

Taylor Huntley  
Honors Capstone Final Draft  
Slug: Exercise Phys.

Grace Rogers, a fourth-year student at Fort Lewis College, is majoring in Exercise Physiology and wants to become a physical therapist.

Tymbree Florian, a third-year student at FLC, is also majoring in Exercise Physiology and wants to become a physical therapist or a strength and conditioning coach.

Rogers and Florian are two of the 164 students currently enrolled in FLC's Exercise Physiology major this term.

The major saw a leap in enrollment back in the 2018-2019 academic year when the number of majors nearly doubled from the year before — from 88 to 152 students, according to FLC's Office of Institutional Research.

The spiked and steady interest in the major aided in the construction of a new building on the FLC campus.

Being an attractive major for students was part of the push for the creation of the new building, she said Missy Thompson, Associate Professor of Health & Human Performance at FLC.

## **Exercise Physiology**

The professors in the major teach the students what the study of Exercise Physiology is, and they describe it to them as the study of how human bodies react to stress, she said Melissa Knight-Maloney, Chair & Professor of Health and Human Performance at Fort Lewis College.

"Exercise Physiology is a specialized form of stress physiology," Knight-Moloney said.

People's bodies react to both good and bad stress, in a physiological fashion, their bodies adapt to the stress and that helps them better deal with stressful situations, she said.

Exercise Physiology is the study of what happens to the human body's different systems when a form of stress is applied to them. In this case, the stress is exercise, she explained.

In the Exercise Physiology major students also study a lot of concepts related to how the body moves aside from just physiology, she said.

They study concepts like biomechanics, sports psychology, and exercise testing and prescription, she said.

## **Biomechanics**

Students are taught the physics of human motion with FLC's biomechanics class, she said.

This teaches students how forces impact movement, how joint ankles impact movement, and how people move through space, she said.

In general, biomechanics is how physics applies to human motion and function, she said Thompson.

"It's a very applied physics aspect, students learn how humans create forces within their bodies, and how they respond to external forces," Thompson said.

FLC has a biomechanics lab that contains a camera system that operates in conjunction with a runway embedded with force plates that can re digitizes motion, she said Thompson

The cameras and the force plates help students measure how forces are transmitted within the musculoskeletal system, she said.

With the technology in this lab students can measure what's going on with joints and how the joints move, she said Knight-Maloney.

Students can also measure forces when people are moving and running, she said.

Biomechanics is an applied class that gives students an idea of how physics applies to their motion, Thompson said.

Biomechanics is really applicable to life in general and many career choices, Florian said.

## **Sports Psychology**

The Exercise Physiology major has their students take classes in exercise and sports psychology to learn how to best motivate their clients to exercise, she said.

Teaching students about sports psychology can help them learn techniques they can use to help motivate clients to do the exercise they need to get better, she said.

With sports psychology professors also have students look at how physiological circumstances can have an impact on sports performance, she said.

Sports psychology is a preventative medicine philosophy, if a sports psychologist can promote exercise they can help people financially and health-wise, she said Susumu Iwaski, Associate Professor of Health and Human Performance.

“If you facilitate and integrate exercise in your mind it is going to be better,” Iwaski said.

People have to do exercise, a lot of lifestyle disease-related prescriptions are exercise and some people struggle with this, he said.

In sports psychology students need to help people understand their needs and help them stay motivated, he said.

Some people may feel several negative emotions that may not help them feel motivated, Iwaski said.

For example, many people know that smoking is bad yet they still do it, Iwaski said.

Many people know that exercising can be beneficial to their body, yet they still don't do it, he said.

People have the capability to either do things that help their body or quit things that hurt their body but they do not maximize their capability, he said.

Sports Psychology teaches students to help people maximize their capability, and people motivate themselves to do the exercise, he said.

“If you are not doing it, the output is going to be zero,” Iwaski said.

## **Exercise Testing and Prescription**

In the exercise testing and prescription class, students work with clients to conduct fitness assessments, and then after they complete those assessments, they use those assessments to create the client an exercise prescription, she said.

Students learn about how human bodies adapt to exercise, for example, long-term exercise, she said.

“Exercise is medicine,” she said.

Many chronic diseases, like cardiovascular disease and type two diabetes, can help be prevented or treated from exercise, she said.

When human muscles contract and release compounds they help aid in the reduction of inflammation and can help neurons talk to each other within our brain, she said.

Exercise has really profound effects on the human body, and learning how something like moving can have big health impacts, she said.

Similar to the exercise and prescription class, the Exercise Physiology major has an adapted exercise class where students are taught to modify exercise for individuals with special needs, she said.

Professors teach the students how to modify basketball into wheelchair basketball, or volleyball into seated volleyball to help support populations that at times people don't think about adapting exercise to, she said.

"I really like exercise testing and prescription because it's essentially really hands-on," Florian said.

Students are working with clients and learning how to build an exercise program for them, Florian said.

Students are putting what they are learning into helping actual clients, Florian said.

The exercise testing and prescription class is teaching students to work with actual people and learn how to introduce themselves to them and prescribe them an exercise plan, Rogers said.

## **Hands-on Learning**

Exercise Physiology is a major where hands-on learning is built into the curriculum.

A lot of the Exercise Physiology classes have different projects that take what students learn in the classroom and apply it to different situations, she said.

These projects may have students work with people from campus and in the community, she said.

The major also does undergraduate research where students spend a year working closely with one of the professors on a research project, she said.

The major has an internship that students utilize to go and get hands-on work, most of the time it is with a physical therapist, she said.

These internships and other applied projects are a good place for students to learn and develop skills for employment once they graduate, she said.

To help aid in FLC students' hands-on learning, students use the lab spaces in the new Schlessman Hall building to conduct hands-on tests and assessments.

FLC has the Human Performance Lab that encompasses most of the academic Exercise Physiology labs, senior seminar data collection, and exercise testing and prescription labs, she said Rotem Ishay, Lab Coordinator and Instructor of Health and Human Performance.

This lab offers opportunities for students to become interns within the facility and allows students to perform testing for members of the community, Ishay said.

Students get to perform several tests on their clients like a range of motion test, she said Knight-Maloney.

Students can use this assessment to test a client's flexibility, she said.

Students can also help clients use the altitude simulation chamber for training sessions, he said.

If a client is looking to ascend K2 or another high-elevation mountain and wants to do some training they can use the altitude chamber to train for the higher elevation, he said.

In essence, Exercise Physiology is hands-on practice, therefore these lab spaces greatly impact the students' learning, she said Ishay.

The equipment is applicable to what students are doing and helps give them a real-life experience, Florian said.

"We also do a lot of hands-on practice within our curriculum to teach the students how to be a professional," she said.

A lot of our classes have different projects that take what we learn in the classroom and apply it to different situations, like our adaptive exercise class, she said.

In these classes students are learning how to do research and are applying that research to real clients, Florian said.

## **After College**

There are a variety of routes that students can pursue after they finish an Exercise Physiology program.

Students pursuing an allied health career field, like physical therapy and athletic training is a common route for students to go, Thompson said.

Students can go to work for cardiac rehab and diabetes education programs, she said

Personal training, coaching, or becoming a strength and conditioning specialist are other careers students can pursue, Thompson said.

I do know that medical schools accept Exercise Physiology degrees so some students may choose to go that route after graduation, Florian said.

“There are a plethora of opportunities,” Thompson said.