EXERCISE AND SPORT SCIENCE MAJOR, B.S.

Exercise and sport science examines the physics, physiology, psychology of sport and exercise, and the recognition and treatment of athletic injuries. The undergraduate program in exercise and sport science offers students a chance to go beyond the ordinary. This fast-paced and popular program is designed for passionate students ready to engage in hands-on experience in cutting-edge science. The B.S. program will prepare students for graduate program in the health sciences, such as physical therapy, occupational therapy, athletic training, physician's assistant, and medicine.

Student Learning Outcomes

Upon completion of the Exercise and Sport Science program, students should be able to:

- Demonstrate the ability to apply fundamental concepts of human physiology to explain how the human body responds to exercise and changing environments
- Describe neuromuscular control systems and concepts related to movement and motor skill acquisition, retention, and transfer
- Describe biomechanical and anatomical concepts of human motion and apply these concepts to understanding exercise, performance, and injury
- Demonstrate proficiency in the design, application and interpretation of research methods and scientific data commonly used in Exercise and Sport Science
- Integrate the content and approach of the natural sciences into Exercise and Sport Science.
- Prepare students to pursue graduate education and/or employment in areas related to Exercise and Sport Science, especially those related to the allied health/medical sciences.

Requirements

In addition to the program requirements, students must

- earn a minimum final cumulative GPA of 2.000
- complete a minimum of 45 academic credit hours earned from UNC–Chapel Hill courses
- take at least half of their major core requirements (courses and credit hours) at UNC–Chapel Hill
- earn a minimum cumulative GPA of 2.000 in the major core requirements. Some programs may require higher standards for major or specific courses.

For more information, please consult the degree requirements section of the catalog (https://catalog.unc.edu/undergraduate/degree-requirements/).

Code	Title	Hours
Core Requirements		
EXSS 155	Human Anatomy and Physiology I [H, F]	3
EXSS 256	Human Anatomy and Physiology II	3
EXSS 273	Research in Exercise and Sport Science	3
EXSS 376	Physiological Basis of Human Performance	4
EXSS 380	Neuromuscular Control and Learning [H]	3
EXSS 385	Biomechanics of Sport	3
Five elective courses from the following list, with at least 9 credits from courses numbered 400 and above:		13-15
EXSS 181	Sport and Exercise Psychology	
EXSS 265	Fundamentals of Sports Medicine	
EXSS 275L	Human Anatomy Laboratory	
EXSS 288	Emergency Care of Athletic Injuries and Illnesses	
EXSS 360	Sports Nutrition	
EXSS 366	Foundations of Sports Medicine Rehabilation	
EXSS 395	Undergraduate Research Course	
EXSS 408	Theory and Application of Strength Training and Conditioning for Fitness Professionals	
EXSS 409	Exercise Prescription for Special Populations	
EXSS 410	Exercise Testing and Prescription	
EXSS 433L	Exercise Technique	
EXSS 450	Essentials of Corrective Exercise Training	
EXSS 475	Functional Anatomy	
EXSS 478	Sports Performance Training	
EXSS 573	Sport Injury Epidemiology	
EXSS 576	Exercise Endocrinology	
EXSS 580	Neuromechanics of Human Movement	
EXSS 581	Biopsychosocial Aspects of Sport Injury	
EXSS 694H	Senior Honors Thesis	
Additional Requirements		
BIOL 101 & 101L	Principles of Biology and Introductory Biology Laboratory [H, F]	4
Select three courses from the following options:		12
CHEM 101 & 101L	General Descriptive Chemistry I and Quantitative Chemistry Laboratory I [H, F]	
CHEM 102 & 102L	General Descriptive Chemistry II and Quantitative Chemistry Laboratory II [H, F]	
PHYS 114	General Physics I: For Students of the Life Sciences [F]	
or PHYS 118	Introductory Calculus-based Mechanics and Relativity	
PHYS 115	General Physics II: For Students of the Life Sciences [F]	
or PHYS 119	Introductory Calculus-based Electromagnetism and Quanta	
MATH 231	Calculus of Functions of One Variable I [H, F]	
A choice of four additional allied sciences electives, selected from the course list below (some courses are more than 3 credits) [1]		12
Total Hours		**60-62**

H Honors version available. An honors course fulfills the same requirements as the nonhonors version of that course. Enrollment and GPA restrictions may apply.

F FY-Launch class sections may be available. A FY-Launch section fulfills the same requirements as a standard section of that course, but also fulfills the FY-SEMINAR/FY-LAUNCH First-Year Foundations requirement. Students can search for FY-Launch sections in ConnectCarolina using the FY-LAUNCH attribute.

[1] Courses must be selected from at least two subject codes, one of which must be a life sciences subject code. No special topics courses (i.e., 190) can satisfy this requirement.

Allied Science Electives

Code	Title	Hours
Anthropology [1]		
ANTH 143	Human Evolution and Adaptation	3
ANTH 148	Human Origins	3
ANTH 151	Anthropological Perspectives on Food and Culture	3
ANTH 217	Human Biology in Comparative Perspective	3
ANTH 298	Biological Anthropology Theory and Practice	3
ANTH 315	Human Genetics and Evolution	3
ANTH 318	Human Growth and Development	3
ANTH 412	Paleoanthropology	3
ANTH 413	Laboratory Methods: Archaeobotany	3
ANTH 414	Laboratory Methods: Human Osteology	3
ANTH 415	Laboratory Methods: Zooarchaeology	3
ANTH 416	Bioarchaeology	3
ANTH 423	Written in Bone: CSI and the Science of Death Investigation from Skeletal Remains	3
ANTH 437	Evolutionary Medicine	3
ANTH 470	Medicine and Anthropology	3
ANTH 471	Biocultural Perspectives on Maternal and Child Health	3
Biology [1]		
BIOL	Any three credit-hour class above BIOL 101 Principles of Biology, except BIOL 271, BIOL 272, BIOL 273	
Biochemistry [1]		
BIOC 107	Introduction to Biochemistry	4
BIOC 108	Introduction to Biochemistry	4
Biomedical Engineering [1]		
BMME 150	Introduction to Materials Science	3
BMME 207	Biomedical Electronics	4
BMME 301	Human Physiology: Electrical Analysis	4
BMME 315	Biotransport	3
BMME 335	Biomaterials	3
BMME 385	Bioinstrumentation	3
BMME 435	Biological Physics	3
BMME 505	Skeletal Biomechanics	3
BMME 521	Introduction to Synthetic Biology	3
BMME 543	Biomechanics of Movement	3
BMME 545	Systems Neuroscience	3
BMME 555	Biofluid Mechanics	3
BMME 572	Analysis of Tissue Engineering Technologies	3
BMME 585	Biotechnology	3
Biostatistics		
BIOS	Any course above BIOS 500H, except BIOS 540, BIOS 543, BIOS 690, BIOS 691, BIOS 693H, BIOS 694H	
Chemistry		
CHEM	Any three credit-hour class above CHEM 102/102L	
Computer Science		
COMP	Any COMP course	
Earth, Marine, and Environmental Sciences [1]		
EMES	Any three credit-hour course above 100, except EMES 190, EMES 390, EMES 395, EMES 396, EMES 412, EMES 490, EMES 590, EMES 691H, and EMES 692H	
Environment, Ecology and Energy [1]		
ENEC 108	Our Energy and Climate Crises: Challenges and Opportunities	4
ENEC 202	Introduction to the Environmental Sciences	4
ENEC 220	North Carolina Estuaries: Environmental Processes and Problems	3
ENEC 222	Estuarine and Coastal Marine Science	4
ENEC 256	Mountain Biodiversity	4
ENEC 304	Restoration Ecology	4
ENEC 324	Water in Our World: Introduction to Hydrologic Science and Environmental Problems	3
ENEC 352	Marine Fisheries Ecology	3
ENEC 403	Environmental Chemistry Processes	3
ENEC 406	Atmospheric Processes II	4
ENEC 410	Earth Processes in Environmental Systems	4
ENEC 411	Oceanic Processes in Environmental Systems	4
ENEC 415	Environmental Systems Modeling	3
ENEC 416	Environmental Meteorology	3
ENEC 431	Sustainable Cities: Exploring Ways of Making Cities More Sustainable	3
ENEC 450	Biogeochemical Processes	4
ENEC 462	Ecosystem Management	3
ENEC 471	Human Impacts on Estuarine Ecosystems	4
ENEC 479	Landscape Analysis	3
ENEC 489	Ecological Processes in Environmental Systems	4
ENEC 530	Principles of Climate Modeling	3
ENEC 562	Statistics for Environmental Scientists	4
ENEC 567	Ecological Analyses and Application	3
Environmental Sciences and Engineering		
ENVR 205	Engineering Tools for Environmental Problem Solving	3
ENVR 403	Environmental Chemistry Processes	3
ENVR 411	Laboratory Techniques and Field Measurements	3
ENVR 412	Ecological Microbiology	3
ENVR 413	Limnology	3
ENVR 416	Aerosol Physics and Chemistry	4
ENVR 419	Chemical Equilibria in Natural Waters	3
ENVR 421	Environmental Health Microbiology	3

ENVR 425	Introduction to Health Physics: Radiation and Radiation Protection	3
ENVR 430	Health Effects of Environmental Agents	3
ENVR 451	Introduction to Environmental Modeling	3
ENVR 453	Groundwater Hydrology	3
ENVR 468	Temporal GIS and Space/Time Geostatistics for the Environment and Public Health	3
ENVR 470	Environmental Risk Assessment	3
ENVR 472	Quantitative Risk Assessment in Environmental Health Microbiology	3
ENVR 514	Measurement of NOx, O3, and Volatile Organic Compounds	3
ENVR 575	Global Climate Change: Science, Impacts, Solutions	3
ENVR 630	Systems Biology in Environmental Health	3
ENVR 661	Scientific Computation I	3
ENVR 662	Scientific Computation II	3
ENVR 666	Numerical Methods	3
ENVR 668	Methods of Applied Mathematics I	3
ENVR 669	Methods of Applied Mathematics II	3
ENVR 671	Environmental Physics I	3
ENVR 672	Environmental Physics II	3
ENVR 675	Air Pollution, Chemistry, and Physics	3
Geography		
GEOG 110	The Blue Planet: An Introduction to Earth's Environmental Systems [H]	3
GEOG 111	Weather and Climate	3
GEOG 212	Environmental Conservation and Global Change	3
GEOG 253	Introduction to Atmospheric Processes	4
GEOG 391	Quantitative Methods in Geography	3
GEOG 412	Synoptic Meteorology	3
GEOG 414	Climate Change	3
GEOG 416	Applied Climatology: The Impacts of Climate and Weather on Environmental and Social Systems	3
GEOG 440	Earth Surface Processes	3
GEOG 441	Introduction to Watershed Systems	3
GEOG 442	Limnology and Freshwater Ecology	3
Mathematics		
Any class above MATH 231 Calculus of Functions of One Variable I		
Microbiology [1]		
MCRO 251	Introductory Medical Microbiology	4
Nutrition [1]		
NUTR 240	Introduction to Human Nutrition	3
NUTR 600	Human Metabolism: Macronutrients	3
NUTR 620	Human Metabolism: Micronutrients	3
Psychology [1]		
Any PSYC course above PSYC 101 General Psychology		
Neuroscience [1]		
Any NSCI course		
Statistics and Operations Research		
Any STOR course above 155 Introduction to Statistics		

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1 Life sciences subject code.

Special Opportunities in Exercise and Sport Science

Honors in Exercise and Sport Science

The senior honors program provides exercise and sport science majors the opportunity to pursue an independent, two-semester research project. A student must have an overall grade point average of 3.3 or above prior to acceptance into the departmental honors program and must maintain an overall average of 3.3 or above to remain in the program. Students complete EXSS 693H and EXSS 694H. Honors study involves the completion of a substantial piece of original research and the formal oral presentation of the results. Those successfully completing the program are awarded their degree with either honors or highest honors. Previous senior honors thesis topics and more information can be found on the EXSS department web page. Please contact Dr. J.D. DeFreese (defreese@email.unc.edu) by email if you are interested.

Departmental Involvement

In addition to its academic offerings, the department houses many research laboratories, and the campus recreation program. Both provide experiences outside the classroom. Students may also affiliate with the Carolina Sports Business Club and the Carolina Sport Administration Club.

Experiential Education/High-Impact Experience

The following courses satisfy the experiential education requirement in the Making Connections curriculum and *some* satisfy the high-impact experience requirement in the IDEAs in Action curriculum.

Code	Title	Hours
EXSS 51	First-Year Seminar: Entrepreneurship in Human Performance and Sport	3
EXSS 207	Coaching Principles	3
EXSS 393	Sports Medicine Clinical	1
EXSS 395	Undergraduate Research Course	1-3
EXSS 420	Program Planning in Recreation Services	3
EXSS 493	Field Experience in Sport Administration	3
EXSS 593	Practicum in Physical Fitness and Wellness	1-3
EXSS 693H	Senior Honors Thesis	3
EXSS 694H	Senior Honors Thesis	3

Laboratory Teaching Internships and Assistantships

The fitness professional students serve a practicum with local fitness organizations.

Study Abroad

The Department of Exercise and Sport Science offers summer study abroad programs depending on faculty availability. Refer to the department's website and the study abroad website for more information.

For other study abroad experiences the department will gladly work with its majors in advance of the experience to determine appropriate credit.

Undergraduate Awards

The Patrick F. Earey Award, named in honor of a longtime faculty member, is given annually to the outstanding senior major in the department. The award signifies exemplary leadership, academic achievement, and extracurricular involvement by a senior exercise and sport science major.

The Ronald W. Hyatt Scholarship, named in honor of the late Dr. Hyatt, one of Carolina's "priceless gems" and a faculty member in the department, is a merit-based scholarship awarded annually to an outstanding full-time undergraduate exercise and sport science major with junior status.

Undergraduate Research

Students are encouraged to explore research interests by taking EXSS 395, completing independent research studies, or writing senior honors theses. Please review the EXSS website under the research laboratories tab to determine where your research interest lies. Contacting individual faculty in your area of interest is encouraged, or reach out to J.D. DeFreese (defreese@email.unc.edu), the EXSS director of undergraduate research.

Department Programs

Majors

- Exercise and Sport Science Major, B.A.–General (https://catalog.unc.edu/undergraduate/programs-study/exercise-sport-science-major-ba-general/)
- Exercise and Sport Science Major, B.A.–Fitness Professional (https://catalog.unc.edu/undergraduate/programs-study/exercise-sport-science-major-ba-fitness-professional/)
- Exercise and Sport Science Major, B.A.–Sport Administration (https://catalog.unc.edu/undergraduate/programs-study/exercise-sport-science-major-ba-sport-administration/)
- Exercise and Sport Science Major, B.S. (p. 1)

Minors

- Coaching Education Minor (https://catalog.unc.edu/undergraduate/programs-study/coaching-education-minor/)
- Exercise and Sport Science Minor (https://catalog.unc.edu/undergraduate/programs-study/exercise-sport-science-minor/)
- Sports Medicine Minor (https://catalog.unc.edu/undergraduate/programs-study/sports-medicine-minor/)

Graduate Program

- M.A. in Exercise and Sport Science (https://catalog.unc.edu/graduate/schools-departments/exercise-sport-science/)

Contact Information

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