

# CAREERS WITH STEM™ JOB KIT



## BIO MEDICAL SCIENTIST

Insights, information and advice on  
life-saving careers in biomedical science

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**QUT**



# Health for the changing world.

Advancements in medical and social robotics, telehealth, wearable technologies and patient information management are changing how, where and when health care is delivered, recorded and analysed.

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the university  
for the real world 



# INNOVATE AND SAVE LIVES

Whether you dream of launching your own biotech startup, or are on the path to becoming a doctor, a biomedical science degree will equip you with the skills you need for a career that saves lives



**PROFESSOR KIRSTEN SPANN**  
**PROFESSOR OF VIROLOGY, QUT**  
**SCHOOL OF BIOMEDICAL SCIENCES**

**B**iomedical scientists use their specialised knowledge, critical thinking and technical skill to solve modern health problems. They are the people who develop new vaccines, discover ways to kill pathogens and develop new treatments for diseases like cancer.

There are many pathways you can follow as a biomedical science graduate. You could work in research, in university, in health clinics or medical laboratories, making discoveries and turning them into tools to improve health.

Biomedical science is also an excellent degree choice for students who want to go on to study postgraduate medicine, as it provides foundational knowledge about body systems and the agents and injuries that can impact them.

### Collaborate and think creatively

At QUT we teach our biomedical science graduates how to be adaptive and think outside the box, so they can work with engineers, other scientists, clinicians and even creative industries to develop new ways of tackling health problems.

QUT offers opportunities for students to tailor their degree and develop skills and knowledge in areas like anatomy, human physiology, cell and molecular biotechnology, human biochemistry, and infection and immunity.

You can also combine your degree with a Master of Data Analytics, and future-proof your career in the age of data generation and analysis. Or, you could take an entrepreneurial path, and join

**THE ABILITY TO COLLABORATE AND ADAPT MAKES BIOMEDICAL SCIENCE GRADUATES ASSETS IN OUR EVOLVING WORKFORCES"**

a biotechnology startup (or launch your own!). COVID-19 highlighted how much we need to quickly respond to health challenges and innovate. Biomedical science can equip you with the skills to develop new health and med-tech businesses.

A career in biomedical science could take you all over the world. The skills you develop studying this degree can be adapted to a range of roles and work settings so you can respond to emerging opportunities and new industries. At QUT, we focus on developing practical and technical skills in addition to critical thinking, data analysis and problem solving. The ability to collaborate and adapt makes biomedical science graduates assets in our evolving workforces.

**Professor Kirsten Spann**  
**Professor of Virology, QUT School of Biomedical Sciences, Director of the Centre for Immunology and Infection Control, Respiratory Virus Research Group Leader**

PROFESSOR OF VIROLOGY, QUT

RESEARCH SCIENTIST, NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES

RESEARCH FELLOW, CSIRO

DOCTOR OF PHILOSOPHY IN VIROLOGY

BACHELOR OF SCIENCE (HONS), UNIVERSITY OF QUEENSLAND

QUT / SHUTTERSTOCK

**Check out [CareerswithSTEM.com](https://careerswithstem.com) for more insights, information, inspiration and advice about Biomedical Science careers!**



# Made for medicine

Biomedical scientists are the doctors, researchers and clinicians helping to keep people all over the world healthy and disease-free

**B**iochemical science. It's a bit of a mouthful, right? Sounds a bit like you've mashed three different subjects into one? Actually, that's exactly what it is! This arm of science uses biology to develop new medicines, better understand the human body and to help tackle some of the world's most challenging health problems, such as cancer, infectious diseases (like COVID-19) and antibiotic resistance.

We have biomedical scientists to thank for some of the biggest health developments in recent history. Biomedical scientists all over the world helped develop a COVID-19 vaccine, and they are still exploring new ways to protect people from COVID. For example, by developing fabrics that trap the virus, or by reading human DNA to discover who is most at risk and give them better treatments. Talk about having an impact! – *Amelia Caddy*

## Skill up

While knowing the difference between DNA and RNA is important, technical knowledge can only get you so far in any career. Here are some more skills that will help get you the rest of the way:

- ✓ **Teamwork**
- ✓ **Communication**
- ✓ **Critical thinking**
- ✓ **Creativity**

## JARGON BUSTER

Diving into the world of biomedical science can mean learning a whole new vocab. Here are just some of the common terms you can expect to encounter in this job, and their meanings

**Biochemistry** This mostly lab-based branch of science uses chemistry to solve biology-related problems. Think: understanding the impact of vitamins and minerals on human health.

**Biotechnology** The development of new products or processes using an organism or biological system. Gene therapy is a cutting-edge example – modifying a person's genes to treat or cure genetic disease.

**Clinical trial** Research studies performed to test the safety and effectiveness of a new medical approach, such as a new drug, surgical treatment or even preventative care.

**CRISPR** Pronounced 'crisper', this is a powerful new technology for editing genes, with significant implications for the future of medicine.

**Microbiome** Did you know there are trillions of living things inside you? Bacteria, fungi, viruses are all part of your body, with most found in your gut. We call it our 'microbiome' and understanding its role in human health is an emerging area of medical science.

**Pathogens** Organisms that make you sick – includes viruses and bacteria, but can also include worms and single-cell organisms.

**Physiology** The study of how living things (including human beings) work and function.

**R&D** This stands for research and development and it refers to all the important steps needed before launching a new product.

**Systematic review** The use of research methods to bring together all the existing published studies on a particular topic or question.

## MAKING CENTS

The greater health demands of a growing and ageing population mean trained healthcare and medical professionals will never be short of employment opportunities; currently, healthcare jobs account for almost 15% of Australia's entire workforce!

Incomes for biomedical scientists vary widely depending on your chosen speciality and postgraduate qualifications.

According to the job site Seek.com.au, the average starting salary for a medical scientist ranges from \$80k–\$100k<sup>1</sup>, but if your sights are set on medicine, you could be looking at anything from \$110k–\$130k-plus<sup>2</sup>.

<sup>1</sup>seek.com.au/career-advice/role/medical-scientist/salary

<sup>2</sup>seek.com.au/career-advice/role/doctor/salary



# PICK YOUR PATHWAY

A BIOMEDICAL SCIENCE QUALIFICATION CAN LEAD TO SO MANY DIFFERENT CAREER OPTIONS! HERE ARE FOUR PATHWAYS YOU COULD CONSIDER

#1

## Patient care

Were you the person patching up everyone's lunchtime cuts and scratches? Spend your evenings watching medical dramas on TV? In Australia, you need an undergraduate degree before you study medicine, and nothing is going to set you up for success better than biomed.

### Work as:

A doctor; sleep scientist; respiratory scientist; cardiac scientist; radiologist; sonographer.



#2

## Research

Consider this path if you love unlocking the secrets of how the human body works. Researchers develop life-saving medicines, vaccines and disease treatments. Before you come up with a cure for cancer though, you'll need to put in an extra year or more of study after your degree: researchers usually have honours, masters and even PhD qualifications.

### Investigate:

Cancer treatments; personalised medicine; gut bacteria; disease and infection; vaccines.

#3

## Industry

Postgrad study not for you? There are plenty of jobs you could land straight out of your undergrad degree. The biotech and pharmaceutical industries, for example, are always looking for talented people to work in research and development, sales and on clinical trials.

### Work as:

Biotech product R&D, medical sales, clinical research associate; clinical trials administrator.

#4

## Get creative

Your scientific mind could be a huge asset in lots of different industries. Think: journalism, law, marketing, business, health policy or food and nutrition. So put your electives to work and get creative. You could also do a double degree, with just one extra year of studies, and combine biomedical science with business, law or mathematics, for a truly adaptable qualification.

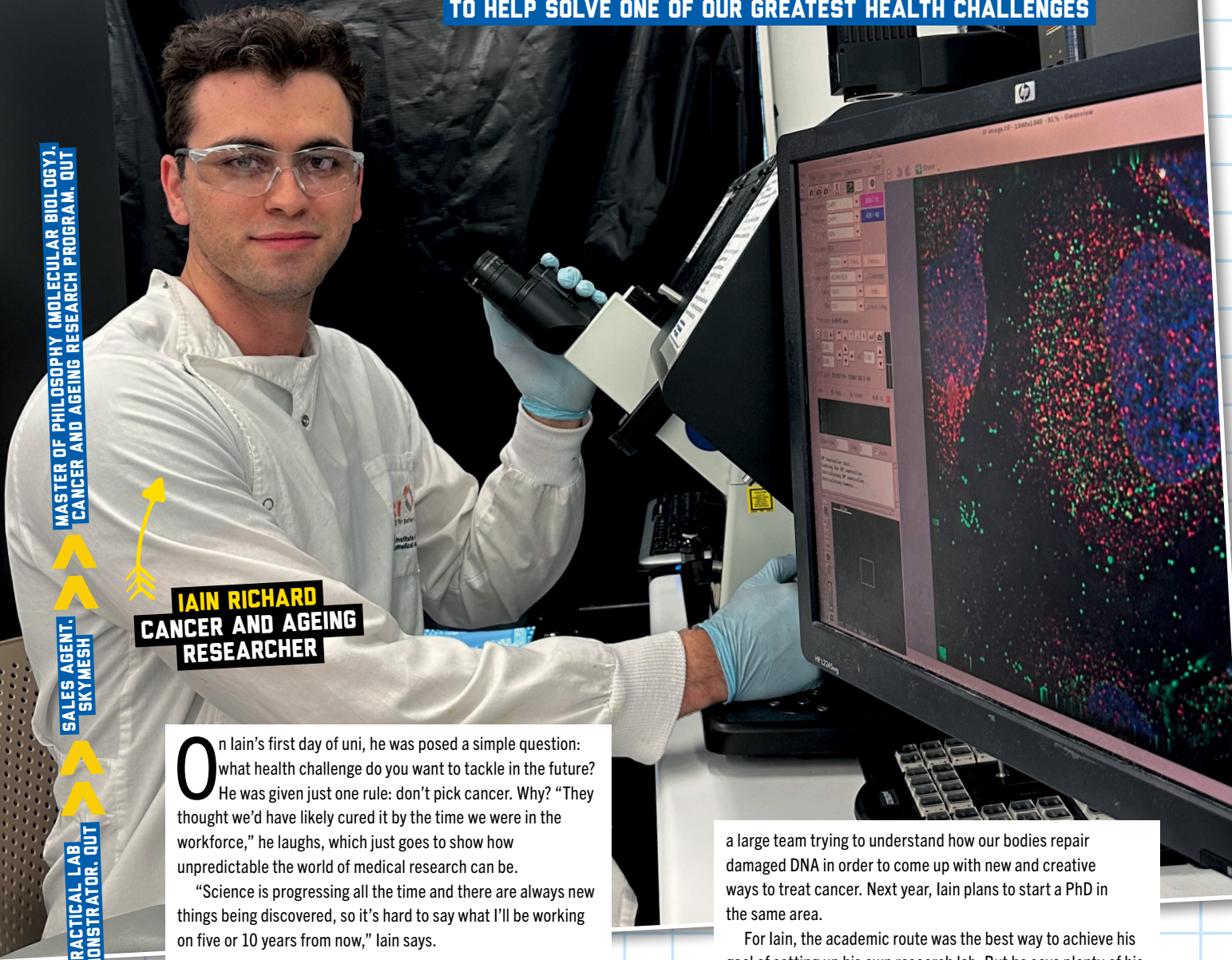
### Work as:

A medical journalist; policy advisor; crime scene investigator; teacher.



# RESEARCHING THE CANCER TREATMENTS OF THE FUTURE

HOW OUR BODIES WORK ON THE SMALLEST SCALE HAS FASCINATED IAIN RICHARD FROM AN EARLY AGE. NOW, HE'S USING HIS KNOWLEDGE TO HELP SOLVE ONE OF OUR GREATEST HEALTH CHALLENGES



MASTER OF PHILOSOPHY (MOLECULAR BIOLOGY), CANCER AND AGEING RESEARCH PROGRAM, QUT

SALES AGENT, SKYMESH

PRACTICAL LAB DEMONSTRATOR, QUT

BACHELOR OF BIOMEDICAL SCIENCE, QUT

**IAIN RICHARD**  
CANCER AND AGEING RESEARCHER

On Iain's first day of uni, he was posed a simple question: what health challenge do you want to tackle in the future? He was given just one rule: don't pick cancer. Why? "They thought we'd have likely cured it by the time we were in the workforce," he laughs, which just goes to show how unpredictable the world of medical research can be.

"Science is progressing all the time and there are always new things being discovered, so it's hard to say what I'll be working on five or 10 years from now," Iain says.

### INVESTIGATING DNA

Iain was captivated by the fields of cell and molecular biology as soon as he was old enough to understand them. That led him to a Bachelor of Biomedical Science at QUT, and onto a Master's degree researching – you guessed it – cancer.

Working in QUT's Cancer and Ageing Research Lab at the Brisbane-based Translational Research Institute, Iain is part of

a large team trying to understand how our bodies repair damaged DNA in order to come up with new and creative ways to treat cancer. Next year, Iain plans to start a PhD in the same area.

For Iain, the academic route was the best way to achieve his goal of setting up his own research lab. But he says plenty of his peers found fulfilling jobs without the extra study.

"One of them is working at an IVF clinic, another is doing sonography [the use of ultrasounds], and others have gone onto medical degrees," he says.

As diverse as those careers sound, they all stem from a background in biomedical science and that diversity is why Iain finds this field so special.

"We've gone from discovering the structure of DNA to discovering CRISPR gene editing systems in a relatively short period of time. Being able to be a part of that is very exciting," he says. – *Amelia Caddy*

**SCIENCE IS PROGRESSING ALL THE TIME AND THERE ARE ALWAYS NEW THINGS BEING DISCOVERED"**





# A day in the life of a... BIOMEDICAL SCIENTIST

A double degree in biomedical science and business management at QUT set **Erina Tsukimori** up perfectly for their job at medical cannabis company, MedReleaf



MEDICAL DEVELOPMENT  
SPECIALIST, MEDRELEAF

I GO OVER THE DIFFERENT CONDITIONS YOU CAN PRESCRIBE MEDICINAL CANNABIS FOR, INCLUDING INSOMNIA AND CHRONIC PAIN"

CLINICAL RESEARCH  
ASSOCIATE, NOVATECH

If you've ever heard of cannabis, it may be from its association as a recreational drug—illegal in most Australian states. However there's more to this controversial plant, and its potential medicinal properties are yet to be fully realised.

Biomedical science graduate Erina is using their specialised skills and knowledge to educate doctors about how cannabis works – and why it could help people suffering from chronic health conditions.

The child of a nurse, Erina always liked the idea of going into healthcare, but wasn't sure what to specialise in. Biomedical science offered the perfect solution: a degree aligned with their interests, but which was still broad enough to give them lots of options. Adding a second degree in business management opened up even more doors.

After graduating, Erina worked in clinical research before landing a job at medical cannabis company, MedReleaf. It's a job they find immensely satisfying:

"My favourite thing is talking to prescribers; everyone has a story about a patient whose life has been changed through cannabis."



CLINICAL TRIAL  
ADMINISTRATOR, NOVATECH

## Here's what a typical day in Erina's job might look like...

### 9am

The day often starts with a team meeting. We go over what everyone's working on and problem-solve any issues.

### 10am

My work involves a lot of out-of-office meetings so I'll confirm those meetings and plan how to get to them.

### 11.30am

Today I'm chatting to the head of a large healthcare provider. We go over the different medicinal cannabis products available, discuss how they can integrate them into their practice, and line up an education day for all their GPs.

### 1pm

I usually work from home after my meetings – my job is super flexible like that!

### 4pm

This evening I've got a one-on-one training session with a GP, so I take a break and enjoy the sunshine in one of Brisbane's beautiful parks.

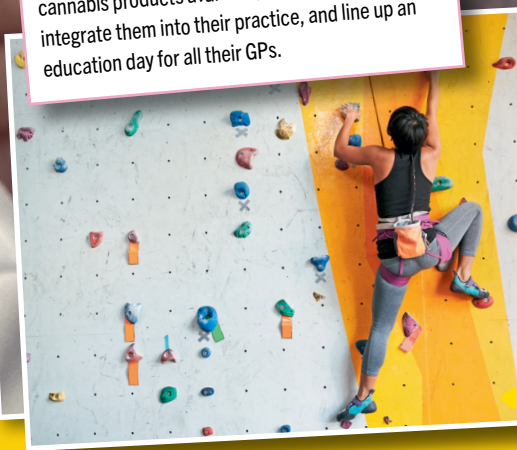
### 6pm

With the GP, I go over the different conditions you can prescribe medicinal cannabis for, including insomnia and chronic pain. Then, we talk through what those treatment plans could look like.

### 7pm

After work, I love either rock climbing or watching some of my talented friends play music at our local bar! – *Amelia Caddy*

BACHELOR OF BIOMEDICAL SCIENCE/  
BACHELOR OF BUSINESS MANAGEMENT, QUT





# Get the job!

Keen to kick off your career in the biomedical sciences? Start here

## GET CONNECTED

A little networking can go a long way to helping you make your mark on the scientific world, but putting yourself out there can feel intimidating! Just remember: everyone started somewhere. Create a LinkedIn profile and give these Australian companies a follow to get started:

### Microbio

This Brisbane-based biotech startup is revolutionising pathogen testing.



### Microba Life Sciences

Not to be confused with the above, Microba is entirely focused on gut microbiome research.

### Translational Research Institute

Also Brisbane-based, TRI connects medical researchers with clinicians and industry to tackle some of the world's biggest health issues.



### MTPConnect

A not-for-profit that aims to grow Australia's medical technology, biotechnology and pharmaceutical sectors



### QIMR Berghofer

An institute focused on cancer, infectious diseases, mental health, and working to improve health through better diagnostics and treatment strategies.

### ThermoFisher Scientific

World-leaders using science and technology to create and manufacture life-changing therapies.



## LISTEN UP



Check out these three podcasts full of fun facts, news about the latest scientific breakthroughs and even ethical medical dilemmas to get you thinking.

### This Podcast Will Kill You

One day, two grad students studying infectious diseases decided to turn their love of medical mysteries into a podcast. Erin and Erin cover everything from salmonella to mumps, monkeypox and tetanus, going into the diseases' histories, biology, and how likely they actually are to kill you. [thispodcastwillkillyou.com](http://thispodcastwillkillyou.com)

### TED Talks Science and Medicine

A global phenomenon that needs no introduction, this podcast is a great way to get up-to-date with the cutting edge of science and medicine, while also discovering some of the many paths that a biomedicine degree could take you down.

Search for it on your fave podcast platform.

### Pomegranate Health

This Australian podcast, created by the Royal Australian College of Practitioners, gives a more philosophical take on medicine, delving into topics such as equitable healthcare delivery, the medical culture and how doctors make difficult ethical decisions. [raccp.edu.au/podcast](http://raccp.edu.au/podcast)

## SCROLL SCHOOL

Follow these TikTok accounts and fill your feed with biomedical science.

- @biomedicalsciencestudent
- @qtrealworld
- @medicineexplained
- @careerswithstem
- @doodlesinthemembrane



### Electives checklist

Choosing high school electives? These subjects will set you on the right path to a career in biomedical science:

- ✓ Biology ✓ Chemistry
- ✓ Mathematics
- ✓ Digital technologies