

BS IN EXERCISE SCIENCE (CLINICAL EXERCISE & REHABILITATION SPECIALIST)

Units required for Major: 60

Total units required for BS: 120

Program Description

Exercise Science program mission is to study the scientific basis of how the human body functions across the lifespan in response to physical activity, exercise and sport. Exercise Science curriculum integrates knowledge from such science disciplines as biology, chemistry, and physiology so that students will gain a deep integrative understanding of human body functions at the mechanical, cellular, organ, and systems levels.

The major in Exercise Science qualifies an individual for career possibilities in cardiac rehabilitation, sports medicine, chiropractic, athletic training, geriatrics, health related fitness programming (fitness and corporate), and further scientific training in graduate school.

The Clinical Exercise and Rehabilitation Specialist concentration is designed for students who want to develop the knowledge, skills, and expertise required to work in a clinical rehabilitation setting. Students who complete this emphasis are prepared for careers in cardiac rehabilitation, clinical exercise physiology, electrophysiology, and clinical graduate programs such as Physical Therapy, Occupational Therapy, and other health related professional preparation programs.

Note: Students graduating with a **BS in Exercise Science** will not be subject to the University's Foreign Language Graduation Requirement. Students who change major may be subject to the University's Foreign Language Graduation Requirement.

Pre-Major Requirements

Freshman or transfer students interested in the BS in Exercise Science are admitted as Pre-Exercise Science Major students.

To change to a BS in Exercise Science, Pre-major students are required to complete the following grade and course requirements and submit a Declaration of Major/Concentration to the Kinesiology Department Office along with transcript copies.

1. An overall GPA of 2.0.
2. Completion of the **Pre-Major required courses** with a "C-" or better. Only first and second attempts will be considered.

Minimum Grade Requirement

All courses counted for the Exercise Science major must be completed with a "C-" or better.

Program Requirements

Code	Title	Units
Required Lower Division Core Courses (17 Units)		
BIO 10	Basic Biological Concepts ¹	3
BIO 22	Introductory Human Anatomy	4
CHEM 1A	General Chemistry I ^{1,2}	5

or CHEM 6A	Introduction to General Chemistry	
CHEM 1B	General Chemistry II	5
or CHEM 6B	Introduction to Organic and Biological Chemistry	
Required Upper Division Core Courses (43 Units)		
BIO 131	Systemic Physiology	4
KINS 151	Kinesiology	3
KINS 151A	Biomechanics	3
KINS 152	Physiology Of Exercise	3
KINS 152A	Fundamentals of Exercise Programs	3
KINS 152S	Energy Production & Sports Performance	3
KINS 144	Analysis of Weight Training & Muscular Fitness	2
KINS 153	Cardiovascular Testing and Exercise Prescription	3
KINS 156	Care Of Athletic Injuries	3
KINS 158	Motor Learning and Control	3
Clinical Exercise & Rehabilitation Specialist Concentration		13
Total Units		60

¹ Course also satisfies General Education (GE)/Graduation Requirement.

Clinical Exercise & Rehabilitation Specialist Concentration

In prior consultation with an exercise science advisor, a minimal of 13 units from the recommended list of courses below are required in **addition to the core courses above:**

Code	Title	Units
Select 13 units from the following:		
BIO 39	Microbiology for Allied Health Students	
BIO 106	Genetics: From Mendel to Molecules	
BIO 122	Advanced Human Anatomy	
BIO 123	Neuroanatomy	
BIO 130	Histology	
BIO 132	Neurophysiology	
BIO 133	Cardiovascular, Respiratory and Renal Physiology	
CHEM 20	Organic Chemistry Lecture–Brief Course	
CHEM 161	General Biochemistry	
NUFD 10	Nutrition And Wellness	
NUFD 113	Nutrition And Metabolism ¹	
KINS 122B	Cardiopulmonary Resuscitation	
KINS 151B	Biomechanics II	
KINS 153C	Cardiac Rehabilitation & Exercise Electrocardiography	
KINS 154A	Principles and Techniques in a Clinical Setting	
NURS 14	Pharmacology	
PHYS 5A	General Physics: Mechanics, Heat, Sound ¹	
PHYS 5B	General Physics: Light, Electricity and Magnetism, Modern Physics	
PSYC 150	Psychological Aspects of Aging	
or PSYC 168	Abnormal Psychology	
STAT 1	Introduction to Statistics ¹	
Total Units		13

¹ Course also satisfies General Education (GE)/Graduation Requirement.

General Education Requirements ¹

Code	Title	Units
Area A: Basic Subjects (9 Units)		
A1	Oral Communication	3
A2	Written Communication	3
A3	Critical Thinking	3
Area B: Physical Universe and Its Life Forms (13-19 Units)		
B1	Physical Science ²	5
B2	Life Forms ²	3
B3	Lab (Note: Lab experience to be taken with one of the following: B1, B2 or B5) ²	5
B4	Math Concepts ³	0-3
B5	Additional Course (Any B to reach 12 units) - Take upper-division course to complete Area & upper division requirements. ⁴	0-3
Area C: Arts and Humanities (12 Units)		
C1	Arts	3
C2	Humanities	3
C1/C2	Area C Course	3
C1/C2	Area C Course - Take upper-division course to complete Area & upper division requirements.	3
Area D: The Individual and Society (12 Units)		
	Area D Course	3
	Area D Course	3
	Area D Course	3
	Area D Course - Take upper-division course to complete Area & upper division requirements.	3
Area E: Understanding Personal Development (0-3 Units)		
	Area E Course ⁵	0-3
Total Units		46-55

¹ To help you complete your degree in a timely manner and not take more units than absolutely necessary, there are ways to use single courses to meet more than one requirement (overlap). For further information, please visit the General Education page (<https://catalog.csus.edu/colleges/academic-affairs/general-education/>).

Note: There is no way to list all possible overlaps so please consult with a professional advisor. The Academic Advising Center can be visited online (<http://www.csus.edu/acad/>), by phone (916) 278-1000, or email (advising@csus.edu).

² Required in Major; also satisfies GE.

³ Department offers students a "select from the following option" within the Concentration:

- If student chooses to take STAT 1, they will meet Area B4.

⁴ Department offers students a "select from the following option" within the Concentration:

- If student chooses to take NUFD 113, they will meet Area B5.

⁵ Department offers students a "select from the following option" within the Concentration:

- If student chooses to take NUFD 10, they will meet Area E.

Graduation Requirements ¹

Code	Title	Units
Graduation Requirements (required by CSU) (9 Units)		
	American Institutions: U.S. History	3
	American Institutions: U.S. Constitution & CA Government	3
	Writing Intensive (WI)	3
Graduation Requirements (required by Sacramento State) (6 Units)		
	English Composition II	3
	Race and Ethnicity in American Society (RE)	3
	Foreign Language Proficiency Requirement ²	0

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Note: There is no way to list all possible overlaps so please consult with a professional advisor. The Academic Advising Center can be visited online (<http://www.csus.edu/acad/>), by phone (916) 278-1000, or email (advising@csus.edu).

² If not satisfied before entering Sacramento State, it may be satisfied in General Education Area C2 (Humanities). "C- or better required." The alternative methods for satisfying the Foreign Language Proficiency Requirement are described here: <https://www.csus.edu/college/arts-letters/world-languages-literatures/foreign-language-requirement.html>

Note: Students with a declared major of BS in Exercise Science are exempt from the Foreign Language Graduation Requirement.

Career Options: Cardiovascular Technologists and Technicians, Exercise Physiologists, Physical Therapists, Occupation Therapists, Physician Assistants, Emergency Medical Technicians, Chiropractors, Sports Medicine Physicians, Physical#Medicine#and#Rehabilitation#Physicians, Health Education Specialists

The following roadmaps are sample planning resources. Please consult your academic advisor and Academic Catalog for graduation requirements as you develop your individualized academic plan.

Exercise Science (Clinical Exercise and Rehabilitation Specialist), BS: 4-Year Roadmap

Course	Title	Units
Year 1		
First Semester		
BIO 10	Basic Biological Concepts	3
NUFD 10	Introduction to Nutrition	3
GE Area 1A - English Composition ²		3
GE Area 1B - Critical Thinking ²		3
Elective of Choice		3
Units		15
Second Semester		
BIO 22	Introductory Human Anatomy	4
STAT 1	Introduction to Statistics	3
GE Area 1C - Oral Communication ²		3
GE Area 6 - Ethnic Studies ²		3

GR American Institutions (US History) ²		3
Units		16
Year 2		
First Semester		
CHEM 1A or CHEM 6A	General Chemistry I ³ or Introduction to General Chemistry	5
ENGL 20	College Composition II	3
GE Area 3A - Arts ²		3
GE Area 3B - Humanities ²		3
Units		14
Second Semester		
CHEM 1B or CHEM 6B	General Chemistry II ³ or Introduction to Organic and Biological Chemistry	5
PSYC 2	Introductory Psychology	3
KINS Activity Course ³		1
GR American Institutions (GOVT) ²		3
Elective of Choice		3
Units		15
Year 3		
First Semester		
BIO 131	Systemic Physiology	4
KINS 144	Analysis of Weight Training & Muscular Fitness	2
KINS 151	Kinesiology	3
Upper Division GE Area 4 - Social & Behavioral Sciences ²		3
Elective of Choice		3
Units		15
Second Semester		
KINS 151A	Biomechanics	3
KINS 152	Physiology Of Exercise	3
KINS 156	Care Of Athletic Injuries	3
NUFD 113	Nutrition And Metabolism	3
Clinical Exercise & Rehabilitation Specialist Elective ³		3
Units		15
Year 4		
First Semester		
KINS 152A	Fundamentals of Exercise Programs	3
KINS 152S	Energy Production & Sports Performance	3
KINS 153	Cardiovascular Testing and Exercise Prescription	3
KINS 158	Motor Learning and Control	3
Clinical Exercise & Rehabilitation Specialist Elective ³		3
Units		15
Second Semester		
Clinical Exercise & Rehabilitation Specialist Elective ³		3
Clinical Exercise & Rehabilitation Specialist Elective ³		3
Upper Division GE Area 3 - Arts or Humanities + Writing Intensive ²		3
Upper Division GE Area 5 or 2 - Science or Mathematical Concepts/Quantitative Reasoning ²		3
Elective of Choice		3
Units		15
Total Units		120

Exercise Science (Clinical Exercise & Rehabilitation Specialist), BS: 2-Year Roadmap

Course	Title	Units
Year 1		
First Semester		
BIO 131	Systemic Physiology	4
KINS 144	Analysis of Weight Training & Muscular Fitness	2
KINS 151	Kinesiology	3
Upper Division GE Area 4 - Social & Behavioral Sciences ²		3
GR American Institutions (US History) ²		3
Units		15
Second Semester		
KINS 151A	Biomechanics	3
KINS 152	Physiology Of Exercise	3
KINS 156	Care Of Athletic Injuries	3
NUFD 113	Nutrition And Metabolism	3
Clinical Exercise & Rehabilitation Specialist Elective ³		3
Units		15
Year 2		
First Semester		
KINS 152A	Fundamentals of Exercise Programs	3
KINS 152S	Energy Production & Sports Performance	3
KINS 153	Cardiovascular Testing and Exercise Prescription	3
KINS 158	Motor Learning and Control	3
Clinical Exercise & Rehabilitation Specialist Elective ³		3
Units		15
Second Semester		
Clinical Exercise & Rehabilitation Specialist Elective ³		3
Clinical Exercise & Rehabilitation Specialist Elective ³		3
Upper Division GE Area 3 - Arts or Humanities + Writing Intensive ²		3
Upper Division GE Area 5 or 2 - Science or Mathematical Concepts/Quantitative Reasoning ²		3
GR American Institutions (GOVT) ²		3
Units		15
Total Units		60

- Any course not completed in the first semester should be taken in the second or a later semester.
- Please see General Education/Graduation Requirement **course options** (<https://catalog.csus.edu/colleges/engineering-computer-science/engineering-civil/bs-in-civil-engineering/colleges/academic-affairs/general-education/>).
- Please see an academic advisor for elective options.