Anatomy – you can’t leave home without it. It’s with you everywhere you go. It holds you together, it controls what you think and do, it enables you to run, jump and play. So as you might expect, there is more to studying Anatomy than immediately meets the eye. There’s cell biology, neurobiology, clinical and functional anatomy, body systems, reproductive biology, developmental biology, and biological anthropology.

The University of Otago is the only New Zealand university to offer a bachelor’s degree majoring in Anatomy. You have the opportunity to explore the traditional approaches to studying Anatomy, as well as using the latest techniques and hi-tech equipment to explore the human body at all levels of its structure: from single cells to multi-organ systems.

Caine Smith
Anatomy Graduate
Why study Anatomy?
Anatomy is a diverse, vibrant, and visual subject. It explores the relationship between the structure of the body and the functions it performs, and can be studied from microscopic to macroscopic levels.

Some of the things you will learn include:
- How the body develops from just a single cell to an individual with millions of cells organised into different tissues and organs systems
- How you can tell the age a person was when they died just by looking at their bones
- What structures of muscles are related to their function
- How our brains control what we think, how we feel, and what we do
- How the reproductive system functions
- Using skeletal remains to track movement, culture, and health of ancient people
- How to analyse, interpret, and discuss relevant contemporary anatomical research, and much more...

Studying papers in Anatomy will expose you to world-leading research in the anatomical sciences. You will learn techniques such as immunohistochemistry, cell culture, and gene sequencing, and have access to state-of-the-art equipment such as electron and confocal microscopes, and next-generation sequencing technology.

Background required
You don't need any particular subjects to get into the first-year papers that lead into Anatomy. However, because these papers are biologically oriented, it is helpful to have completed Year 13 Biology and Chemistry.

Careers in Anatomy
A University of Otago graduate in Anatomy has the world at their feet. Opportunities available to them are varied and numerous, ranging from health professions such as medicine, dentistry, physiotherapy, to research and teaching at university of secondary and primary school, to technical work in medical or agricultural laboratories, to sales, marketing, and research positions with pharmaceutical, medical, or agribusiness companies, or national bodies such as the Cancer Society of New Zealand. Graduates also work as funeral directors, winemakers, policymakers, and beyond – there is definitely something for everyone with a degree in Anatomy!

Anatomy students gain a high level of knowledge and competencies across a broad range of topics, with a range of skills that can be applied to any chosen career. These skills range from learning to speak and work in group environments, honing and extending thinking and communication skills, through to having an awareness and understanding of ethics and developing the ability to undertake self-directed learning. And then of course there are the technical and applied skills that are used every day in practical labs.

Some graduates use their degree as a stepping stone to further study in a health professional course, while others have gone on to postgraduate study in forensic science, clinical embryology, and of course the various research fields – Biological Anthropology, Clinical Anatomy, Neuroscience, and Reproductive and Developmental Biology – offered here in the Department.

Anatomy at Otago
Anatomy is offered as a major for the Bachelor of Science (BSc) degree programme, which includes all ANAT papers as well as Biological Anthropology (BIOA). We also offer the Reproduction, Genetics and Development theme as part of the Biomedical Science (BBlomedSci) degree. Anatomy paper is a core skill, through to having degrees in Neuroscience, Forensic Science, Genetics, Human Nutrition, Food Science, and Medical Laboratory Science. BIOA papers can also form part of an Arts (BA) degree.

What does a BSc in ANAT involve?
In your first year you will be introduced to the structure, function, and development of the various systems in the human body. You will also learn about the biology of cells and human genetic variation, the diversity of microorganisms, and microbial virulence and diseases. You’ll also take other general first-year Health Sciences papers, including Chemistry or Physics.

At the end of your first year you will have a good basic knowledge of the whole body, be able to recognise the different cells and their organelles, and have a basic understanding of how the human body systems work.

The skills and knowledge learnt at first year will then be developed more in-depth in second- and third-year papers, which cover human cells and systems, neurobiology, reproductive and developmental biology, functional anatomy, cell biology, and biological anthropology.

Teaching style
Papers are taught in a lecture and laboratory format. Laboratory classes are exciting and hands-on, and involve learning state-of-the-art techniques for the scientific analysis of human and animal tissue, including tissue / cell culture; electron, light and confocal microscopy; immunohistochemistry; histology; stereology; molecular biological techniques; and skeletal forensic investigations.

Laboratory rooms are well equipped and modern, and you will have access to hi-tech equipment. You will also be able to study in our historic and world-leading W.D. Trotter Anatomy Museum.

Postgraduate study
If you wish to take your knowledge beyond third year, a range of postgraduate opportunities are available. We have a large family of postgraduate students who are vital contributors to the ongoing research in the Department and have developed a vibrant social network.

You could find yourself doing an honours degree, a master’s degree, or a one-year Postgraduate Diploma in Science. Or why not aim high and shoot for a PhD?

Caine Smith didn’t know he wanted to become a scientist until the final year of his Bachelor of Science (BSc) degree. That’s when he decided to go on to postgraduate study. Caine completed a master’s degree in neuroscience, conducting his research in the Department of Anatomy.

His research project looked at Foetal Alcohol Syndrome; specifically how binge drinking could affect the death of cells in the brain. He says the histology and molecular skills learnt during his studies have been invaluable. He loves working in the first-class environment of the Tissue Resource lab, and the immense privilege of working with human tissue. He credits his postgraduate study in Anatomy at Otago for making it possible.

“More and more people have an undergraduate degree, and to remain competitive in the job environment a postgraduate degree sets you above the rest, and adds skills to your repertoire that you just don’t get in undergrad,” Caine explains.

“And it shows that you are serious about science.”

Caine plans to study for a PhD in a few years’ time, and sees his move to Sydney as a stepping-stone to the rest of the world.

“Science is an international career,” he says. “It’s important not to let geography stop you from achieving what you want.”