

COURSE



SPOTLIGHT

# MEDICINAL CHEMISTRY



> Modelling Potential New Drugs: La Trobe Students Elisse Browne (left) and Stephen Cassar (right).

## What is medicinal chemistry?

Medicinal chemistry is the design, synthesis and development of pharmaceutical drugs. Medicinal chemists find and improve the molecules we need for understanding, preventing and treating disease.

## Does medicinal chemistry have anything to do with pharmacy?

Medicinal chemistry is based on making new molecules using chemical reactions. However, not only do we want to synthesise new compounds, we also want to make compounds which are useful as drugs. This can be much more challenging and requires an understanding of biochemistry, molecular biology, human physiology and pharmacology. Pharmacy involves the preparing and dispensing of drugs once they are available for treating patients.

## Who do medicinal chemists work with?

Medicinal chemists often work as part of a team of people who want to improve an existing drug or develop a new drug to treat a particular disease or condition. Team members are often from different disciplines and can include biochemists, molecular biologists, doctors, pharmacologists, clinical researchers, project managers and patent lawyers.

## What can you do after completing a Bachelor of Medicinal Chemistry?

Pharmaceutical research, development and production are the obvious areas to go into but related industries such as biotechnology, food and beverages, defence, cosmetics, petrochemicals and polymers are also some of the possible options. Many chemists are employed in laboratories or production facilities but work can also be found away from the bench in areas such as patent law, finance, sales, teaching, publishing, marketing and management. Further scientific research training in an additional Honours year or PhD is also very valuable. Anyone interested in research or positions with more responsibility should aim to complete the Honours degree.

Do you want to know how new drugs are discovered and made? Do you enjoy working as part of a team and solving problems? Perhaps a Bachelor of Medicinal Chemistry is for you. Lecturer, Dr Belinda Abbott, answers some questions about La Trobe University's three year degree offered at the Melbourne (Bundoora) campus.

## How much can a medicinal chemist earn?

According to leading recruitment specialists, the average graduate salary in chemistry is around \$38 500. The median salary across this general area is around \$56 000. Experienced PhD chemists working in research and development areas can earn in excess of \$100 000 per year. Job prospects for chemists are good, with low unemployment levels (Department of Employment and Workplace Relations' *Australian jobs 2006*).

## What subjects should I be doing at school?

Chemistry is a really important subject for many degrees. For entry to the La Trobe University Bachelor of Medicinal Chemistry degree the prerequisites for VCE students are English, Chemistry and Mathematical Methods or Specialist Maths (or equivalent subjects for other students).

## What skills are needed to be a good medicinal chemist?

Medicinal chemists need to have good problem-solving skills and be able to pay attention to detail. Being able to communicate ideas clearly and concisely is important when you work as part of a team with people from different scientific disciplines. Practical skills are also useful if you are going to work in the laboratory, which is where most people usually spend some years at the start of their career.

## What are the advantages to studying medicinal chemistry at La Trobe?

At La Trobe students study specialist medicinal chemistry topics while completing majors in both chemistry and biochemistry. The three year degree is completed at the one campus and students can choose a number of complementary elective units in addition to the core program. Practical laboratory skills are developed across disciplines. Students also benefit from the La Trobe approach to learning that is characterised by generally smaller classes, which fosters good communication with lecturers and helps to create a good learning environment.



**For more info:**  
<http://www.latrobe.edu.au/chemistry/medicinal>