

## Exercise Science

Course content is based on the applied sciences of anatomy, physiology, and the biomechanical analysis of movement, including sporting activity. The course also focuses on sport performance and nutrition and certain areas of athlete mental preparation and physical rehabilitation.

Lake Ginninderra College utilises a vast range of platforms both theoretical and practical to deliver Exercise Science. Unit content is learned through interactive slideshows embedded in the Google environment. Students will complete workshops in the strength and conditioning facility and be shown the latest apps on smart devices to sharpen their knowledge of the human body. In addition, students will be provided opportunities to access and participate in the UC Rise program at the University of Canberra. This program uses state of the art facilities and provides exposure to laboratory testing to determine VO2 max performance and functional anatomy labs using cadavers.

## Exercise Science A

This course is relevant to students who intend to pursue vocational study at institutions such as UC College and CIT. The course also provides students with skills to apply for traineeships or employment as assistants, administrators and support staff in the sports industry

## Exercise Science T

This course is relevant to students who intend to pursue tertiary studies in teaching (physical education), nursing, biomedical science (medicine), human nutrition, physiotherapy, rehabilitation, sports science and exercise physiology.

## Units

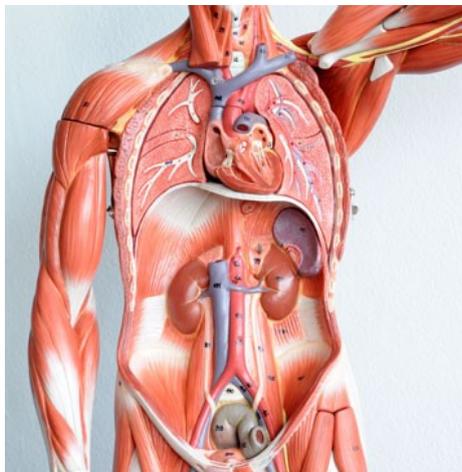
The units outlined below are semester length (value 1.0) and can be broken down further into term units (value 0.5). The units can be studied in any particular order, there is no prior knowledge required.

## Anatomy & Physiology of the Human Body

Students study the basic organisation of the human body (cells, tissues, organs, systems) and then study in more depth the structure and function of the circulatory and respiratory systems.

Students become familiar with anatomical and movement terminology and study the structure and function of the skeletal, articular, muscular and nervous systems.

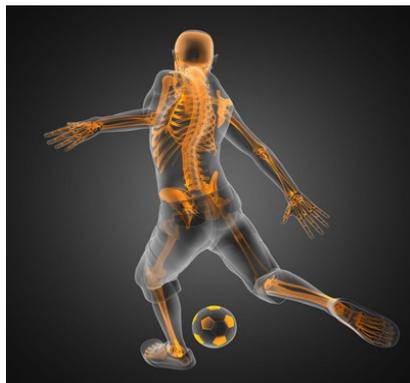
Movement analysis is then carried out through the study of muscles and the actions involved in specific exercises.



## Preparation for Training & Performance

Students study the importance of physical health and performance and identify various aspects of physical fitness such as components of fitness, methods and principles of training, and methods of testing and evaluating these components.

In addition, students study the workings of the digestive system and the relationship between food intake and energy expenditure. Students will also study the importance of a balanced diet and sound nutrition practice of an elite athlete.



## The Body in Motion

Students examine the nervous system and its role in muscular contractions, the interdependence of the three energy systems during physical activity and the physiological responses and adaptations of the body to exercise and training.

Students define and apply principles of physics relating to bodies in static and dynamic situations and examine the significance of the laws of motion e.g. forces, gravity, levers, velocity. Through practical involvement and observation students will gain an understanding of the physical principles relating to human movement.



## Factors Affecting Performance

Students explore the physiological healing process and apply it to various types of sports related injuries. Students will also examine the causes, prevention, treatment, massage and taping, management and rehabilitation of sports related injuries.

In addition, students research motivation and athletic performance, goal setting and tactics, stress management, the relationship between activation and concentration, and mental preparation including motor imagery in sport and personality theory.

