

Materials science and nanotechnology is the study of the structures and materials of extremely small things and can be used across all the other science fields such as chemistry, biology, physics and engineering.

If you are interested in discovering how to develop new products across industry sectors such as electronics, energy health and manufacturing, a career in nanotechnology could be for you.

“I want to understand how the world works and apply my knowledge to real-life situations.”

– Mahali, BSc physics graduate now doing a Masters in Medical Physics



Why materials science and nanotechnology?

Nanotechnology investigates the forces that control the behaviour of atoms, molecules and materials so they may be harnessed for use in devices. Nanotechnology is interdisciplinary and offers opportunities to work with engineers, physicists and biologists, while advanced materials science underpins high-tech manufacturing.

UC's nanotechnology researchers are working at the forefront of modern engineering. Our research is at the scale of the smallest devices currently possible – from nanometres right down to the quantum behaviour of atoms.

Where do I start?

A Bachelor of Science in Physics will give you a broad and solid understanding of the underlying physical sciences before specialising in nanoscience or nanotechnology.

Modern physics provides a framework for understanding and contributing to major advances in technology, and our graduates find employment in a huge variety of industries. Research in physics over the past 20 years has led to significant advances in everything from cancer treatments and life-saving MRI scanners to computers and GPS.



BSc in Physics – what you need to know

A BSc in Physics is a three-year degree that will prepare you well for a career in materials science and nanotechnology. A BSc is just the beginning. You could boost your career options further by gaining a postgraduate degree.

Here are some courses you can study in your first year of physics:

- Science, Society and Me (SCIE101)
- Chemical Principles and Processes (CHEM111)
- Structure and Reactivity in Chemistry and Biochemistry (CHEM112)
- Mathematics (MATH102)
- Mathematics (MATH103)
- Engineering Physics A: Mechanics, Waves, Electromagnetism and Thermal Physics (PHYS101)
- Engineering Physics B: Electromagnetism, Modern Physics and ‘How Things Work’ (PHYS102)
- Introduction to Computer Programming (COSC121)

Explore more course options at www.canterbury.ac.nz/science/

Transferable skills: Critical thinking, chemical and biological sciences, interdisciplinary knowledge, interpretation of data, laboratory skills in physics, maths, problem-solving skills.

Postgraduate study options: Bachelor of Science with Honours, Postgraduate Diploma in Science, Master of Science, Doctor of Philosophy.

Career options: Biotechnology; electronics/semiconductor industry; energy capture and storage; environmental monitoring; forensics; materials science including textiles, pharmaceuticals; polymers and packaging; product design; product development; research.