12:00-12:50 (204 RB)

**Course Description:** This course focuses on the role of physical activity and fitness in the prevention and reversal of disease, including type 2 diabetes, heart disease, cancer, osteoporosis, etc., and in the promotion of health. Pre-requisites: ExSc 463, 464 or equivalents.

**Text:** Bouchard, Blair, and Haskell (2007). *Physical Activity and Health*. Human Kinetics, Champaign, IL.

**Instructor:** James LeCheminant, Ph.D. Phone: 801-422-1285  
Office: 269 SFH Email: [lecheminant@byu.edu](mailto:lecheminant@byu.edu)

**Office Hours:** TBD

### Student Learning Objectives:

1. Understand the general relationships among physical activity and major risk factors and chronic diseases including: cardiovascular disease, hypertension, hyperlipidemia, diabetes, osteoporosis, and cancer. This will be accomplished through class lectures, papers, presentations, quizzes, and exams on these subjects.
2. Explain on a written exam why and how physical activity reduces risk of chronic diseases, such as coronary heart disease, stroke, cancer, osteoporosis, and diabetes.
3. Explain on a written exam current physical activity guidelines and associated health benefits of physical activity among the elderly, adults, and children.
4. Write about the positive and negative consequences of regular physical activity using a variety of formats, including article summaries and a research paper that will be evaluated by your teacher.
5. Critically evaluate the scientific literature for a given physical activity and health topic. This will be accomplished through article reviews and binder of abstracts, a physical activity and health paper, and student-led scientific literature discussion.
6. Participate in several physical activity experimental projects to gain personal experience with physical activity over the course of the semester and summarize each activity in an abstract that will be evaluated by your teacher.

### Course grades will be based on a total of 410 points as follows:

A) Exams (mid-term and final) – 175 points. B) Quizzes – 90 points. C) PA and Health Paper – 55 points. D) Semester Activities – 50 points. E) Binder of 25 abstracts – 25 points. F) Student-Led Literature Discussion – 15 points.

**Grading** (+/- grade according to university policy)

90-100% = A; 80-89.99% = B; 70-79.99% = C; 60-69.99% = D; <60% = E

**A. EXAMS** (175 points)

There will be one mid-term exam (75 points). The mid-term exam will occur on the Thursday of the week marked on the syllabus and will cover all material (lectures, article reviews, and book chapters) reviewed to that point. The final exam will be cumulative and be worth 100 points. Exams may include multiple-choice, matching, T/F, and short answer questions. There will be no make-ups for the **Mid-term** or **Final Exam**.

**B. QUIZZES** (90 points)

There will be 9 quizzes throughout the course of the semester. Quizzes will occur at the beginning of class on the Tuesdays marked on the syllabus, and will cover either information reviewed in class since the previous quiz and/or the text reading assigned for that week. Each quiz will be worth 10 points.

**C. PHYSICAL ACTIVITY AND HEALTH PAPER AND PRESENTATION** (55 points)

Write a scientific paper that focuses on the relationship between physical activity/fitness and a health problem or disease not thoroughly discussed in class. Your specific topic (relationship) must be approved in advance by your instructor. *Only one person per topic will be allowed.* Thoroughly review the literature covering the relationship between physical activity and the health problem/disease that was chosen. Your paper should include at least 15 journal-based, peer-reviewed, references. None of the references should be Web-based or Internet references.

(Use a **Bolded Heading** for each bulleted area)

1. **Title Page:** include your name, the title, and the total word count of the paper.
2. **Introduction:** Background and significance of your topic.
3. **Prevalence:** How common is the health problem or disease? Use a few paragraphs to discuss.
4. **Relationship between physical activity or fitness and the health problem/disease.**
5. **Review the literature** of the PA and the health problem/disease chosen.
6. **Mechanisms:** Explain how and why physical activity contributes to the health problem or disease.
7. **Recommendations:** Discuss how this information should be used or applied to promote health.
8. **Conclusion:** End your paper with a formal conclusion. Make it powerful.
9. **References:** Include at least 12 references in numerical order. Include no Internet references.

Your paper should be **double-spaced** using the Times New Roman 12-point font and one-inch margins. Do NOT start each section of your paper on a different page. Your paper should be at least 3500 words and less than 4000 words in length. Indicate the number of words (without the references) on the title page.

You will also have the opportunity to present your findings during the last two days of class. *The presentation will account for 10 of the 55 points.*

**\*\*This paper is due no later than Tuesday, December 6th**

#### D. SEMESTER ACTIVITIES (50 Points)

The purpose of these activities is to gain experience and insight into various aspects of physical activity and how they influence personal health. For each activity there are: 1) dates during which the activity should be accomplished, and 2) a date on which an abstract (summary) of findings will be due and discussed in class. Prior to each activity, additional details will be thoroughly discussed in class. The activities below may be adapted/altered by the instructor if needed.

The abstract should include the following: **purpose** of the activity, **methods**, **results**, and **discussion**. The abstract should be no longer than 250 words. Each activity will be worth 10 points for a total of 50 points toward the final grade. Each activity below should be done Monday through Friday and NOT on the weekends.

1. Standing vs. sitting in class
  - a. During two consecutive class periods (Sep 1 and Sep 6) each student will wear an accelerometer and either stand during the entire class or sit as usual.
    - i. Outcomes to be assessed are: movement via accelerometer and general satisfaction.
  - b. Dates: Sep 1 and Sep 6
  - c. \*Abstract Due: Sep 8
2. Physical activity (PA) recommendations
  - a. Each student will survey 10 people (no graduate students or exercise science majors) regarding their understanding of current PA guidelines.
  - b. Dates: Sep 8<sup>th</sup> – Sep 14<sup>th</sup>
  - c. \*Abstract due: Sep 15<sup>th</sup>
3. Effect of morning time PA on blood pressure throughout the remainder of the day
  - a. Take a resting blood pressure measurement. Complete a 30-minute, continuous moderate-intensity exercise bout (3.5-3.8 mph) no later than 8am on a given weekday morning. Subsequently, assess blood pressure 1-h, 4-h, and 8-h after the exercise.
  - b. Dates: Sep 16<sup>th</sup> – Sep 28<sup>th</sup>
  - c. \*Abstract due: Week of Sep 29<sup>th</sup>
4. Effect of PA on depression/mood
  - a. On two separate days (with similar schedules) each student will complete a 60-minute, continuous MVPA intensity exercise bout (3.5-7.0 mph) early in the morning and compare it to a non-exercise control day.
    - i. At the end of each day, students will rate themselves for mood and emotional health/depression
  - b. Dates: October 17<sup>th</sup> to Nov 2<sup>nd</sup>
  - c. \*Abstract due: Nov 3
5. Achieving PA recommendations with and without planned exercise
  - a. On two separate days (with similar schedules), each student will wear an accelerometer for 24-hours. On one day, each student will include a 30-minute, continuous moderate-intensity exercise bout (3.5-3.8 mph) and then resume their normal schedule. On the other day, each student will not complete any planned exercise but keep their schedule normal otherwise.
  - b. Dates:
    - i. Students will receive accelerometer on Nov 8.
  - c. \*Abstract due: Nov 18<sup>th</sup>

#### E. BINDER OF ABSTRACTS (25 points)

Each student should read 25 peer-reviewed, research abstracts that summarize high quality studies conducted to improve our understanding of physical activity and health/disease. Each abstract should be printed on 1 single piece of paper.

Students should thoroughly read and understand the abstract. On the BACK of the abstract page, each student should type answers to the questions below. If the backside of the page was used to print part of the abstract, then use the lower-half of the back page to answer these questions. Use the bolded headings below to begin each of your specific responses to each question. Keep your responses to brief (several sentences each).

- 1) **Purpose:** What was the purpose of the study?
- 2) **Strengths/Weaknesses:** What were the strengths/weaknesses of the study?
- 3) **Key Finding:** What was the key finding of the study?
- 4) **Application:** How can we use the results of the study to improve health or prevent disease?

Your abstracts should focus on 5 topic areas within the area of physical activity and fitness, for example, cancer and physical activity, hypertension and physical activity, etc. Each student should have 5 abstracts within each topic area. Organize each abstract, by section, into a 3-ring binder. Include a title page for each section. *Project is due on the last day of class.* **Please Note: this project cannot be turned in after the last day of class.**

#### F. STUDENT-LED LITERATURE DISCUSSION (15 points)

During the course of the semester, each student will have the opportunity to lead\* a class discussion of scientific readings on a particular subject relating to physical activity and health. You should not present the same topic as your physical activity and health paper. *In addition, the topic and readings must be approved by the instructor prior to presentation and will coincide with the class lecture material.* Each student should take approximately 40 minutes for this activity and the presentation will typically occur during the last 40 minutes of the Thursday class dedicated to these activities. The following components should be included:

1. A brief introduction/overview of what is known about the topic being discussed. The topic should be narrowly focused, for example, the relationship between vigorous-intensity activity (at least 3 times per week) and colon cancer in premenopausal women.
2. A brief overview (1 minute each) of three peer-reviewed, original-research, manuscripts of the topic. At least one of the manuscripts should present an opposing result from the others.
3. A critical class discussion of the three manuscripts. Each student should decide how this is to be done but should be as creative as possible. For example, a student may distribute the appropriate readings prior to class for each student to come prepared to discuss; a student may have quizzes after each discussion, a student may break the class into small groups for discussion; a student may divide class into peer-reviewed sections and review and critique each, etc. Regardless, the critique of the papers should include: the study design, the strengths and limitations of the studies, the main findings, and the appropriateness of the authors conclusions/discussion.
4. Each presenting student should bring a 1-page summary of their presentation to be handed in to the teacher and students and include the following:
  - a. The full journal references for each manuscript. Two possible multiple choice exam questions for each manuscript.

\*The student leading the discussion should email the three manuscripts to each students ~1 week in advance.

# Course Calendar

## Text Reading

Week 1 (Aug 29):	Review of Syllabus; PA and Health Overview Chapter 1, 2	
Week 2 (Sep 5):*	PA and Health Overview <sup>†</sup>	Chapters 1, 2
Week 3 (Sep 12):*	Measurement of PA; Trends/mortality in PA and Health <sup>†</sup>	Chapters 3, 9
Week 4 (Sep 19):*	PA and Cardiovascular Disease (CHD, stroke, hypertension, lipids); <i>Lit Discussion</i>	Chapter 10
Week 5 (Sep 26):	PA and Cardiovascular Disease (CHD, stroke, hypertension, lipids); <i>Lit Discussion</i> <sup>†</sup>	Chapter 10
Week 6 (Oct 3):	<i>Instructor Gone Oct 4<sup>th</sup> and 6<sup>th</sup> (Obesity Society, UCWHP);</i> PA and Diabetes	Chapter 12
Week 7 (Oct 10):	<i>PA and Diabetes Lit Discussion;</i> <b>Mid-Term Exam (Thurs)</b>	None
Week 8 (Oct 17):*	PA and Cancer; <i>Lit Discussion</i>	Chapter 13
Week 9 (Oct 24):*	PA and joint/bone health; <i>Lit Discussion</i>	Chapter 14
Week 10 (Oct 31):*	PA and Mental Health; <i>Lit Discussion</i> <sup>†</sup>	Chapter 16
Week 11 (Nov 7):*	PA and Children; <i>Lit Discussion</i>	Chapter 17
Week 12 (Nov 14):*	PA and Aging; <i>Lit Discussion</i> <sup>†</sup>	Chapter 18
<b>Week 13 (Nov 21):</b>	<b><i>No Class on Tues (Fri Instruction); No Class on Thurs (Thanksgiving Holiday)</i></b>	
Week 14 (Nov 28):*	Resistance Training and Health; Risks of PA; <i>Lit Discussion</i>	Chapters 15, 19
Week 15 (Dec 5):	Misc; <i>Paper Due (Dec 6); Project Presentations (Tues and Thurs)</i>	Chapters 8, 20, 23
<i>Exam Prep Days:</i>	<i>December 9<sup>th</sup></i>	
<b>Final Exam:</b>	In Learning Resource Center – December 12–16	

\*A quiz will be given at the beginning of class on Thursday of the noted week.

<sup>†</sup>Abstract of class activity is due.

# Classroom Policies

**Academic Honesty.** The first injunction of the BYU Honor Code is the call to “be honest.” Students come to the university not only to improve their minds, gain knowledge, and develop skills that will assist them in their life’s work, but also to build character. President David O. McKay taught that “character is the highest aim of education” (*The Aims of a BYU Education*, p. 6). It is the purpose of the BYU Academic Honesty Policy to assist in fulfilling that aim. BYU students should seek to be totally honest in their dealings with others. They should complete their own work and be evaluated based upon that work. They should avoid academic dishonesty and misconduct in all its forms, including but not limited to plagiarism, fabrication or falsification, cheating, and other academic misconduct.

**Preventing Sexual Harassment.** Title IX of the Education Amendments of 1972 prohibits sex discrimination against any participant in an educational program or activity that receives federal funds. The act is intended to eliminate sex discrimination in education. Title IX covers discrimination in programs, admissions, activities, and student-to-student sexual harassment. BYU’s policy against sexual harassment extends not only to employees of the university, but to students as well. If you encounter unlawful sexual harassment or gender based discrimination, please talk to your professor; contact the Equal Employment Office at 801-422-5895 or 801-367-5689 (24-hours); or contact the Honor Code Office at 801-422-2847.

**Students with Disabilities.** Brigham Young University is committed to providing a working and learning atmosphere, which reasonably accommodates qualified persons with disabilities. If you have any disability which may impair your ability to complete this course successfully, please contact the University Accessibility Center (UAC) (801-422-2767). Reasonable academic accommodations are reviewed for all students who have qualified, documented disabilities. Services are coordinated with the student and instructor by the UAC. If you need assistance or if you feel you have been unlawfully discriminated against on the basis of disability, you may seek resolution through established grievance policy and procedures. You should contact the Equal Employment Office at 801-422-5895, D-285 ASB.

**Diversity.** A classroom is similar to the workplace. In the workplace, it is illegal to discriminate based on race, color, religion, gender, national origin, disability, or age. Furthermore, we believe Christ would never belittle anyone based on their race, color, religion, gender, national origin, disability, or age. Therefore, we feel strongly that no one in a classroom should be belittled for any reason. If you experience such an offense in any class in this Department (caused either by the instructor or a fellow student), we strongly encourage you to contact the Department Chair.

**Dress and Grooming.** “The dress and grooming of both men and women should always be modest, neat, and clean consistent with the dignity adherent to representing The Church of Jesus Christ of Latter-day Saints and any of its institutions of higher education.” Students understand and have committed to obey this policy, thus instructors or other students should never be placed in the uncomfortable situation of having to remind someone of adhering to the sacred honor they have pledged.

**Use of Technology in the Classroom.** Technology is an essential part of today’s learning environment. However, technology, when used inappropriately, can also hinder learning. Most students have, at some point, sat next to students who use their laptops or PDAs in class to check e-mail, talk to friends, instant message, search the internet, or play on-line games. Unfortunately, every person sitting around such students is distracted by this behavior and classroom learning decreases. As a result of these distractions, the Department of Exercise Sciences has the following policy:

*Using laptops or PDAs in class to legitimately take notes or work on class projects is allowed, but all other use of laptops, PDAs, or other electronic devices in class is prohibited.* Please respect your fellow students and professors and abide by this department policy (and courtesy).

This would naturally include not reading newspapers, doing work for another class, or other potentially disruptive activities not associated with the class in session.

**Cell Phones.** Students are not allowed to use cell phones in classes. Please turn them off as you enter the classroom and keep them stored out of sight in your backpack, purse, or pocket.

**H1N1 Flu.** Students who have influenza-like illness should stay away from others for at least 24 hours after their fever is gone except to get medical care. Your fever should be gone without the use of a fever-reducing medicine such as Tylenol. Please communicate with your instructor regarding your attendance.