For many years, physiologists have used exercise as a way of studying the limits of human performance. An athlete running as fast as a human is capable of running, or lifting as heavy a weight as she can lift is an excellent way of observing the limits of performance. By studying physiological processes when they are being pushed to their limits, we can learn a lot about these processes - the regulation of the processes, the constraints that they operate under, and how processes may adapt to improve performance. In this FIG, we will be exploring the factors that influence human performance in the context of exercise or performing other physical work. We will examine a number of case studies where the goal will be to determine what the physiological factors are that are limiting performance. We will consider cases of athletic performance, other work conditions, age and developmental issues, as well as injury or other pathological conditions, among many other cases.

We will also spend some class time in an Exercise Physiology laboratory where we will collect some data on subjects while they are exercising. We will then use this data to determine some of the underlying physiological processes that are at work during different types of exercise.

The other two courses in this FIG are well matched with this small seminar class and provide many opportunities to integrate material across different subject areas:

- The pairing with the General Chemistry class (Chem 103) provides an understanding the basic chemical reactions that underlie many physiological processes and allows us to connect these two areas. How are our muscles ability to perform work ultimately limited by the underlying chemical reactions in the muscle?
- The pairing with the Introduction to Kinesiology course (Kinesiology 119) allows us to place the physiology that we are exploring into the larger context of the field of Kinesiology. How do people use the physiological responses to exercise to help understand the role of exercise and movement in health and disease?

Given the course subject matter that we will explore, as well as the paired courses, this FIG is an excellent learning opportunity for students who:

- may want to explore a major in Kinesiology.
- may be interested in Medical School
- have plans to study Athletic Training, Physical/Occupational Therapy or other allied health professions.
- are interested in Biology
- have a general interest in learning more about exercise and/or physiology
This FIG is a total of 9 credits. Students will need to take a 12 credit minimum to be a full-time student.