

Department of Health, Physical Education and Recreation



CRN #:	30903	Instructor:	Christopher C. Cheatham, Ph.D.
Course #:	HPER 6760	Office:	1064 SRC
Course Title:	Exercise Science Seminar	Office Hours:	12-1PM, 4:30-5:30PM T, TH
Credits:	3	Phone:	387-2542
Times:	6-8:30PM T, TH	E-Mail:	chris.cheatham@wmich.edu
Location:	1035 SRC	Website:	http://homepages.wmich.edu/~ccheatha

[Exercise Science / Physiology Programs Website](http://www.wmich.edu/hper-esp) <http://www.wmich.edu/hper-esp>

Course Description:

This seminar will focus on exposing the graduate exercise physiology students to historically “classic” articles in the field of exercise physiology and physiology in general. We will focus on approximately 6-7 topics within our field. One class meeting will be devoted to a discussion of the “classic” article(s) for each given topic. The following class meeting will consist of student presentations/article critiques of more current research articles (within past 5 years) relating to the same topic, generally speaking, as the classic article(s).

It is my hope that this course will provide the student with an historical appreciation of the field of exercise physiology and how the field has advanced, give the student experience in reading and interpreting research articles, and provide the student experience in presenting research articles to a group of peers.

Course Materials:

There is no required textbook for this course. We will utilize historically “classic” research articles within each specific topic that will be discussed.

Students may also find it helpful to refer to exercise physiology textbooks and medical dictionaries to further his or her understanding of the topics to be discussed.

Course Readings:

Topic 1 - Muscle Physiology - Influence of Exercise on Physiological Characteristics of Muscle Fibers

- **Holloszy JO.** Biochemical adaptations in muscle. Effects of exercise on mitochondrial oxygen uptake and respiratory enzyme activity in skeletal muscle. *Journal of Biological Chemistry.* 242(9): 2278-82, 1967.
- **Gollnick PD, Armstrong RB, Saubert CW IV, Piehl K, and Saltin B.** Enzyme activity and fiber composition in skeletal muscle of untrained and trained men. *Journal of Applied Physiology.* 33: 312-319, 1972.
- **Gollnick PD, Armstrong RB, Saltin B, Saubert CW IV, Sembrowich WL, and Shepherd RE.** Effect of training on enzyme activity and fiber composition of human skeletal muscle. *Journal of Applied Physiology.* 34: 107-111, 1973.

Topic 2 - Muscle Physiology – Influence of Glycogen Levels on Endurance-Type Performance

- **Hermansen L, Hultman E, and Saltin B.** Muscle glycogen during prolonged serve exercise. *Acta Physiologica Scandinavica.* 71: 139-139, 1967.
- **Bergstrom J, Hermansen L, Hultman E, and Saltin B.** Diet, muscle glycogen and physical performance. *Acta Physiologica Scandinavica.* 71: 140-150, 1967.

- **Costill DL, Sherman WM, Fink WJ, Maresh C, Witten M, and Miller JM.** The role of dietary carbohydrates in muscle glycogen resynthesis after strenuous running. *American Journal of Clinical Nutrition.* 34: 1831-1836, 1981.

Topic 3 - Environmental Physiology – Temperature Regulation and the Hypothalamus, Temperature Regulation during Heat Stress

- **Hammel HT, Hardy JD, and Fusco MM.** Thermoregulatory responses to hypothalamic cooling in unanesthetized dogs. *American Journal of Physiology.* 198: 481-486, 1960.
- **Hammel HT, Jackson DC, Stolwijk JAJ, Hardy JD, and Strømme SB.** Temperature regulation by hypothalamic proportional control with an adjustable set point. *Journal of Applied Physiology.* 18: 1146-1154, 1963.
- **Hellstrom B and Hammel HT.** Some characteristics of temperature regulation in the unanesthetized dog. *American Journal of Physiology.* 213: 547-556, 1967.
- **Nadel ER, Bullard RW, and Stolwijk JAJ.** Importance of skin temperature in the regulation of sweating. *Journal of Applied Physiology.* 31: 80-87, 1971.

Topic 4 - Cardiovascular Physiology – Regulation of Cardiac Output

- **Davis JE and Brewer N.** Effect of physical training on blood volume, hemoglobin, alkali reserve and osmotic resistance of erythrocytes. *American Journal of Physiology.* 113: 586-591, 1935.
- **Saltin B, Blomqvist G, Mitchell JH, Johnson RL, Wildenthal K, and Chapman CB.** Response to exercise after bed rest and after training: A longitudinal study of adaptive changes in oxygen transport and body composition. *Circulation.* 38(Suppl. 7): p. 1-78, 1968.
- **Ekblom B, Astrand PO, Saltin B, Stenberg J, and Wallstrom B.** Effect of training on circulatory response to exercise. *Journal of Applied Physiology.* 24: 518-528, 1968.

Topic 5 - Influence of Exercise Characteristics on Physiological Adaptations

- **Hickson RC and Rosenkoetter MA.** Reduced training frequencies and maintenance of increased aerobic power. *Medicine and Science in Sports and Exercise.* 13: 13-16, 1981.
- **Hickson RC, Kanakis C, Jr, Davis JR, Moore AM, and Rich S.** Reduced training duration effects on aerobic power, endurance, and cardiac growth. *Journal of Applied Physiology.* 53: 225-229, 1982.
- **Hickson RC, Foster C, Pollock ML, Galassi TM, and Rich S.** Reduced training intensities and loss of aerobic power, endurance, and cardiac growth. *Journal of Applied Physiology.* 58: 492-499, 1985.

Topic 6 – Metabolism – Lactic Acid and the Lactate Threshold

- **Margarita R, Edwards HT, and Dill DB.** The possible mechanisms of contracting and paying the oxygen debt and the role of lactic acid in muscular contraction. *American Journal of Physiology.* 106: 689–715, 1933.
- **Wasserman K, Whipp BJ, Koyal SN and Beaver WL.** Anaerobic threshold and respiratory gas exchange during exercise. *Journal of Applied Physiology.* 35: 236-243, 1973.
- **Davis JA.** Anaerobic threshold: review of the concept and directions for future research. *Medicine and Science in Sports and Exercise.* 17: 6-18, 1985.
- **Brooks GA.** Anaerobic threshold: review of the concept and directions for future research. *Medicine and Science in Sports and Exercise.* 17: 22-31, 1985.

Grading:

Presentations/Critiques:	80%	100 – 92%	A	77 – 70%	C
Attendance:	20%	91 – 87%	BA	69 – 65%	DC
		86 – 83%	B	64 – 60%	D
		82 – 78%	CB	59 – 0%	E


Things to Remember:

- Cell phones, computers must be silenced and PUT AWAY during class time. No texting, etc. The only exception is if you use your computer to take notes. If you use your computer to take notes, I expect that you will not use e-mail, website, or social network sites (i.e. Facebook, MySpace) during class time.
- This outline/syllabus is subject to change. Students will be informed of change and an updated syllabus will be posted to the course website.
- All written work must be typed. No make-up exams/quizzes will be given, unless arrangements are made prior to the exam or verifiable medical excuse is provided.
- Students should bring a calculator to class every day. For quizzes and exams, students will be allowed to use a calculator. The use of cell phones, PDA's, iPhones, etc. will not be permitted for quizzes and exams.
- Students will do original work and will not take or receive the efforts of another person on any test or assignments, use unauthorized resources on quizzes or tests, plagiarize, or give/sell other students papers or assignments not authorized by the instructor. Collaborative work will be assigned by the instructor and clearly identified as such. All other work must be your own.
- You are responsible for making yourself aware of and understanding the policies and procedures in the Undergraduate and Graduate Catalogs that pertain to Academic Honesty. These policies include cheating, fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse. [The policies can be found at <http://catalog.wmich.edu> under Academic Policies, Student Rights and Responsibilities.] If there is reason to believe you have been involved in academic dishonesty, you will be referred to the Office of Student Conduct. You will be given the opportunity to review the charge(s). If you believe you are not responsible, you will have the opportunity for a hearing. You should consult with your instructor if you are uncertain about an issue of academic honesty prior to the submission of an assignment or test.
- Students are directed to <http://osc.wmich.edu> and www.wmich.edu/registrar to access the Code of Honor and general academic policies on such issues as diversity, religious observance, student disabilities, etc.
- Reasonable accommodations will be made for students with disabilities.
- Any assignment turned in after the due date will receive a 10% deduction per day late. Failure to turn in an assignment will result in a score of 0% for that assignment.

There's no absolutism or negotiation as grades are not given, they are earned

The telephone keeps ringing, the e-mail overflows, and for the first time during the semester my office hours are really busy — it is finals week. Only a few more nights before the last exam; and just as in the Bible: The sins of the past haunt the sinner on Judgment Day, and there is much howling and gnashing of teeth. A few nights of cramming won't make up for solid, regular study throughout the semester. Therefore, one after another sleep-deprived and irrationally hopeful student shows up at my doorstep seeking belated guidance toward a passing grade. Others seek an audience to offer pieces of outstanding contemporary fiction as to what afflictions and what incomparable

Best of Diether Haenicke Opinion



blows of fate have befallen them during the semester. Others yet turn my office into a confessional and freely admit their sins, pleading for forgiveness.

I love the stories my students invent or embellish. Most are better than the ones I remember from my own student days. But my students deal with a teacher of literature who, while he loves a good story, also recognizes fiction when he sees it. I am less comfortable in the confessional. While I am great on for-

giveness. I don't have the power to absolve the sinners and must remind them that I give grades, not absolutism.

It is amazing how many students think teachers can "give" them a grade just to be of help. They point an accusing eye at the professor and reveal that all scholarship support will be lost and the student be made destitute if the insensitive and cold-hearted instructor does not dole out the needed grade. But I don't go on guilt trips for which I haven't booked passage myself, and I certainly don't take any responsibility if a student's laziness leads to his loss of money.

Other students think grades are a negotiable commodity. They put on their best salesman faces, fully convinced that a win-win situation can

be developed if both parties are willing to deal. A particularly insistent one told me that President Floyd had declared Western to be a "student-centered" university. Would I please be more accommodating? To the student's credit, though, his remark was tongue in cheek. As the old joke goes: "What's the difference between a professor and a terrorist?" Answer: "You can negotiate with a terrorist."

I agree that we make perhaps too much of testing and grades. But a grade is a professional judgment, a seal of quality. By giving a grade, I attest to the student's ability to perform on a given level. I am telling a future employer or a graduate or professional school how well this student has mastered a given subject. It is a judgment on

which I stake my professional reputation. That's why there can be neither negotiation nor absolutism.

Thank heavens, most students do not need to resort to deals, confession or fiction to end the semester with a good grade. I am always impressed that most of them are very responsible and determined to do well academically. They make my work in the classroom a pleasure, and I feel rewarded when the academic outcome of a semester results in good grades for my students.

But even those who struggle academically, play too much, don't find their focus in their freshman year, or who need a lot of help and guidance have my full attention, perhaps even more than those who sail through their four undergradu-

ate years without shipwreck. My friend Kathy Brady often remarks: "Everybody is someone's little boy or girl." I love that observation because it reminds me that we are not only teachers but also parents and would like our own children treated with love and understanding by others. I try to look at my students with the eyes of their parents.

The older I get and the longer I teach, the more I have come to believe that those who teach must love those whom they teach. And that includes tough love and bad grades, if necessary.

The Kalamazoo Gazette is reprinting selected Diether Haenicke columns through the end of the year. Haenicke died Feb. 15. This column was first published Dec. 13, 2000.