

University of Southern California – Department of Biological Sciences
Human Biology 250 – The Pharmacology of Performance Enhancing Drugs (4 units)
Fall 2019

Instructor: Kurt E. Kwast, Ph.D.
Office Hours: Monday 12:00 am - 1:30 pm & Wednesday 12:30 pm – 2:00 pm (AHF B39)
Email: kwast@usc.edu

Lecture: MWF 11:00 - 11:50 am; THH 212

Course Description:

The science of drugs, nutritional supplements, and ergogenic aids that are purported to enhance human athletic performance and ethical issues surrounding them.

Learning Objectives:

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

I. Texts:

REQUIRED: Drugs in Sport, 7th edition, edited by David Mottram & Neil Chester, Routledge Press, London, 2018.

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

II. Grading Outline:

20%	Exam 1	200 pts.
20%	Exam 2	200 pts.
20%	Exam 3	200 pts.
30%	Final Exam	300 pts.
10%	Quizzes/Participation	100 pts.
	Total =	1000 pts.
2.5%	JEP Extra Credit	+25 pts.

- Individual exams and quizzes will be scored but not assigned a letter grade. Only the final point tally will be assigned a letter grade. The grading scale will be based on a traditional grading scale as follows:

Letter Grade	Point Ranges	Grade Point Value
A	930-1000	4.000
A-	900-929	3.667
B+	870-899	3.333
B	830-869	3.000
B-	800-829	2.667
C+	770-799	2.333
C	730-769	2.000
C-	700-729	1.667
D+	670-699	1.333
D	630-669	1.000
D-	600-629	0.667
F	<600	0.000

- A request to take a make-up exam must be accompanied by evidence of a university-sanctioned excused absence (i.e., a letter from a doctor, athletic release, etc.) 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	Mottram & Chester
Aug. 26	Introduction	
Aug. 28	What are Performance Enhancing Drugs & Ergogenic Factors?	Ch. 1
Aug. 30	Limits to Human Performance and Influence of Drugs	Ch. 1 - 2
Sept. 2	LABOR DAY HOLIDAY	
Sept. 4	History of Doping, Oversight and Current Regulations (IOC, WADA, etc.)	Ch. 3 - 5
Sept. 6	Pharmacology	
Sept. 9	Pharmacokinetics	
Sept. 11	Skeletal Muscle Design I	-
Sept.13	Skeletal Muscle Design II	-
Sept. 16	Skeletal Muscle Growth Pathways	-
Sept. 18	Cardiovascular System	-
Sept. 20	Review of Material for Exam I	
Sept. 23	EXAM I	-
Sept. 25	Respiratory System	-
Sept. 27	Bioenergetics	-
Sept. 30	Anabolic Agents I	Ch. 9
Oct. 2	Anabolic Agents II	Ch. 9 + 12
Oct. 4	Peptide Hormones I	Ch. 10
Oct. 7	Peptide Hormones II	Ch. 10
Oct. 9	β -2 Agonists	Ch. 11
Oct. 11	Diuretics and Masking Agents	Ch. 13
Oct. 14	Oxygen Transport (Hemoglobin / RBCs / EPO)	Ch. 14
Oct. 16	Blood Doping, EPO and O ₂ Carriers	Ch. 14
Oct. 17 - 20	Fall Recess	
Oct. 21	Review of Material for Exam II	
Oct. 23	EXAM II	
Oct. 25	Narcotics	Ch. 17 & 18
Oct. 28	Narcotics / Cannabinoids	Ch. 18 &19
Oct. 30	Glucocorticoids	Ch. 20
Nov. 1	Alcohol I & II	Ch. 21
Nov. 4	Beta Blockers	Ch. 22
Nov. 6	Caffeine	Ch. 25
Nov. 8	NSAIDS I	Ch. 23
Nov.11	NSAIDS I	Ch. 23
Nov.13	OTC Drugs / Herbals	Ch. 24
Nov. 15	Supplements for High-Intensity Exercise	
Nov. 18	Other Supplements	
Nov. 20	Exercise Nutrition	
Nov. 22	Review of Material for Exam III	
Nov. 25	Exam III	-

Nov. 27- Dec. 1	THANKSGIVING BREAK	
Dec. 2	Artificial Environments	-
Dec. 4	Gene Doping	Ch. 16
Dec. 6	Wrap Up and Final Review	-
Dec. 17	FINAL EXAMINATION 8:00 am - 10:00 am	

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 and Conduct:

Students who violate University standards of academic integrity are subject to disciplinary sanctions, including failure in the course and suspension from the University. Given that dishonesty in any form harms not only the individual but 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 (Student Handbook).

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-misconduct.

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. 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, I expect you to turn off your browser, email, messaging and any other programs that do not involve the course material.

XI. Support Systems

Student Health Counseling Services - (213) 740-7711 – 24/7 on call

engemannshc.usc.edu/counseling

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call

suicidepreventionlifeline.org

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-4900 – 24/7 on call

engemannshc.usc.edu/rsvp

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED) | Title IX - (213) 740-5086

equity.usc.edu, titleix.usc.edu

Information about how to get help or help a survivor of harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants. The university prohibits discrimination or harassment based on the following protected characteristics: race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, age, physical disability, medical condition, mental disability, marital status, pregnancy, veteran status, genetic information, and any other characteristic which may be specified in applicable laws and governmental regulations.

Bias Assessment Response and Support - (213) 740-2421

studentaffairs.usc.edu/bias-assessment-response-support

Avenue to report incidents of bias, hate crimes, and microaggressions for appropriate investigation and response.

The Office of Disability Services and Programs - (213) 740-0776

dsp.usc.edu

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

USC Support and Advocacy - (213) 821-4710

studentaffairs.usc.edu/ssa

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity at USC - (213) 740-2101

diversity.usc.edu

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

dps.usc.edu, emergency.usc.edu

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call

dps.usc.edu

Non-emergency assistance or information.