

# EXERCISE AND SPORT SCIENCE (ESS)

---

## **ESS 600. Advanced Statistics. (3 Credits)**

Statistical tools for scientific research, including parametric and non-parametric methods for ANOVA and group comparisons, simple linear and multiple linear regression. Emphasis placed on the use of dedicated statistical software.

## **ESS 601. Quantitative Research Methods. (3 Credits)**

Research design and methodology in environmental exercise physiology.

## **ESS 605. Exercise and Sport Science Testing and Instrumentation-Lab. (3 Credits)**

Techniques of in-lab exercise testing and result interpretation in healthy and/or diseased populations.

## **ESS 606. Exercise and Sport Science Testing and Instrumentation-Field. (3 Credits)**

Techniques of field-based exercise testing and result interpretation in healthy and/or diseased populations.

## **ESS 612. Exercise Biochemistry. (3 Credits)**

Provides advanced content on research-based findings of how exercise alters biochemical function in skeletal muscle, the liver and adipose tissue. Prerequisite: AESP graduate standing.

## **ESS 620. Navigating Post-Graduation. (1 Credit)**

Prepare for work attainment post-graduation. Skills include, resume writing, cover letters, performing job searches, networking and interviewing (live, phone and video).

## **ESS 630. Clinical Exercise Physiology. (3 Credits)**

Physiological study of acute and chronic responses to exercise in diseased populations.

## **ESS 640. Environmental Exercise Physiology I. (3 Credits)**

Principles of exercise physiology in extreme environmental conditions including extreme temperatures, hyper- and hypobarometric pressure, air pollution, sleep deprivation, and zero gravity. Healthy and diseased populations are studied.

## **ESS 641. Environmental Exercise Physiology II. (3 Credits)**

Advanced research and principles of exercise physiology in extreme environmental conditions including extreme temperatures, hyper- and hypobarometric pressure, air pollution, sleep deprivation, and zero gravity. Healthy and diseased populations are studied. Prerequisite: ESS 640.

## **ESS 660. Health Promotion. (3 Credits)**

Development of skills in health promotion program design, implementation and evaluation. Specific emphasis may be placed on healthy and diseased populations in extreme environments.

## **ESS 675. Clinical Exercise Programming-Lab. (3 Credits)**

Role of exercise/physical activity in the prevention, pathophysiology and treatment of chronic diseases. Hands on clinical exercising programming experiences.

## **ESS 685. Cardiopulmonary Physiology. (3 Credits)**

A foundation course that covers 1) the structure and function of the cardiopulmonary systems; 2) exercise-related physiological changes of the cardiopulmonary system and their applications to exercise training; and 3) pathophysiological changes secondary to cardiopulmonary dysfunction and their effects on function.

## **ESS 692. Independent Study. (1-3 Credits)**

Advanced study for students with specialized interest in a particular area of environmental exercise physiology. Prerequisite: advisor permission.

## **ESS 695. Thesis. (1-9 Credits)**

Independent research project, supervised by academic advisor. Over two semesters, students take 3-6 credits of thesis each semester to meet the 9 credit minimum requirement. If, at the end of the chosen two semesters the thesis is not defended, the student must continuously enroll in 1 credit until successful thesis defense. Prerequisite: second year standing.

## **ESS 696. Research. (1-6 Credits)**

High Altitude Performance Lab research supervised by AESP faculty that falls outside the purview of Master of Science thesis work.

## **ESS 699. Practicum/Internship. (1-6 Credits)**

An opportunity for in-depth work at a site in the area of academic concentration. The experiences must meet standards of the department and the University. Prerequisite: advisor permission.