

# Exercise Science

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## Department Information

- **Department Web Site:**  
[www.ndsu.edu/hnes/](http://www.ndsu.edu/hnes/) (<http://www.ndsu.edu/hnes/>)
- **Credential Offered:**  
B.S.
- **Official Program Curriculum:**  
[catalog.ndsu.edu/undergraduate/program-curriculum/exercise-science/](http://catalog.ndsu.edu/undergraduate/program-curriculum/exercise-science/) (<http://catalog.ndsu.edu/undergraduate/program-curriculum/exercise-science/>)

Large corporations, hospitals, colleges, small businesses, resorts and hotels are incorporating more health promotion services than ever before. The exercise science (ES) major at North Dakota State University prepares students to meet this growing demand. The exercise science major is accredited by the Commission on Accreditation of Allied Health Education Programs adopted by the American College of Sports Medicine (ACSM). This curriculum covers the knowledge, skills and abilities expected of an ACSM Certified Exercise Physiologist.

## Exercise Science Major Overview

The ES major is designed to prepare students for entry-level positions in any of the four health-fitness settings: commercial, community, corporate or clinical. Completion of the ES major may act as a stepping stone to prepare the exceptional student for graduate education in exercise physiology/science, cardiac rehabilitation, physical therapy, occupational therapy, sports medicine, biomechanics or other allied health disciplines.

The ES major includes everything from the study of physical activity and the associated acute and chronic physiological responses and adaptations resulting from it, to health-fitness business management principles found in facilities worldwide. Students are strongly encouraged to select a minor in business or other appropriate area depending on their interests. Several field experience courses during the four-year program, as well as a capstone experience involving a semester-long internship required at the end of the ES major, afford students the opportunity to select an area of specialization in the field at sites available throughout the country.

## Academic Program Learning Outcomes

Students in the exercise science program at NDSU engage in both didactic and experiential learning. Students will gain knowledge in several areas, including anatomy, kinesiology, biomechanics, behavior modification, physiology of exercise, cardiovascular and resistance training, and exercise testing and assessment.

Students graduating with an exercise science bachelor's degree should be able to:

- Properly determine and implement appropriate screening and assessment protocols for cardiovascular, muscular strength, muscular endurance, flexibility, and body composition analysis.
- Determine and implement safe and effective exercise programs for all components of health-related fitness for various populations including, but not limited to, those with cardiovascular, pulmonary, metabolic, orthopedic, and musculoskeletal conditions.
- Optimize exercise adoption and adherence through a variety of a professional skills including effective communication and motivational strategies.
- Complete comprehensive risk management, injury prevention, and emergency planning for health and fitness settings.

## Career Options

The following list is not all-inclusive, but does identify some of the most common career and job opportunities in the four health-fitness settings. Exercise science graduates from NDSU (approximately 40 to 50 per year) are employed in these different settings across the country, especially in metropolitan areas. In the past few years, over 90% of exercise science students have either been enrolled in graduate school or have a professional job arranged at the time of graduation.

**Commercial Setting** – The greatest proportion of jobs can be found in for-profit, commercially run health-fitness facilities. The commercial environment is for someone interested in the marketing and sales of health-fitness services and products. This is also a good place for broad exposure to management in the health-fitness industry.

**Community Setting** – Many organizations and agencies serve clients in community settings, including voluntary, not-for-profit entities, as well as public parks and recreation agencies, schools and universities, hotels, country clubs and residential health-fitness developments. Many community-based facilities and programs offer exposure to health-fitness programming coupled with a social and recreational focus.

**Corporate Setting** – In-house health-fitness facilities and services found in large and small-scale businesses are expanding rapidly. The objectives of these facilities may include reductions in employee absenteeism, turnover rates and health care costs, while improving employee wellness, morale and enthusiasm in the workplace.

**Clinical Setting** – Hospital-based health-fitness facilities can be found in one out of every four hospitals, with a forecasted growth to almost one out of every two hospitals expected within the next decade. Most of these facilities are closely associated with outpatient services, such as physical therapy, sports medicine and cardiac rehabilitation, and frequently provide both types of programs in the same facility.

With an undergraduate degree and no experience, a starting salary averages \$38,000 to \$48,000 per year. However, the starting salary for health-fitness professionals is difficult to predict because of such factors as experience, geographic location, employment setting and market demand. It also may depend on licensure and certification. An advanced degree may pay more.

## Pre-Exercise Science and Full Status Tracks

Admission to the pre-exercise science emphasis in ES occurs when the student applies to NDSU and declares an ES major. The pre-exercise science emphasis encompasses the first three semesters; transfer students are placed in the pre-exercise science emphasis upon acceptance. Entrance into the full status emphasis occurs through application at the end of the first semester of sophomore year or as transfer students complete the requirements below. The following requirements must be met before beginning the full status course of study.

1. Successful completion of courses with a grade of B or better:
  - a. BIOL 220/220 L
  - b. CHEM 121/121L
  - c. HNES 170
  - d. MATH 103,104 or higher
2. Minimum grade point average of 3.0
3. Completion of application to full status

Application guidelines are provided during classes (HNES 170) and advising sessions, and are also available on the department website.

## High School Preparation

While in high school, a student should choose courses that provide a solid background in science, mathematics, business and communication. Individual commitment to lifetime fitness and personal health and well-being is very important. Volunteer work at a health-fitness facility and participation in local health fairs may provide valuable experiences in health-fitness programming.

## Sample Program Guide

**IMPORTANT DISCLAIMER:** This guide is not an official curriculum. This guide is a sample four-year degree plan of how students might plan this major with other degree requirements to complete their education in four years. Student plans will vary from this sample due to a variety of factors, such as, but not limited to, start year, education goals, transfer credit, and course availability. To ensure proper degree completion, enrolled students should utilize Degree Map (<https://www.ndsu.edu/registrar/degreemap/>) and Schedule Planner (<https://www.ndsu.edu/onestop/degree-map-and-planning/>) in Campus Connection and consult regularly with academic advisors to ensure graduation requirements are being met.

| Freshman                                           |         |                                                      |           |
|----------------------------------------------------|---------|------------------------------------------------------|-----------|
| Fall                                               | Credits | Spring                                               | Credits   |
| ENGL 110                                           |         | 3 COMM 110                                           | 3         |
| HNES 170                                           |         | 2 CSCI 114 or TL 116                                 | 3         |
| PSYC 111                                           |         | 3 ENGL 120                                           | 3         |
| MATH 103*                                          |         | 3 MATH 105*                                          | 3         |
| Gen Ed Humanities/Fine Art and Global Perspectives |         | 3 Gen Ed Humanities/Fine Arts and Cultural Diversity | 3         |
|                                                    |         | <b>14</b>                                            | <b>15</b> |
| Sophomore                                          |         |                                                      |           |
| Fall                                               | Credits | Spring                                               | Credits   |
| BIOL 220                                           |         | 3 BIOL 221                                           | 3         |
| BIOL 220L                                          |         | 1 BIOL 221L                                          | 1         |
| CHEM 121                                           |         | 3 CHEM 122                                           | 3         |
| CHEM 121L                                          |         | 1 CHEM 122L                                          | 1         |
| PHYS 211                                           |         | 3 HNES 365                                           | 3         |
| PHYS 211L                                          |         | 1 STAT 330                                           | 3         |
| HNES 250                                           |         | 3 Gen Ed Social & Behavioral Sciences                | 3         |

Complete Application to the  
Exercise Science Major\*\*\*

|                               |                |                  |                |
|-------------------------------|----------------|------------------|----------------|
|                               |                | 15               | 17             |
| <b>Junior</b>                 |                |                  |                |
| <b>Fall</b>                   | <b>Credits</b> | <b>Spring</b>    | <b>Credits</b> |
| HNES 374                      |                | 3 HNES 368       | 3              |
| HNES 375                      |                | 3 HNES 370       | 3              |
| HNES 465                      |                | 3 HNES 380       | 3              |
| HNES 465L                     |                | 1 HNES 491       | 1              |
| Free Electives**              |                | 5 Free Electives | 6              |
|                               |                | 15               | 16             |
| <b>Senior</b>                 |                |                  |                |
| <b>Fall</b>                   | <b>Credits</b> | <b>Spring</b>    | <b>Credits</b> |
| HNES 472                      |                | 3 HNES 470       | 3              |
| HNES 476                      |                | 3 HNES 475       | 9              |
| HNES 496                      |                | 1                |                |
| Gen Ed Upper Division Writing |                | 3                |                |
| Free Electives                |                | 6                |                |
|                               |                | 16               | 12             |

**Total Credits: 120**

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MATH 103 is a pre-requisite for STAT 330. MATH 105 is a pre-requisite for PHYS 211. If not needed due to placement scores or transfer, student will need the equivalent amount of credits in free electives.

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Consult your advisor for suggested electives for certain Graduate and Professional programs.

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Students apply for the Exercise Science Major during fall semester of sophomore year.

Application guidelines are provided during HNES 170 (<http://catalog.ndsu.edu/past-bulletin-archive/2024-25/search/?P=HNES%20170>)

Introduction to Exercise Science and during advising sessions with freshmen, as well as on the Exercise Science ([https://www.ndsu.edu/hnes/undergraduate\\_programs/exercise\\_science/program\\_information/](https://www.ndsu.edu/hnes/undergraduate_programs/exercise_science/program_information/)) website. The following requirements must be met before beginning the major course (sophomore, junior and senior level courses with prefix HNES) of study:

1. Successful completion of HNES 170 (<http://catalog.ndsu.edu/past-bulletin-archive/2024-25/search/?P=HNES%20170>) Introduction to Exercise Science with a grade of 'B' or better
2. Successful completion of BIOL 220 (<http://catalog.ndsu.edu/past-bulletin-archive/2024-25/search/?P=BIOL%20220>) Human Anatomy and Physiology I/BIOL 220L (<http://catalog.ndsu.edu/past-bulletin-archive/2024-25/search/?P=BIOL%20220L>) Human Anatomy and Physiology I Laboratory with a grade of 'B' or better
3. Successful completion of MATH 103 (<http://catalog.ndsu.edu/past-bulletin-archive/2024-25/search/?P=MATH%20103>) College Algebra or MATH 104 (<http://catalog.ndsu.edu/past-bulletin-archive/2024-25/search/?P=MATH%20104>) Finite Mathematics or higher with a grade of 'B' or better
4. Successful completion of CHEM 121 (<http://catalog.ndsu.edu/past-bulletin-archive/2024-25/search/?P=CHEM%20121>) General Chemistry I/CHEM 121L (<http://catalog.ndsu.edu/past-bulletin-archive/2024-25/search/?P=CHEM%20121L>) General Chemistry I Laboratory with a grade of 'B' or better
5. Minimum NDSU cumulative GPA of 3.00 or higher