EXERCISE SCIENCE MAJOR (B.S.)

The Exercise Science program prepares students for careers in the health and fitness industry, as well as graduate studies in exercise physiology, physical therapy, occupational therapy, chiropractic, and other health professions.

The Exercise Science program is designed to produce exercise science professionals who will impact the world of sports, fitness, and wellness for our Lord and Savior Jesus Christ. The program will provide the student with the knowledge, skills, and abilities to assess, prescribe exercise for, and monitor clients in a variety of health, wellness, and fitness settings. This program of study provides the student with a thorough immersion into the field of exercise science, by using a combination of classroom, laboratory, practicum, and internship experiences.

The Bachelor of Science degree program in Exercise Science at Liberty University is nationally accredited by the Commission for the Accreditation of Allied Health Education Programs (CAAHEP).

Program Learning Outcomes
The student will be able to:

1. Demonstrate proficiency in basic knowledge of entry-level exercise science professionals.
2. Communicate effectively in the area of exercise science.
3. Plan, implement, and evaluate exercise science related programming.
4. Evaluate research data and apply research techniques.
5. Integrate the biblical worldview within the field of exercise science.

Therapeutic Science Concentration
The student will be able to synthesize knowledge of clinical skills with therapeutic rehabilitation theory.

Program Application Procedures
Acceptance to Liberty University does not guarantee acceptance into the Exercise Science Program (ESP). Entrance into the ESP can be competitive and students must gain entry into the program via the following process:

Program Acceptance: Students interested in becoming part of the Exercise Science Program may initially declare Exercise Science as their major, but declaring Exercise Science as your major does not imply acceptance into the Exercise Science program. Students interested in becoming part of the Exercise Science Program at Liberty University should apply using instructions in the program Admission & Retention Guidelines document located on the Liberty University Exercise Science webpage once the student has met the requirements for full acceptance listed below.

Full Acceptance: Full acceptance into the Exercise Science program will be based upon the successful completion of all requirements during the program acceptance phase and selection by the Exercise Science admissions committee. Application for acceptance can be made twice per year by November 15th for spring acceptance and by April 15th for fall acceptance.

Process and Requirements for Full Acceptance
During the students Program Acceptance phase, application for full acceptance to the program can be initiated. Grades will be reviewed at the end of the semester, with final acceptance contingent upon the successful completion of those courses. The student must meet the following criteria and provide the following information/documentation:

- Candidate must be in good academic standing with the University.
- Must show proof of current student membership to the American College of Sports Medicine.
- Must show proof of current First Aid and CPR certification.
- The certification must be maintained throughout the student's enrollment in the program.
  - Must include adult, child, and infant
  - Must have a 'hands-on' component
  - Must be from one of the following organizations:
    - American Red Cross
    - American Heart Association
    - National Safety Council
- Cumulative GPA of 2.50 or better.
- Have completed BIOL 213 Human Anatomy and Physiology I (3 c.h.)/BIOL 214 Human Anatomy and Physiology I Lab (1 c.h.), BIOL 215 Human Anatomy and Physiology II (3 c.h.)/BIOL 216 Human Anatomy and Physiology II Lab (1 c.h.), EXSC 101 Introduction to Exercise Science (1 c.h.), and EXSC 310 Physiology of Exercise (3 c.h.) with a grade of "C" or better.
- Completion of the online application.
- Completion of the Exercise Science Student Confidentiality Agreement.
- Completion of an essay in the application on "Why I want to be in the Exercise Science Program."

Transfer Students
Students transferring to Liberty University who are interested in entering the Exercise Science Program must follow the same process and procedures for entering the Exercise Science Program as outlined in the above section, ‘Program Application Procedures.’ Additionally, students must take all 400 level courses residentially. Courses at the 400 level cannot be transferred into the Exercise Science Program.

Fees and Expenses
In addition to university tuition and fees, students enrolled in the Exercise Science program may incur additional expenses. These expenses include, but are not limited to: American College of Sports Medicine (ACSM) national and regional memberships, ACSM Exercise Physiologist certification exam, NSCA Strength and Conditioning Specialist certification exam, first aid and CPR certifications, transportation costs associated with off-campus practicum, internship, and related experiences; TB (PPD) skin test, cost of medical examination and background check, if required by practicum or internship site.

Program Retention Standards
Once admitted to the program, the student must demonstrate and maintain satisfactory academic progress as defined below:

- Overall GPA: Students will maintain a minimum cumulative GPA of 2.50. Students falling below a 2.50 GPA will be placed on probation for one semester. If, after one semester probation, the GPA remains below a 2.50, or falls below a 2.50 in any subsequent semester, the student will be dismissed from the program.
Career Opportunities

- Cardiopulmonary Rehabilitation Fitness Specialist
- Chiropractor
- Occupational Therapist
- Exercise Physiologist
- Fitness Facility of Wellness Center Owner/Operator
- Personal Trainer
- Physician
- Physician Assistant
- Physical Therapist
- Prosthetics Specialist
- Registered Dietician

Programs of Study

Delivery Format: Residential Only

- Exercise Science (B.S.) - Fitness Specialist - Resident
- Exercise Science (B.S.) - Strength & Conditioning Specialist - Resident
- Exercise Science (B.S.) - Therapeutic Science - Resident

Courses

EXSC 101 Introduction to Exercise Science 1 Credit Hour(s)
This course is an overview of the professions in the field of exercise science. Career opportunities within exercise science and allied health will be investigated. Various aspects of careers, determining requirements for advanced study and learning what coursework would be appropriate for the different career paths.
Offered: Resident

EXSC 299 Internship 0 Credit Hour(s)
Offered: Resident

EXSC 302 Exercise and Sports Injuries 2 Credit Hour(s)
Prerequisite: EXSC 310
This course will examine the most common types of injuries that occur in exercise and sport settings. It will include the causes, treatment and prevention of these injuries. (Formerly KINE 302)
Offered: Resident

EXSC 310 Physiology of Exercise 3 Credit Hour(s)
Prerequisite: (BIOL 213 and BIOL 214 and BIOL 215 and BIOL 216) or (BIOL 213 and BIOL 214 and BIOL 215 (may be taken concurrently) and BIOL 216 (may be taken concurrently))
A study of the effects of exercise on the major systems of the human body including the cardiorespiratory, neuro-muscular, glandular and digestive. Other effects influencing human exercise will be examined, including climate, altitude and ergogenic aids. (Formerly KINE 310)
Offered: Resident

EXSC 311 Analysis of Human Movement 3 Credit Hour(s)
Prerequisite: EXSC 310
This course is a scientific study of the musculoskeletal anatomy and neuromuscular physiology involved in voluntary movement. The physiological principles applicable to the anatomical structures that produce human movement will be examined. (Formerly KINE 311)
Offered: Resident

EXSC 315 Group Exercise Instruction 2 Credit Hour(s)
Prerequisite: EXSC 310
This course will focus on the theoretical knowledge of leadership skills necessary to design, implement, and evaluate safe and effective group exercise group exercise programs. Emphasis will be placed on group leadership and group fitness instruction. Observations within the field will be available as well as opportunities to apply introductory concepts of exercise training through practical application. The course materials will also address the various skill sets necessary for entry employment into the health and fitness industry.
Offered: Resident

EXSC 320 Measurement and Evaluation in Health and Kinesiology 3 Credit Hour(s)
Prerequisite: EXSC 310 and (RSCH 201 or Inquiry Research with a score of 80 or Research with a score of 80 or Research (prior to 2017-2018) with a score of 80)
This course will consider the basic principles related to measurement and evaluation including the selection, administration and use of tests unique to the field of health and physical education. Special emphasis will be placed on testing procedure. Computer software for statistics will be introduced. (Formerly KINE 320)
Offered: Resident
EXSC 321 Practicum 1 Credit Hour(s)
Prerequisite: EXSC 310 or KINE 310
This course is designed for students in the Exercise Science major to gain exposure to various fitness/health settings. The student must choose two of the following areas: strength and conditioning, personal training, or clinical rehabilitation. The student must complete 15 observational hours in each of the two chosen areas, for a total of 30 hours. (Formerly EXSC 421)
Offered: Resident

EXSC 340 Essentials of Strength Training and Conditioning 3 Credit Hour(s)
Prerequisite: (KINE 225 or PHED 225) and EXSC 310
This course includes the theories, organization, methods, and techniques involved in the teaching and coaching of strength training, physical conditioning, and personal training. (Formerly KINE 340)
Registration Restrictions: Junior status
Offered: Resident

EXSC 345 Applied Strength Training and Conditioning 2 Credit Hour(s)
Prerequisite: KINE 225 and EXSC 310
In Applied Strength Training and Conditioning, students will integrate theory and practice in a course designed to provide lab-based examples of sport-specific conditioning. In-depth coaching techniques will be applied to topics including resistance and power training, speed and agility training, aerobic conditioning, and periodized programming. Students will also conduct original research related to sport performance.
Offered: Resident

EXSC 350 Biomechanics 3 Credit Hour(s)
Prerequisite: EXSC 310 and EXSC 351 (may be taken concurrently)
This course provides students with a foundational knowledge of basic mechanical principles and how these can be applied in analyzing movements of the human body. The course uses an integrated balance of qualitative and quantitative examples, applications, and problems designed to illustrate the mechanical principles discussed. (Formerly KINE 350)
Registration Restrictions: Junior status
Offered: Resident

EXSC 351 Biomechanics Lab 1 Credit Hour(s)
Prerequisite: EXSC 350 (may be taken concurrently) and EXSC 310
This lab course provides students with the application of basic mechanical principles in analyzing movements of the human body. The course uses an integrated balance of qualitative and quantitative applications to illustrate the mechanical principles discussed in EXSC 350, Biomechanics.
Registration Restrictions: Junior status
Offered: Resident

EXSC 401 Seminar in Strength and Conditioning 1 Credit Hour(s)
Prerequisite: EXSC 340
EXSC 401 - Seminar in Strength and Conditioning (1 hour)
Offered: Resident

EXSC 410 Applied Exercise Physiology 3 Credit Hour(s)
Prerequisite: EXSC 310 and EXSC 320 and EXSC 411 (may be taken concurrently)
This course provides the students with practical experience in implementing different methodologies in the measurement of physiological responses to acute and chronic exercise. Emphasis is placed on the application of the ACSM guidelines and appropriate experimental techniques. The usage of equipment in evaluating changes in body composition and various metabolic, cardiovascular, and respiratory adjustments during exercise in different populations will be included. (Formerly KINE 410)
Registration Restrictions: Junior status
Offered: Resident

EXSC 411 Applied Exercise Physiology Lab 1 Credit Hour(s)
Prerequisite: EXSC 310 and EXSC 320 and EXSC 410 (may be taken concurrently)
This course is designed for students in the Exercise Science major to gain proficiency in exercise testing and interpretation as it relates to the various physiological systems and components. (Formerly KINE 411)
Registration Restrictions: Junior status
Offered: Resident

EXSC 433 Exercise Prescription for Special Populations 3 Credit Hour(s)
Prerequisite: EXSC 310
This is an advanced course in clinical exercise prescription relative to disease of the cardiovascular, pulmonary, metabolic, musculoskeletal, neuromuscular and immunologic systems. The course also provides a basic understanding of the patho-physiology and exercise responses in populations afflicted with these diseases. (Formerly KINE 433)
Registration Restrictions: Junior status
Offered: Resident

EXSC 440 Programming and Periodization for Strength and Conditioning 3 Credit Hour(s)
Prerequisite: EXSC 340
EXSC 440 - Programming and Periodization for Strength and Conditioning (3 hours)
Offered: Resident

EXSC 460 Exercise Testing, Evaluation, and Prescription 3 Credit Hour(s)
Prerequisite: (KINE 310 or EXSC 310) and (KINE 320 or EXSC 320)
This course will consider the use of health and fitness field and laboratory instruments, techniques, procedures and equipment. Special emphasis will be placed on the ability to administer test protocols for evaluating the health-related components of physical fitness. (Formerly KINE 460)
Registration Restrictions: Junior status
Offered: Resident

EXSC 461 Exercise Leadership 3 Credit Hour(s)
Prerequisite: EXSC 310
This course will emphasize the necessary leadership qualities and skills expected for leading exercise activities. The student will develop professional competencies through classroom instruction as well as observational and practical experiences. (Formerly KINE 461)
Registration Restrictions: Junior status
Offered: Resident
**EXSC 485 Exercise Physiologist Workshop and Certification 1 Credit Hour(s)**

**Prerequisite:** EXSC 433 (may be taken concurrently) and EXSC 460 (may be taken concurrently) and EXSC 310

This Exercise Physiologist course will provide structured experiences in the classroom, laboratory and exercise arenas to improve the knowledge, skills, and abilities in health-related physical fitness assessment and exercise programming as outlined by the American College of Sports Medicine guidelines. This experience will culminate with the student taking the Exercise Physiologist certification exam, which requires the student to demonstrate the knowledge, skills, and abilities that are needed by an entry-level health/fitness practitioner.

**Registration Restrictions:** Acceptance into EXSC Program.

**Offered:** Resident

**EXSC 486 Strength and Conditioning Specialist Workshop and Certification 1 Credit Hour(s)**

**Prerequisite:** EXSC 310 and EXSC 340

The Strength and Conditioning Specialist Workshop and Certification Course will assist students in preparing for the Certified Strength and Conditioning Specialist (CSCS) credential, available through the National Strength and Conditioning Association (NSCA). The course will focus on building mastery in the major content areas outlined by the NSCA: Exercise science, nutrition, exercise technique, program design, organization and administration, and testing and evaluation.

**Registration Restrictions:** Acceptance into EXSC Program, EXSC 310, EXSC 340, and Senior Status ; OR Instructor Permission.

**Offered:** Resident

**EXSC 498 Senior Capstone Project 4 Credit Hour(s)**

**Prerequisite:** HLTH 333

This course examines an overview of various types of research, theory and design of research problems and experiments in Exercise Science subfields, communication of research proposals, evaluation of current research, and review of current literature. The capstone project will be completed by a group of five Exercise Science students, who will be directed by an assigned faculty member from the Exercise Science Program.

**Offered:** Resident

**EXSC 499 Internship in Exercise Science 1-6 Credit Hour(s)**

**Prerequisite:** HLTH 333

This course involves practical work experience in an approved exercise or fitness-related agency, physical or occupational therapy clinic, chiropractic office, or similar setting/facility supervised by a qualified professional. Selection of the internship site should coincide with academic track selected and intended career path. Applications are processed through the department Faculty Intern Advisor. Applicants must apply the semester prior to starting the internship. (Formerly KINE 499)

**Registration Restrictions:** Admission to EXSC major, Senior status; have completed all EXSC coursework and HLTH 333, with a grade of 'C' or better; have a minimum overall GPA of 2.25 or higher; have achieved a minimum score of 480 on ACSM exam, and uploaded exam results sheet to Sharepoint; or consent of the Exercise Science Program Director

**Offered:** Resident