

University of Southern California – Department of Biological Sciences
Human Biology 250 – The Pharmacology of Performance Enhancing Drugs (4 units)
Spring 2016

Instructor: Erik M. Kolb, Ph.D.
Office Hours: Monday & Wednesday 11:00am-1:00pm (AHF B39)
Email: ekolb@usc.edu

Lecture: MWF 8:00-8:50 am; THH 114

Course Description:

Evaluation of drugs, nutritional supplements, and ergogenic aids that are purported to enhance human athletic performance to promote weight and fat loss.

Learning Objectives:

1. To develop a broad comprehension of the principles of pharmacology and pharmacokinetics.
2. To inculcate critical thinking by using the application of knowledge in pharmacology to solve both real-world and conceptual problems in sports physiology and performance enhancement.
3. To place performance enhancement in sports into a physiological, sociological, and evolutionary context.

I. Text (Required):

- 1) **Run, Swim, Throw, Cheat: The Science Behind Drugs in Sport.** Cooper, C. Oxford University Press, Oxford, UK, 2012.

II. Grading Outline:

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|------|-----------------------|------------------|
| 15% | Midterm 1 | 150 pts. |
| 20% | Midterm 2 | 200 pts. |
| 20% | Midterm 3 | 200 pts. |
| 30% | Final | 300 pts. |
| 10% | Quizzes/Participation | 100 pts. |
| 5% | Active Learnings | <u>50 pts.</u> |
| | Total = | 1000 pts. |
| 2.5% | JEP Extra Credit | 25 pts. |

▪ Exams and assignments will not be given a letter grade. Only the final grade will be given a letter grade. The grading scale will be based on a traditional grading scale as follows:

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|-------------------|------------------|------------------|
| A (≥94%) | A- (≥90%) | |
| B+ (≥88%) | B (≥84%) | B- (≥80%) |
| C+ (≥78%) | C (≥74%) | C- (≥70%) |
| D+ (≥68%) | D (≥64%) | D- (≥60%) |
| F (≤59.9%) | | |

▪ A request to take a make-up exam must be accompanied by evidence of a university-sanctioned excused absence (i.e.: letter from a doctor, athletic release) and must be made before the date of the scheduled exam. Make-up exams will be different from the scheduled exam (e.g., essay) and may be proctored by personnel who do not have extensive knowledge in the area being tested.

IV. Tentative Lecture Schedule:

| Date | Lecture Topic | Cooper |
|-------------|---|---------------|
| Jan. 11 | Introduction and Expectations | |
| Jan. 13 | What is a Drug? | Ch. 1 |
| Jan. 15 | Pharmacology I | |
| Jan. 18 | Martin Luther King, Jr. Holiday | |
| Jan. 20 | Pharmacology II | |
| Jan. 22 | Pharmacokinetics I | |
| Jan. 25 | Pharmacokinetics II | |
| Jan. 27 | Anabolic Agents I | Ch. 6 |
| Jan. 29 | Anabolic Agents II | |
| Feb. 1 | Anabolic Agents III | |
| Feb. 3 | Anabolic Agents IV; Active Learning I | |
| Feb. 5 | MIDTERM I | |
| Feb. 8 | Peptide Hormones I | Ch. 6 |
| Feb. 10 | Peptide Hormones II | |
| Feb. 12 | β -2 Agonists | |
| Feb. 15 | President's Day Holiday | |
| Feb. 17 | Diuretics and Masking Agents; Active Learning II | |
| Feb. 19 | Oxygen Transport (Hemoglobin / RBCs / EPO) | Ch. 4 |
| Feb. 22 | Blood Doping | |
| Feb. 24 | Oxygen-Carriers | |
| Feb. 26 | EPO; Active Learning III | |
| Feb. 29 | Gene Doping | Ch. 8 |
| Mar. 2 | Stimulants | Ch. 7 |
| Mar. 4 | MIDTERM II | |
| Mar. 7 | Stimulants | |
| Mar. 9 | Narcotics | |
| Mar. 11 | Narcotics / Cannabinoids | |
| Mar. 14-20 | Spring Break | |
| Mar. 21 | Glucocorticoids | |
| Mar. 23 | Glucocorticoids | |
| Mar. 25 | Alcohol I; Active Learning IV | |
| Mar. 28 | Alcohol II | |
| Mar. 30 | Beta Blockers | |
| Apr. 1 | Supplements for High-Intensity Exercise | Ch. 3 |
| Apr. 4 | Supplements | |
| Apr. 6 | Caffeine I | Ch. 7 |
| Apr. 8 | MIDTERM III | |
| Apr. 11 | Caffeine II | |
| Apr. 13 | OTC Drugs / Herbals | |

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| Apr. 15 | NSAIDS I | |
| Apr. 18 | NSAIDS II | |
| Apr. 20 | NSAIDS III | |
| Apr. 22 | Melatonin | |
| Apr. 25 | Artificial Environments I | |
| Apr. 27 | Artificial Environments II | |
| Apr. 29 | TBA | |
| | | |
| May 6 | FINAL EXAMINATION 8:00-10:00am | |
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V. Academic Accommodations:

Any student requesting academic accommodations based on a disability are required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (the instructor) as early in the semester as possible. DSP is located in Student Union (STU) 301 and is open 8:30-5:00pm Monday – Friday. The phone number for DSP is (213) 740-0776.

VI. Academic Integrity:

Students who violate University standards of academic integrity are subject to disciplinary sanctions, including failure in the course and suspension from the University. Since dishonesty in any form harms the individual, other students and the University, academic integrity policies will be strictly enforced. I expect you will familiarize yourself with the Academic Integrity guidelines found in the current SCampus.

VII. Academic Integrity Violations:

- Academic dishonesty/misconduct (plagiarism, cheating, unauthorized collaboration, etc.) will not be tolerated. All academic integrity violations will result in a grade sanction and will be reported to the Office for Student Judicial Affairs. It is your responsibility to “reasonably” protect your own work from the plagiarism of others.
- If plagiarism is detected on a group project, all members of the group will be held responsible.
- You are expected to be familiar with the Academic Integrity guidelines found in the current SCampus (student guidebook). An electronic version is available at <http://usc.edu/scampus>.

VIII. Disruptive and Threatening Student Behavior:

Behavior that persistently or grossly interferes with classroom activities is considered disruptive behavior and may be subject to disciplinary action. Such behavior inhibits other students’ ability to learn and an instructor’s ability to teach. A student responsible for disruptive behavior may be required to leave class pending discussion and resolution of the problem and may be reported to the Office of Student Judicial Affairs for disciplinary action.

IX. Blackboard

Notes will be periodically posted on blackboard. However, the information posted on blackboard is not the only material that will be on the exam. If you attend class regularly you will be updated on the status of lecture notes and course material/announcements.

X. Electronic Devices

Please turn off or disable all cell phones or other electronic communication devices during class time. Using a laptop in class to take lecture notes is permitted. However, please turn off your browser, email, messaging and any other programs that do not involve the course material.