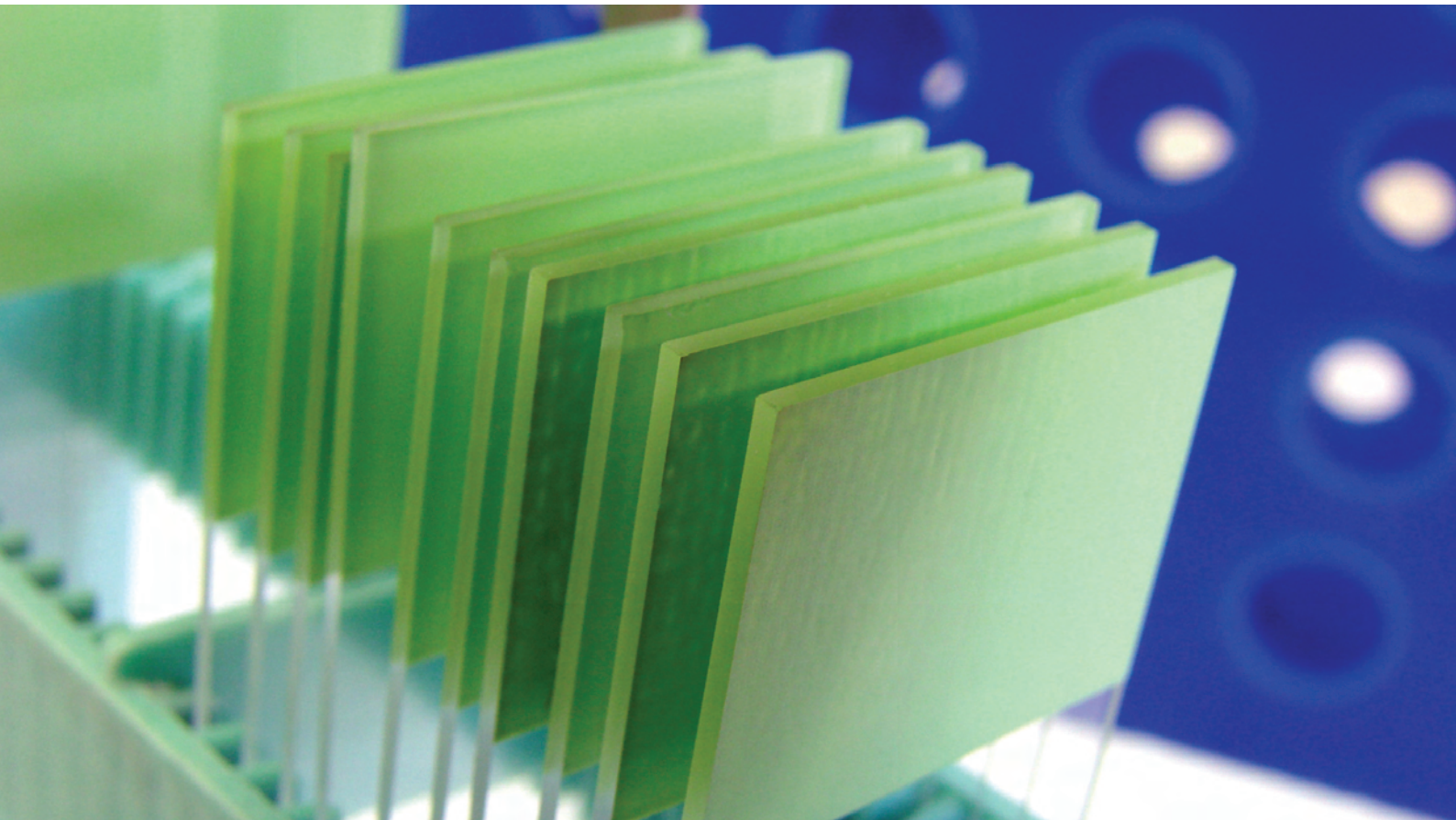


medical laboratory science

YOUR PLACE IN THE WORLD

The Engine Room of Modern Medicine



Welcome to the world of the medical laboratory. It's a world of technology, science and mystery where medical laboratory scientists and pathologists find answers to questions that are both routine and miraculous. Does this tissue sample contain cancer? What can this woman's blood tell us about her health? Is this unborn child developing normally? Is this drug effectively stopping the infection? Why did this man die?

More than 70% of medical decisions made by physicians are based on laboratory findings. In fact, the practice of modern medicine would be impossible without the tests performed in the laboratory.

"Med Lab Sci really interested me because of my fascination with the human body and how it works. The problem solving and the knowledge that you were helping others by providing accurate test results also fascinated me."

Olivia Samson

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What is a Medical Laboratory Scientist?

Medical Laboratory Scientists are the professionals who provide essential analytical information to clinical staff such as doctors that enables 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, drug abuse, cancer and heart disease.

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 such as 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.

Pathologists and medical laboratory professionals are the behind the scenes backbone of medicine. Their field of exploration includes a vast span from gross anatomy to the molecular basis of disease. They are the researchers, the investigators, and some say the real heroes of medicine.

Careers in Medical Laboratory Science

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

Medical laboratory scientists also find challenging employment in other areas from industrial research and public health laboratories to forensic and pharmaceutical laboratories where their analytical, scientific and technical skills are valuable assets.

Other career options include; sales and marketing, research and product development, education, technical support and forensic biological sciences.

Individuals who have completed a medical laboratory science degree can gain professional registration and can hold an annual practising certificate from the New Zealand Medical Laboratory Scientists Board and this also gives the opportunity to practise in Australia and the UK without further study.

Postgraduate Study

When you have completed your degree, if scientific research or forensics is your passion there are numerous opportunities to further your education in these areas, as your laboratory skills and knowledge are directly transferable. A Postgraduate Diploma in Medical Laboratory Science is offered in a variety of subjects. You can also enrol in a Masters in Medical Laboratory Science or a PhD.

Why study Medical Laboratory Science?

As new discoveries advance scientific knowledge, the medical laboratory scientist's role will continue to change and expand. Even now, we can see the impact of future tests that may be developed for diagnosing such health problems as cancer or genetic disorders.

Qualified medical laboratory scientists are a vital part of the health team in hospitals and in the community. The life of a highly-skilled med lab scientist involves the use of cutting-edge technology, in fast paced environment using sophisticated instruments and techniques with the application of theoretical knowledge to provide rapid, accurate and reliable results that are used by clinicians in the diagnosis and treatment of patients. The test results med lab scientists provide have an immediate impact on the care of critically ill patients.

Medical Laboratory Scientists often work independently giving them greater control over their daily routine than many other health care professionals. They also interact with doctors, nurses, pharmacists and other health professionals to explain results, provide information on important aspects of tests and provide advice on additional testing. Every day brings a different challenge and new problems to solve.

Demand for faster testing and constant monitoring of patients has taken some tests out of the laboratory to the patient's bedside. This is called "point-of-care" testing. This is an exciting new role for med lab scientists.

Background required

There are no subject requirements for entry into the Health Sciences First Year programme, but we strongly recommend you take chemistry, physics and biology at Year 13. HSFY must be your first year of university study. If you are considering tertiary study before enrolling, you are strongly advised to contact the Health Sciences Admissions Office beforehand.

Admission to the programme

Admission to Medical Laboratory Science is competitive, and there are only 60 places available each year.

Selection into Medical Laboratory Science from HSFY is competitive. Selection is based on your grades in the HSFY papers and results in the Undergraduate Medical and Health Sciences Admission Test (UMAT). The minimum grade point average is a B, and all compulsory papers must be passed. The UMAT is a test which measures non-academic attributes. For more information go to www.acer.edu.au/umat.

How do I apply for admission to Medical Laboratory Science?

Application information for admission into the Health Science professional programmes from all the categories is available online, at www.otago.ac.nz/healthsciences.

For questions about Medical Laboratory Science
Tel 0800 80 80 98
Email university@otago.ac.nz

www.otago.ac.nz/healthsciences

profile

OLIVIA SAMSON BMLSc MSc
Medical Laboratory Scientist

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. There 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 programme and her grades gained her entry to the Medical Laboratory Science professional programme.

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

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.

Using her combined knowledge gained from her Masters degree with the practical and problem solving skills learnt in Med Lab Olivia now works 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.

"I now use many of the skills I gained in the Medical Laboratory programme. Medical Laboratory Sciences 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 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".

"Med Lab Sci really interested me because of my fascination with the human body and how it works. The problem solving and the knowledge that you were helping others by providing accurate test results also fascinated me."



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