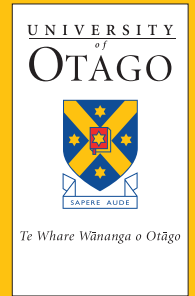


# MEDICAL LABORATORY SCIENCE



## what is **medical laboratory science?**

Medical Laboratory Science is the science of testing blood, tissue and other samples from patients to determine the presence and severity of their disease.

Modern medicine depends on the diagnostic work of medical laboratory scientists. They are an essential part of the health team in hospitals and the community.

The life of a highly skilled medical laboratory scientist involves the use of cutting-edge technology, working in a fast paced environment to provide rapid and accurate results that can mean life or death treatment outcomes.

A qualified medical laboratory scientist is professionally recognised, holds an annual practicing certificate from the New Zealand Medical Laboratory Scientists Board, and is internationally sought after.

There is a wide range of specialities and new scientific discoveries mean the field is continually growing and expanding.

Graduation is just the start of a life of constant learning and professional development.

## some reasons for studying **medical laboratory science**

Become an integral part of the medical profession

Work in a fast paced environment solving problems and providing results for medical treatment

Gain an internationally recognised qualification in a sought after profession, allowing you to work around the world.

Specialise in a wide variety of disciplines, including molecular diagnostics

## CAREER OPPORTUNITIES

Medical Laboratory Science is a global profession, and there is strong demand worldwide for qualified scientists.

Medical laboratories can be based in hospitals where they provide urgent and routine laboratory results to A&E, intensive care, surgery, clinics and ward staff, or in the community providing diagnostic support to general practitioners.

Medical laboratory scientists often change jobs or do further training as their interests and experience develop, and progression within the profession can be rapid.

Careers are also available in the commercial sector, such as the dairy and brewing industry, ESR and police forensics, Centre for Disease Control (CDC) and in international diagnostic supply companies such as Roche and Bayer as reps, researchers, product specialists and application specialists.



**BACKGROUND REQUIRED**

There are no subject requirements for entry to the Health Sciences First Year except that you must have no prior university-level study. We recommend you take Chemistry to Year 13 level.

Medical Laboratory Scientists provide essential analytical information to doctors and other clinical staff to enable accurate and rapid diagnosis and treatment of patients. Modern medicine requires tests in areas such as:

**Haematology** – diseases related to blood such as leukaemia and bleeding disorders

**Clinical biochemistry** – changes in blood chemistry relating to illnesses like diabetes, cancer and heart disease, as well as drug abuse

**Histology and cytology** – microscopic analysis of tissues and cells to identify abnormalities observed in cancer biopsies and cervical smears

**Microbiology and virology** – isolation of diseases caused by bacteria and viruses for instance meningitis, hepatitis B infection and MRSA

**Transfusion science** – the use of blood products and blood group identification in patient treatment essential for organ transplantation, blood transfusion and clotting factor deficiencies

**Cytogenetics** – detection of chromosomal abnormalities associated with Downs syndrome, chronic myeloid leukaemia, and prenatal testing

**THE MEDICAL LABORATORY SCIENCE DEGREE IS A FOUR YEAR PROGRAMME**

For most students the University of Otago Health Sciences First Year is the first year of the Bachelor of Medical Laboratory Science programme, although students with other university courses can be admitted.

Entry is competitive and based on academic achievement, performance in the Undergraduate Medicine and Health Sciences Admissions Test (UMAT) and an interview.

**Second Year**

You will learn about body systems, anatomy and physiology and be introduced to the world of Medical Laboratory Science and its core disciplines.

**Third Year**

You will undergo in depth training in all laboratory subjects and pathology to tie disease and diagnostic information together.

**Fourth Year**

You will choose two subjects and do a 15 week placement for each discipline in a real diagnostic lab in New Zealand or Australia - anywhere from Invercargill to Perth.

Many students go on to do further postgraduate training in their area of speciality.



profile

**OLIVIA SAMSON**

Olivia Samson's interest in Medical Laboratory Science began when she participated in the University of Otago's Hands-On Science School as a secondary student.

During the camp she and other students conducted the same experiments as real-life medical laboratory scientists.

That experience really stuck with me and gave me a taste for health sciences," she says.

As a first year university student Olivia enrolled in the Health Sciences First Year course and her grades gained her entry to the Medical Laboratory Science professional programme.

"Med Lab Sci really interested me because of my fascination with the human body and how it works. The problem solving aspect and the knowledge that you were helping others by providing accurate test results were also attractive points for taking the course" she says.

"My favourite aspect of the programme was the clinical experience in my final year. It was essentially gaining job experience while still studying at uni, due to the practical skills we utilised in the hospital laboratories working on real life samples."

After completing the four-year Bachelor of Medical Laboratory Science Olivia completed the Masters of Science degree in Forensic Science at the University of Auckland.

Olivia has applied her combined knowledge gained from her Masters degree with the practical and problem solving skills learnt in Med Lab to her current position as a Forensic Scientist in the Forensic Biology Group at ESR (Institute of Environmental Science and Research).

"My division provides the DNA profiling work for crime scenes and cases, which provides important information to police and can be used as evidence in court" she says.

"Many of the skills I gained in the Medical Laboratory programme are utilised in my current position. The appealing thing about Medical Laboratory Sciences is that it provides a range of activities and career options, and can be applied anywhere in the world."

In 2005 Olivia travelled to Thailand as part of the Tsunami Disaster Victim Identification effort, where she extracted DNA from bones (pictured above) to identify victims of the disaster.

So how similar is her job to the popular television series, CSI: Crime Scene Investigation?

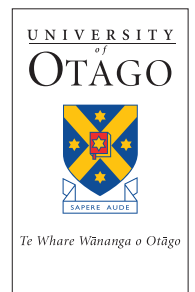
Olivia laughs and says, "In real life, it is far more complex. One person doesn't do all the work, we all have our own areas of expertise and mine is Forensic DNA."



**Any questions about Medical Laboratory Science?**

Tel **0800 80 80 98**  
 Email [liaison@otago.ac.nz](mailto:liaison@otago.ac.nz)  
 Or write to  
 Liaison Office  
 University of Otago  
 PO Box 56  
 Dunedin

Australian Freephone  
**1 800 468 246**



Te Whare Wānanga o Ōtago