

**San José State University
CASA/Department of Kinesiology
KIN 255, Advanced Exercise Physiology
Fall 2017**

Course and Contact Information

Instructor:	Peggy Plato
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Office Hours:	MW 1:00-2:30 pm Other times available by appointment
Class Days/Time:	Wednesdays 4:00-6:45 pm
Classroom:	YUH 233
Prerequisites:	KIN 155, an equivalent course, or instructor permission. This course is intended for graduate students who have completed introductory courses in human physiology and exercise physiology.

Course Description

Survey and critical evaluation of current concepts and literature regarding physiological regulatory mechanisms of the oxygen transport system and muscle metabolism. Acute and chronic effects of exercise with emphasis placed on physiological limitations.

Graduate Program Learning Outcomes (PLOs)

Upon successful completion of the Kinesiology graduate program, students will be able to:

- (1) conduct and critique research using theoretical and applied knowledge.
- (2) interpret and apply research findings to a variety of disciplines within Kinesiology.
- (3) effectively communicate essential theories, scientific applications, and ethical considerations in Kinesiology.
- (4) acquire skills to become agents of change to address issues in Kinesiology through the application of knowledge and research.

Course-Specific Learning Outcomes (CLOs)

Upon successful completion of the course requirements, students will be able to:

- (1) identify and describe physiological factors underlying physical performance, including factors limiting performance, acute responses to exercise, and long-term training adaptations.
- (2) identify and describe the effects of physical activity on the aging process, and the relationship of physical activity and fitness to lifestyle-related diseases.
- (3) sensitively identify and explain age, gender, cultural, and other individual differences that may exist in physiological responses during exercise, long-term training adaptations, and performance capabilities in sports and physical activities.
- (4) effectively utilize traditional library resources as well as other technical and professional resources to obtain information on exercise physiology topics.
- (5) demonstrate skill in critical reading and evaluation of published research articles on exercise physiology topics.
- (6) demonstrate oral and written communication skills by participating in the exchange of new ideas and concepts related to class topics and projects.

Required Texts/Readings

Textbook

McArdle, W.D., Katch, F.I., & Katch, V.L. (2015). *Exercise physiology: Energy, nutrition, and human performance* (8th ed). Baltimore, MD: Wolters Kluwer Health/Lippincott Williams & Wilkins.

Other Readings

Additional articles are posted on Canvas.

Library Liaison

The KIN library liaison is Adriana Poo (adriana.poo@sjsu.edu) 408-808-2019.

Evaluation and Grading

Written Critique	7.5%
Presentation of Critiqued Study	7.5%
Review Paper	15%
Presentation of Review Paper	10%
Contributions to Class Discussions	10%
Midterm Exam	25%
Final Exam (comprehensive)	25%

Grades signify the following quality of work:

A = Excellent, B = Good, C = Fair, D = Below Average, F = Unacceptable

Assignment of Grades

A plus = 97-100%
 B plus = 87-89%
 C plus = 77-79%
 D plus = 67-69%

A = 93-96%
 B = 83-86%
 C = 73-76%
 D = 63-66%
 F = <60%

A minus = 90-92%
 B minus = 80-82%
 C minus = 70-72%
 D minus = 60-62%

Example

Component	PLO	CLO	Letter Grade	%	X	Points Possible	Points
Written Critique	1,2	4,5,6	B	85	x	7.5	6.4
Presentation of Critiqued Study	2,3	6	B plus	88	x	7.5	6.6
Review Paper	2,3,4	1,4,5,6	A minus	91	x	15	13.7
Presentation of Review Paper	2,3	1,6	A	95	x	10	9.5
Contributions to Class Discussions	3	1,2,3,6	B	85	x	10	8.5
Midterm	2,3	1,3	C plus	78	x	25	19.5
Final Exam	2,3	1,2,3	B plus	88	x	25	22.0
Total							86.2 B

Note that “All students have the right, within a reasonable time, to know their academic scores, to review their grade-dependent work, and to be provided with explanations for the determination of their course grades.” See [University Policy F13-1](http://www.sjsu.edu/senate/docs/F13-1.pdf) at <http://www.sjsu.edu/senate/docs/F13-1.pdf> for more details.

Written Critique

- This assignment provides an opportunity to develop analytic and critical reading skills. Each student will submit a written critique of a published, empirical research study (primary source, 2007 or later) pertaining to the scheduled topic for that evening. Select articles that are research presentations (introduction, methods, results, discussion format), not review papers. A photocopy of the research article should be submitted the week before the class presentation. For the written critique, state the purpose of the study (1-2 sentences), then critique the study; do not summarize the study. The abstract provides a summary of the study; your job is to critically evaluate the study. Refer to the IFIC article for suggestions on how to critique a study. Grading will be based on quality of content, identification of strengths and weaknesses of the study, quality of writing (syntax, grammar, spelling), and adherence to assignment guidelines.
- Critiques should be typed, double-spaced, using a 12-point (or easily readable) font and 1" margins. Critiques should not exceed 3 pages.

Presentation of Critiqued Study

- This assignment provides the opportunity to develop oral communication skills and to practice presenting concepts and ideas. Students will present the study that was critiqued in the written paper. The presentation to the class is different from the critique. (In the written critique, the science, methodology, results, and conclusions are critically evaluated.) During the presentation, students should provide a brief background for the study, including purpose and hypothesis. Explain the methods in sufficient detail for class members to understand the study; present some of the pertinent results (it is not necessary to present all the data and results); and summarize the findings/conclusions. In the oral presentation, you present the study as though you conducted it; in the written critique, you critically evaluate the study as though you are a reviewer or editor. The presentation should last between 7-10 minutes. Less than 7 minutes is too short; presenters may be stopped at 10 minutes. Following the presentation, the paper is open for class discussion. At this time, discussion should focus on the study, including the quality of the science. Care should be taken to select an article that is relevant to the topic for the class, and which you feel you can present well. It may be necessary to do additional research to explain the background for the study and/or the methods used to conduct the research. Remember to submit a photocopy of the research article 1 week before your scheduled presentation.
- Evaluation will be based on: adherence to time limit, connection with audience (rapport, poise, ability to interest audience), content, application of study, and delivery (clarity, organization, voice, pace, use of audio-visual aids).

Review Paper

- This assignment provides the opportunity to complete an in-depth review of a specific, well-defined area of interest.
- Students will write an original (not previously submitted or being submitted for another class), comprehensive review paper that focuses on one physiological factor affecting human performance.
- The paper should synthesize information from a minimum of 10 primary research articles (generally published since 2007).
- The paper should be a minimum of 2000 words and not exceed 3000 words (approx. 8-12 pages in length, not including abstract and reference list), typed, double-spaced, using a 12 point (or easily readable) font and 1" margins.
- All references must be appropriately cited in the text and reference list using APA format (6th edition). Papers that deviate significantly from this format will be rejected (just as journal editors and Graduate Studies will reject papers or theses that fail to use the proper format). Carefully review the attached information on plagiarism. Use of direct quotations should be LIMITED (less than 100 words)! The reference list only contains references cited in the paper. (Note: Students in majors other than Kinesiology may use the citation style appropriate for their discipline.)
- Headings are helpful to direct the reader's attention to the major subtopics.
- When writing the paper, tell the reader what you will cover (introduction), cover the material (body of paper), and tell the reader what you covered (summary/conclusions).
- An abstract of the paper should be provided for each class member, including your name and the title of the paper.
- Evaluation will be based on: quality of abstract; organization of paper; introduction of topic; review of the literature (content depth and quality, as well as integration of primary references); summary; utilization of appropriate, primary research articles; and quality of writing (syntax, grammar, spelling, conciseness, coherence).

Presentation of Review Paper

- This assignment provides the opportunity to develop oral communication skills in a format similar to that which is used at annual meetings of professional organizations such as ACSM, NATA, NSCA, and Shape America.
- Students will present a 8-10 minute summary of their papers followed by a question and answer period. Provide "take home" points for the audience.
- Evaluation will be based on: adherence to time limit, connection with audience (rapport, poise, ability to interest audience), content, application, and delivery (clarity, organization, voice, pace, use of audio-visual aids).

Midterm and Final Exams

- Exams provide the opportunity to demonstrate mastery of course content. Exams may include true-false, multiple choice, matching, and essay questions that require integration and synthesis of knowledge. Excellent responses will demonstrate advanced and in-depth understanding of physiological systems, factors limiting performance, acute responses to exercise, and long-term training adaptations. Responses should include material from assigned readings, class discussions, and presentations by other students.
- Exams are to be taken on the dates scheduled. The final exam will NOT be given early. Make-up exams are permitted only for illness and emergency (TRULY EXTRAORDINARY CIRCUMSTANCES). The student is responsible for notifying the instructor and making arrangements at the earliest possible time. In most cases, the midterm exam must be completed before the next class meeting. All requests for make-up exams will be evaluated on an individual basis.

Policies and General Information

Class Structure

This course will be conducted using a combined lecture and seminar format. Lecture material will be integrated with class discussion and research presented by students. All students should be prepared to discuss and exchange information during each class session. Students will sign up to present information from published research reports, and students will present and exchange information from their review papers.

Consistent with University policy, it is expected that students will spend a minimum of 45 hours for each unit of credit (normally 3 hours per unit per week), including preparing for class, participating in course activities, completing assignments, etc. More details about student workload can be found in [University Policy S12-3](http://www.sjsu.edu/senate/docs/S12-3.pdf) at <http://www.sjsu.edu/senate/docs/S12-3.pdf>.

Participation

Because this course uses a lecture/seminar format, all students are expected to actively participate in, and contribute to, each class. This requires that students are prepared to discuss assigned readings, respond to material presented, and contribute their unique thoughts and knowledge. The most effective class results when EACH class member makes an INDIVIDUAL COMMITMENT to be an active participant in the teaching/ learning process. Individual contributions and differing viewpoints will be appreciated and respected.

NOTE that [University policy F69-24](http://www.sjsu.edu/senate/docs/F69-24.pdf) at <http://www.sjsu.edu/senate/docs/F69-24.pdf> states that "Students should attend all meetings of their classes, not only because they are responsible for material discussed therein, but because active participation is frequently essential to insure maximum benefit for all members of the class. Attendance per se shall not be used as a criterion for grading."

Late Assignments

All written assignments are due on the scheduled date. Late work may be graded down as follows: Papers submitted Wednesday after class through Thursday drop 1 grade step (e.g., A → A minus-, B plus → B). Papers turned in Friday through Monday drop 2 grade steps (e.g., A→B plus). Papers turned in Tuesday through the following Wednesday drop 1 full grade (e.g., A → B). Students should talk with the instructor if a paper cannot be completed within 1 week of the due date.

In most cases, oral presentations will not be rescheduled, and students will receive a 0 score if unable to present when scheduled. Truly extraordinary circumstances should be discussed with the instructor at the earliest possible moment.

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on the Office of Graduate and Undergraduate Programs' [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>

Academic Integrity

Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person's ideas without giving proper credit) will result in a failing grade and sanctions by the University. Note that faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include your assignment or any material you have submitted, or plan to submit for another class, please note that SJSU's Academic Integrity Policy S07-2 requires approval of instructors.

Dropping and Adding

According to University policy, dropping this course after Sept. 6 is permissible for serious and compelling reasons beyond the student's control. Additional information is available at: <http://www.sjsu.edu/aars/policies/latedrops/policy/>. The last day to add is September 13; however, students who receive add codes should use them as soon as possible.

Recording in Class

"Common courtesy and professional behavior dictate that you notify individuals when you are recording them. You must obtain the instructor's permission to make audio or video recordings in this class. Such permission allows the recordings to be used for your private, study purposes only. The recordings are the intellectual property of the instructor; you have not been given any rights to reproduce or distribute the material." During class discussions, permission of students should be obtained as well.

Course Materials

"Course material developed by the instructor is the intellectual property of the instructor and cannot be shared publicly without her approval. You may not publicly share or upload instructor-generated material for this course, such as exam or quiz questions, lecture notes, or hand-outs, without instructor consent."

SJSU Writing Center

The SJSU Writing Center is located in Clark Hall, Suite 126. All writing specialists have gone through a rigorous hiring process, and they are well trained to assist students at all levels to become better writers. In addition to one-on-one tutoring services, the Writing Center also offers workshops each semester on a variety of writing topics. To make an appointment or to refer to the numerous online resources offered through the Writing Center, visit the [Writing Center website](http://www.sjsu.edu/writingcenter) at <http://www.sjsu.edu/writingcenter>.

PLAGIARISM

"Plagiarism in student writing is often unintentional, as when an elementary school pupil, assigned to do a report on a certain topic, goes home and copies down, word for word, everything on the subject in an encyclopedia. Unfortunately, some students continue to use such 'research methods' in high school and even in college without realizing that these practices constitute plagiarism. You may certainly use other persons' words and thoughts in your research paper, but you must acknowledge the authors" (Gibaldi & Achtert, 1988, p. 22).

Writing research papers requires that you use the work and ideas of others; however, these ideas are the property of the original author -- the original author **MUST** be indicated by a reference citation [e.g., (author, year), footnote, or (#) corresponding to the citation in the reference list]. Every source listed in the reference list must be cited in your paper, and every source cited in your paper must be included in the reference list. (Exception: Personal communications are cited in the paper, but are not included in the reference list.) It is not necessary to cite sources of common knowledge; common knowledge is what any knowledgeable person in the field would know (Corder & Ruszkiewicz, 1989). However, any information that is not common knowledge **MUST** be cited whether or not it is a direct quotation. If in doubt, credit your source.

Example:

In general, physical activity is associated with positive psychological well-being in older adults (McAuley & Rudolph, 1995). However, training programs designed to improve physical fitness are not always associated with enhanced psychological well-being. Nieman, Warren, Dotson, Butterworth, and Henson (1993) found that women aged 67-85 years who participated in a 12 week walking program improved aerobic capacity 12.6%, but did not significantly improve psychological well-being or mood state compared to a control group that participated in mild stretching exercises.

To avoid unintentional plagiarism, read the reference, then **SET IT ASIDE** while you summarize what you read **IN YOUR OWN WORDS**. You may **THEN** go back to the reference to check the accuracy of your notes and to ensure that you have not inadvertently taken direct quotes from the reference. **DO NOT TAKE NOTES DIRECTLY FROM THE REFERENCE** and **DO NOT WRITE YOUR PAPER DIRECTLY FROM YOUR REFERENCES** -- plagiarism frequently results from these practices.

When taking notes, you may paraphrase the author's words or you may summarize the author's words. In both cases, you **MUST** cite the original author. "If you merely rearrange a few words in an original passage, or include a few words of your own, and then pass the idea along as yours, you have committed plagiarism" (Bingham, 1982, p. 163).

Direct quotations should be used VERY SPARINGLY. It is appropriate to use direct quotations in the following circumstances: (a) when giving the wordings of laws and official rulings (b) when exact wording is crucial (c) when the original is worded so well that you cannot improve upon it (Campbell & Ballou, 1978). Direct quotations must be indicated by quotation marks (longer passages may require block quotations, depending on the style manual used). When citing direct quotations, include the page number in the reference citation.

If you do not sufficiently understand what you have read to summarize and integrate it into your paper, do NOT use that reference. It is NOT acceptable to use a direct quotation in place of understanding the ideas.

Bingham, E. G. (1982). *Pocketbook for technical and professional writers*. Belmont, CA: Wadsworth.

Campbell, W. G., & Ballou, S. V. (1978). *Form and style. Theses, reports, term papers* (5th ed.). Boston: Houghton Mifflin.

Corder, J. W., & Ruszkiewicz, J. J. (1989). *Handbook of current English* (8th ed.). Glenview, IL: HarperCollins.

Gibaldi, J., & Achtert, W. S. (1988). *MLA handbook for writers of research papers* (3rd ed.). New York: Modern Language Association of America.

McAuley, E., & Rudolph, D. (1995). Physical activity, aging, and psychological well-being. *Journal of Aging and Physical Activity*, 3, 67-96.

Nieman, D. C., Warren, B. J., Dotson, R. G., Butterworth, D. E., & Henson, D. A. (1993). Physical activity, psychological well-being, and mood state in elderly women. *Journal of Aging and Physical Activity*, 1, 22-33.

Note: For professional journal articles, cite the following information:

Author(s), (Year of publication), Article title, *Journal title*, *Volume number of journal*, Inclusive page numbers. doi

For on-line professional journal articles, cite the above information, if available, AND include the URL. Example:

Fredrickson, B. L. (2000). Cultivating positive emotions to optimize health and well-being. *Prevention & Treatment*, 3, Article 0001a. Retrieved from <http://journals.apa.org/prevention/volume3/pre003001a.html>

Proposed Schedule

Subject to change with fair notice

DATE	TOPIC	READING ASSIGNMENT
Aug. 23	Introduction to Course and Factors Limiting Performance; Introduction to Bioenergetics	
Aug. 30	Bioenergetics, Nutrients & Exercise	Chaps. 4-8 Rankin, 2000 Hargreaves, 2005
Sept. 6	Bioenergetics, Nutrients & Exercise Cardiovascular System	Cairns, 2006 Chaps. 15-17
Sept. 13	Cardiovascular System & Aerobic Training	Chap. 21 Jones & Carter, 2000
Sept. 20	Pulmonary System	Chaps. 12-14 Sheel & Guenette, 2008
Sept. 27	Lab Topic for Review Paper Due	
Oct. 4	Catch-Up & Review	
Oct. 11	MIDTERM EXAM	
Oct. 18	Neuromuscular System Exercise-Induced Muscle Damage	Chaps. 18-19 Tee et al., 2007 Verdijk et al., 2013
Oct. 25	Anaerobic & Resistance Training Concurrent Training Detraining	Chap. 22 (skim) Folland & Williams, 2007 Schoenfeld, 2013
Nov. 1	Endocrine Regulation	Chap. 20 Crewther et al., 2006 Vingren et al., 2010
Nov. 8	Physical Activity, Fitness, & Health	Chap. 31, skim Chap. 32 Cotman & Engesser-Cesar, 2002 Ferris et al., 2007 Cornelissen et al., 2011
Nov. 15	Physical Activity & Aging REVIEW PAPERS DUE	Chap. 31 Murias et al., 2010 Hunter et al., 2004

DATE	TOPIC	READING ASSIGNMENT
Nov. 22	No Class – Campus Closed	
Nov. 29	Review Paper Presentations	
Dec. 6	Review Paper Presentations	
Dec. 13 5:15-7:30 pm	FINAL EXAM	