

Department of Kinesiology
San José State University
KIN 187
Clinical Exercise Physiology
Section 1: T,Th 12:30-1:45 pm, SPX 208
Spring 2012

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Office Hours: M,W 10:00 - 11:30 am
T,Th 11:15 - 11:45 am
T,Th 2:00 - 2:30 pm
Other times available by appointment

Description

Physiological principles applied to the prevention, management, and treatment of chronic health conditions. Focus on the pathophysiology, acute response to exercise, chronic training effects, and development of appropriate conditioning and training programs for chronic conditions.

Prerequisites: KIN 70 & KIN 155 (or equivalent courses) with grades of C- or better.
(Note: GE Math, Introductory Chemistry, and Human Physiology are prereqs for KIN 155)

Student Learning Objectives (SLOs)

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

- SLO#1 Evaluate the capacities and limitations for physical activity in clinical populations, taking into consideration disease processes and methods to assess functional capacity.
- SLO#2 Identify commonly used medications for specific clinical conditions and their effects on exercise capacity.
- SLO#3 Apply concepts of exercise physiology (e.g., acute and chronic physiological responses of the neuromuscular, bioenergetic, and cardiorespiratory systems) to the development of comprehensive conditioning programs for individuals with chronic conditions.
- SLO#4 Develop and modify programs to coincide with the limitations and capacities of individuals with chronic conditions.
- SLO#5 Sensitively identify and explain other individual differences that should be taken into consideration when designing exercise programs for diverse populations.
- SLO#6 Identify and explain the effects of muscle fatigue, overtraining, environmental factors, nutrition, and ergogenic aids on exercise programming for individuals with chronic conditions.

Course Content

1. Disease processes and management
2. Effects of chronic diseases or special conditions on the acute response to exercise
3. Effects of chronic diseases or special conditions on adaptations to training
4. Interaction of exercise with selected medications
5. Recommendations for exercise testing
6. Recommendations for exercise programming
7. Factors that may impact exercise programming (e.g., muscle fatigue, environmental factors, nutritional status)
8. Diverse populations will include the following:
 - (a) Children and adolescents
 - (b) Pregnancy and postpartum
 - (c) Older individuals
9. Chronic diseases and disabilities include the following:
 - (a) Obesity
 - (b) Hypertension
 - (c) Dyslipidemia
 - (d) Coronary artery disease and other cardiac conditions
 - (e) Pulmonary diseases
 - (f) Diabetes
 - (g) Cancer
 - (h) Arthritis and other joint disorders
 - (i) Osteoporosis
 - (j) Low back pain

Requirements & Expectations

! Textbooks

Durstine, J. L., Moore, G. E., Painter, P. L., & Roberts, S. O. (Eds.). (2009). *ACSM's exercise management for persons with chronic diseases and disabilities* (3rd ed.). Champaign, IL: Human Kinetics.

Thompson, W. R. (Ed.). (2010). *ACSM's guidelines for exercise testing and prescription* (8th ed.). Philadelphia: Wolters Kluwer/Lippincott Williams & Wilkins.

! **Course reader:** After classroom delivery, available at Maple Press (481 E. San Carlos, 297-1000)

! Calculator

- **Professional commitment**

- This is a professional preparation course. Students are expected to:
 - Read assigned material prior to class.
 - **Be fully prepared; actively and enthusiastically participate** in ALL class activities and discussions.
 - Bring course reader, calculator, and other necessary supplies to each class.
 - Complete assignments on time.
 - Keep the classroom clean. No food or drinks are allowed in SPX 208 except water.
 - Silence cell phones during class. Use electronic equipment **ONLY** for class activities (e.g., note taking). Texting, scanning the internet, and checking e-mail during class is unprofessional, disrespectful, and distracting to others.

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. Students are responsible for material presented and announcements made in each class. Students who miss class (a rare occurrence!) are responsible for obtaining material from another student BEFORE seeing the instructor about content missed. Borderline grades may be raised or lowered depending upon student's professional commitment.

University Policies

- ! Academic Integrity (from the Office of Student Conduct and Ethical Development): "Your own commitment to learning, as evidenced by your enrollment at San José State University, and the University's Academic Integrity Policy, requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the Office of Student Conduct and Ethical Development." The policy on academic integrity can be found at http://sa.sjsu.edu/student_conduct. Plagiarism and cheating are serious offenses; minimally, the assignment or exam will receive 0 points. Students should carefully read the attached information on academic integrity and plagiarism.
- ! Campus policy in compliance with the Americans with Disabilities Act: "If you need course adaptations or accommodations because of a disability, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with DRC to establish a record of their disability."
DRC: Admin 110, 924-6000
- ! February 6 is the last day to drop this course without a "W" being assigned. According to University policy, dropping this course after Feb. 6 is permissible only for serious and compelling reasons, and requires written documentation. Unsatisfactory performance in course work is not a serious and compelling reason. The last day to add the course is Feb. 13. However, students who receive add codes should use them as soon as possible.

Evaluation

Class contributions & in-class activities (SLO#1, 4)	10%
Observations report (SLO#5) - Due Thurs., Apr. 5	15%
Exercise programming case study (SLO#1, 2, 3, 4, 5) - Due Thurs., Apr. 26	15%
Quizzes (SLO#1, 2, 3, 4, 6)	20%
Midterm exam (SLO#1, 2, 3, 4, 6) - Thurs., Mar. 15	20%
Final exam (comprehensive) (SLO#1, 2, 3, 4, 6) - Fri., May 18, 12:15-2:30 pm	20%

Written Projects (Observations Report, Exercise Programming Case Study)

Written work must be typed, double spaced, and proofread. (Check for grammar, spelling, and syntax -- if in doubt, look it up!). Grades will be lowered for late assignments as follows:

Due Date	Received	Grade Lowered
Tuesday	After class Tues. through Wed.	1 grade step (e.g., A- → B+)
	Thurs. or Fri.	2 grade steps (e.g., A- → B)
	Following Mon. or Tues.	1 full grade (e.g., A- → B-)
Thursday	After class Thurs. through Fri.	1 grade step
	Following Mon. or Tues.	2 grade steps
	Following Wed. or Thurs.	1 full grade

Students must speak with the instructor regarding assignments that are more than 1 week late.

- **Observations Report**

Students will write a report after visiting and observing **two** exercise programs for individuals with special conditions or chronic diseases. Specific guidelines and possible observation sites are included in the course reader.

- **Exercise Programming Case Study**

Students will develop an exercise program for an individual based on case study information. Specific guidelines are included in the course reader. Case studies will be distributed in class.

Quizzes

Quizzes will cover lecture and reading material previously discussed in class. Scantrons may be required (type TBA). The lowest quiz score will be dropped.

Midterm and Final Exams

A scantron (type TBA) and #2 pencil are needed for the midterm and final exams. Exams may include true-false, multiple choice, matching, and short answer questions and problems.

Make-up quizzes and 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 exam must be completed before the next class meeting. All requests for make-up exams will be evaluated on an individual basis. The final exam will NOT be given early.

Grading

Grading is based on percentage of total points earned as follows:

97-100%	A+	77-79%	C+	Below 60%	F
93-96%	A	73-76%	C		
90-92%	A-	70-72%	C-		
87-89%	B+	67-69%	D+		
83-86%	B	63-66%	D		
80-82%	B-	60-62%	D-		

Example

Component	% Earned	%	X	Points Possible	=	Points Earned
Class Contributions/Activities	88%	.88	X	10	=	8.8
Observations Report	94%	.94	X	15	=	14.1
Exercise Programming Case Study	92%	.92	X	15	=	13.8
Quizzes (average %)	80%	.80	X	20	=	16.0
Midterm Examination	79%	.79	X	20	=	15.8
Final Examination	90%	.90	X	20	=	18.0
						86.5
						Grade: B+



The following information on academic integrity has been excerpted from the San José State University Academic Integrity Policy (policy F06-1). The complete policy is available at http://sa.sjsu.edu/student_conduct.

“Your own commitment to learning, as evidenced by your enrollment at San José State University, and the University’s Academic Integrity Policy requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the Office of Student Conduct and Ethical Development.”

SAN JOSE STATE UNIVERSITY ACADEMIC INTEGRITY POLICY

The University emphasizes responsible citizenship and an understanding of ethical choices inherent in human development. Academic honesty and fairness foster ethical standards for all those who depend upon the integrity of the university, its courses, and its degrees. This policy sets the standards for such integrity and shall be used to inform students, faculty and staff of the university’s Academic Integrity Policy. The public is defrauded if faculty and/or students knowingly or unwittingly allow dishonest acts to be rewarded academically, and the university’s degrees are compromised.

Student Role

It is the role and obligation of each student to:

1. Know the rules that preserve academic integrity and abide by them at all times. This includes learning and following the particular rules associated with specific classes, exams and/or course assignments. Ignorance of these rules is not a defense to the charge of violating the Academic Integrity Policy.
2. Know what the consequences of violating the Academic Integrity Policy will be, students’ appeal rights, and the procedures to be followed in the appeal.
3. Foster academic integrity among peers.

1.0 Definitions of Academic Dishonesty

1.1 Cheating

At SJSU, cheating is the act of obtaining or attempting to obtain credit for academic work through the use of any dishonest, deceptive, or fraudulent means. Cheating at SJSU includes, but is not limited to:

- 1.1.1 Copying, in part or in whole, from another's test or other evaluation instrument including homework assignments, worksheets, lab reports, essays, summaries, quizzes, etc.;
- 1.1.2 Submitting work previously graded in another course unless this has been approved by the course instructor or by departmental policy;
- 1.1.3 Submitting work simultaneously presented in two courses, unless this has been approved by both course instructors or by the department policies of both departments;
- 1.1.4 Using or consulting, prior to, or during an examination, sources or materials not authorized by the instructor;
- 1.1.5 Altering or interfering with the grading process;
- 1.1.6 Sitting for an examination by a surrogate, or as a surrogate;
- 1.1.7 Any other act committed by students in the course of their academic work which defrauds or misrepresents, including aiding or abetting in any of the actions defined above.

1.2 Plagiarism

At SJSU, plagiarism is the act of representing the work of another as one's own without giving appropriate credit, regardless of how that work was obtained, and/or submitting it to fulfill academic requirements. Plagiarism at SJSU includes, but is not limited to:

- 1.2.1 The act of incorporating the ideas, words, sentences, paragraphs, or parts of, and/or the specific substance of another's work, without giving appropriate credit, and/or representing the product as one's own work;
- 1.2.2 Representing another's artistic/scholarly works such as musical compositions, computer programs, photographs, paintings, drawing, sculptures, or similar works as one's own.

2.0 Notification of Standards of Detecting Plagiarism

- 2.1 SJSU or its faculty may subscribe to and/or use plagiarism detection services.

PROPOSED SCHEDULE

(Subject to change with fair notice – changes will be announced in class)

Date	Content	Reading Assignments
Thurs., Jan. 26	Introduction & course overview, benefits and risks of physical activity	<i>Guide: Chap. 1</i>
Tues., Jan. 31	Exercise testing & programming for healthy individuals and diverse populations	CDD: Prefaces, Chaps. 1, 2 <i>Guide: Chap. 2, pp. 42-45</i>
Thurs., Feb. 2	Exercise testing & programming (con't)	CDD: Chaps. 3, 4 <i>Guide: pp. 53-58, 60-62, skim 71-95, 98-101; Chap. 7</i>
Tues., Feb. 7	Exercise testing & programming (con't) Quiz #1 (Benefits & risks of physical activity, exercise testing & programming)	
Thurs., Feb. 9	Obesity	CDD: Chap. 25 <i>Guide: pp. 62-71, 253-256</i>
Tues., Feb. 14	Obesity (con't) Quiz #2 (Exercise testing & programming)	
Thurs., Feb. 16	Hypertension	CDD: Chap. 14 <i>Guide: pp. 46-48, 248-250</i>
Tues., Feb. 21	Hypertension Quiz #3 (Obesity)	
Thurs., Feb. 23	Dyslipidemia	CDD: Chap. 22 <i>Guide: pp. 48-49, 244-246</i>
Tues., Feb. 28	TBA Quiz #4 (Hypertension)	
Thurs., Mar. 1	Cardiovascular conditions: angina & ischemia	CDD: Chap. 8 <i>Guide: pp. 96-97, Chap. 9</i>
Tues., Mar. 6	Cardiovascular conditions: myocardial infarction, CABG, & PTCA Quiz #5 (Dyslipidemia)	CDD: Chaps. 6, 7 <i>Guide: pp. 96-97, skim Chaps. 5, 6</i>
Thurs., Mar. 8	Cardiovascular conditions (con't)	
Tues., Mar. 13	Catch-up & review	
Thurs, Mar. 15	MIDTERM EXAM	

Date	Content	Reading Assignments
Tues., Mar. 20	Low back pain	CDD: Chap. 35
Thurs., Mar. 22	Older adults	<i>Guide: pp. 96, 190-194</i>
Tues., Mar. 27	SPRING BREAK	
Thurs., Mar. 29	SPRING BREAK	
Tues., Apr. 3	Osteoporosis & frailty Quiz #6 (Low back pain)	CDD: Chaps. 26, 36 <i>Guide: pp. 256-258</i>
Thurs., Apr. 5	Arthritis DUE: Observations report	CDD: Chap. 34 <i>Guide: pp. 225-228</i>
Tues., Apr. 10	TBA Quiz #7 (Older adults, osteoporosis & frailty)	
Thurs., Apr. 12	Diabetes	CDD: Chap. 24 <i>Guide: pp. 232-237, 250-253</i>
Tues., Apr. 17	Diabetes (con't) Quiz #8 (Arthritis)	
Thurs., Apr. 19	Diabetes (con't)	
Tues., Apr. 24	Asthma Quiz #9 (Diabetes)	CDD: Chap. 19 <i>Guide: pp. 51-53, 260-264</i>
Thurs., Apr. 26	Chronic obstructive pulmonary disease DUE: Exercise programming	CDD: Chap. 17
Tues., May 1	TBA Quiz #10 (Asthma)	
Thurs., May 3	Pregnancy & postpartum	<i>Guide: pp. 183-187</i>
Tues., May 8	Children & youth Quiz #11 (COPD)	CDD: Chap. 5 <i>Guide: pp. 97-98, 187-189</i>
Thurs., May 10	Cancer	CDD: Chap. 27 <i>Guide: pp. 228-232</i>
Tues., May 15	Catch-up & review	
Fri., May 18 12:15-2:30 pm	FINAL EXAM	

§ Readings from *ACSM's exercise management for persons with chronic diseases and disabilities* are preceded by CDD and in regular typeface.

§ Readings from *ACSM's guidelines for exercise testing and prescription (Guide)* are indicated in italics.

§ Medications are covered in the Appendix of CDD & Appendix A of the *Guide*.