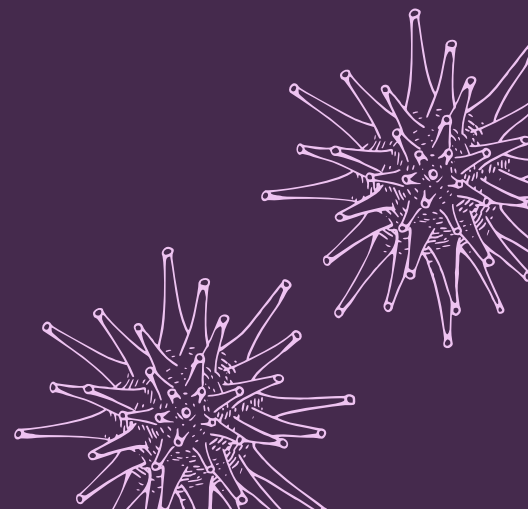
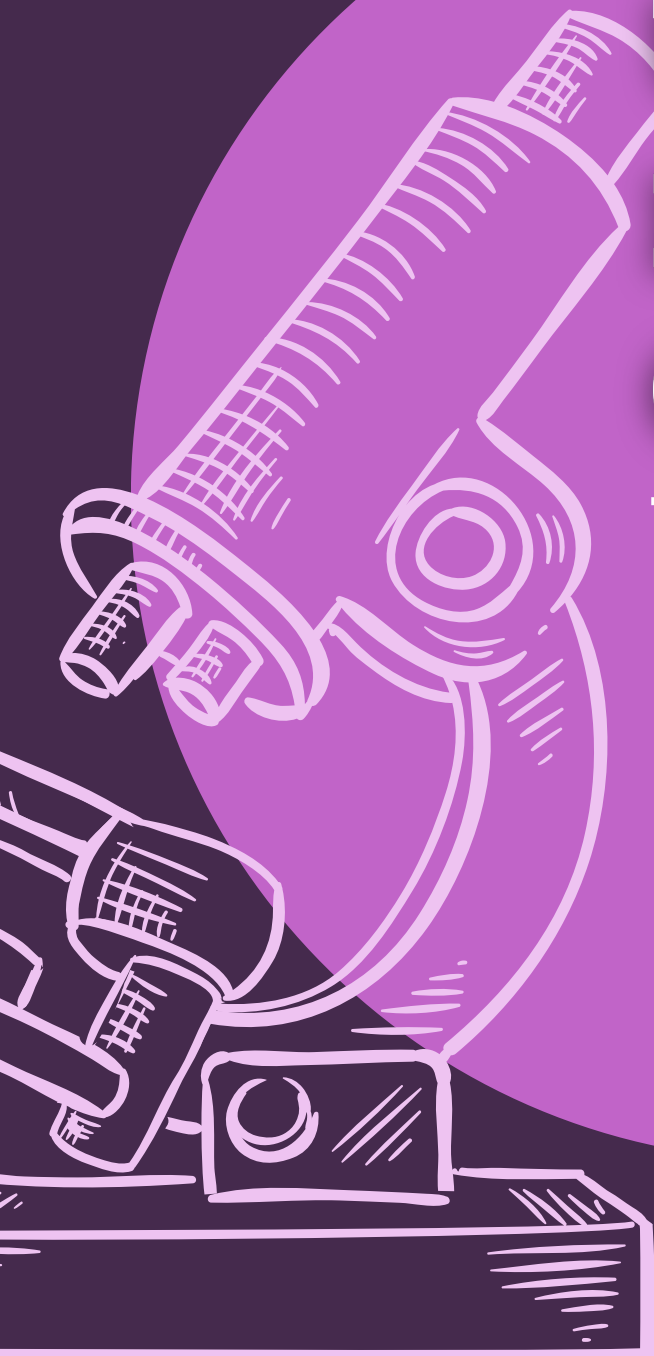




UQABS RESEARCH GUIDE





UQABS



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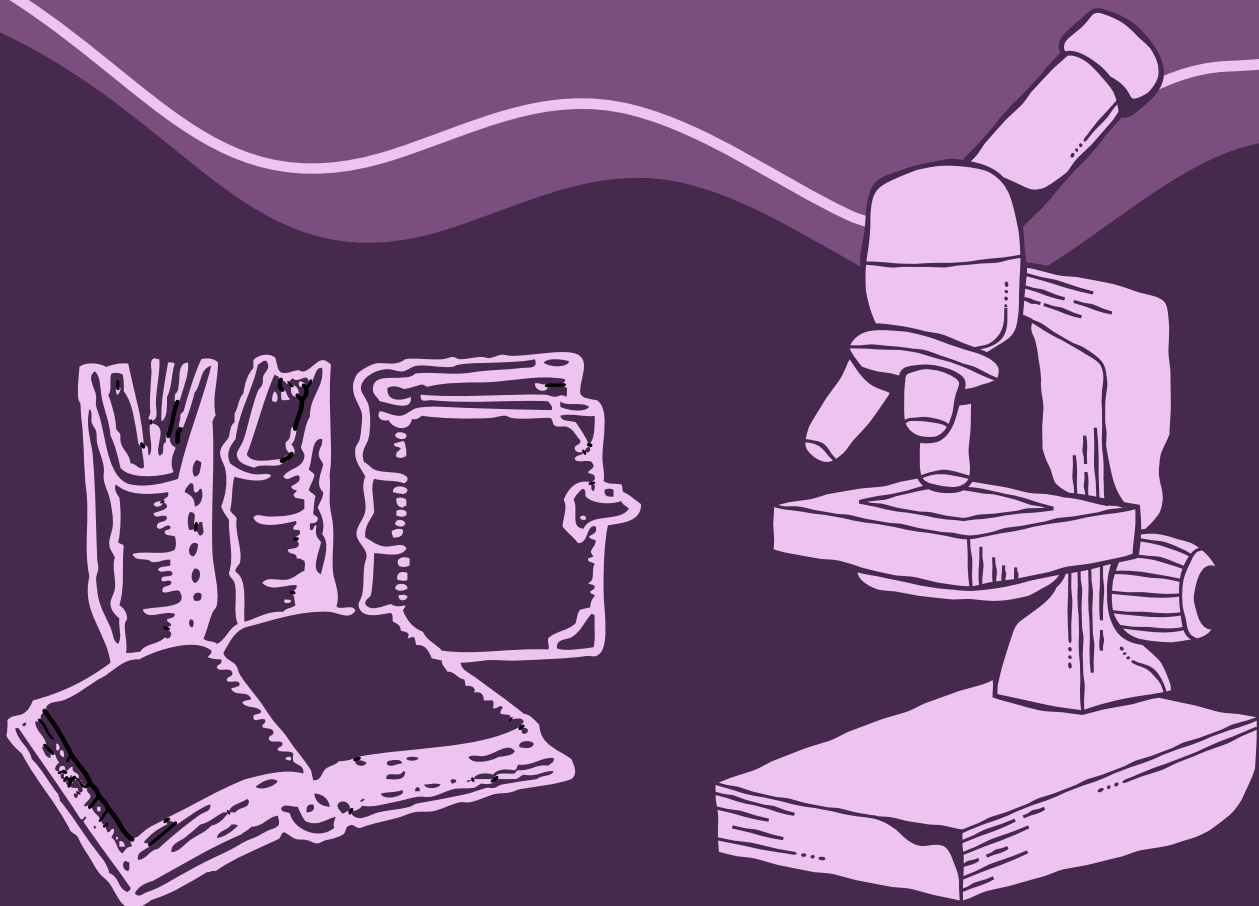
What is research?

Higher Degree Research (HDR), commonly referred to simply as research, encompasses postgraduate academic study conducted at universities or affiliated institutions.

These advanced studies typically include Honours degrees, Master of Philosophy (MPhil), or Doctor of Philosophy (PhD) programs.

However, there are also numerous undergraduate research opportunities available, such as winter or summer research projects, as well as research-based project courses, providing an excellent introduction to a research career and consolidating lab-based skills.

These initiatives allow students to engage in scholarly exploration under the guidance of experienced academics, fostering critical thinking, problem-solving skills, and the ability to contribute to the advancement of knowledge in their respective fields.



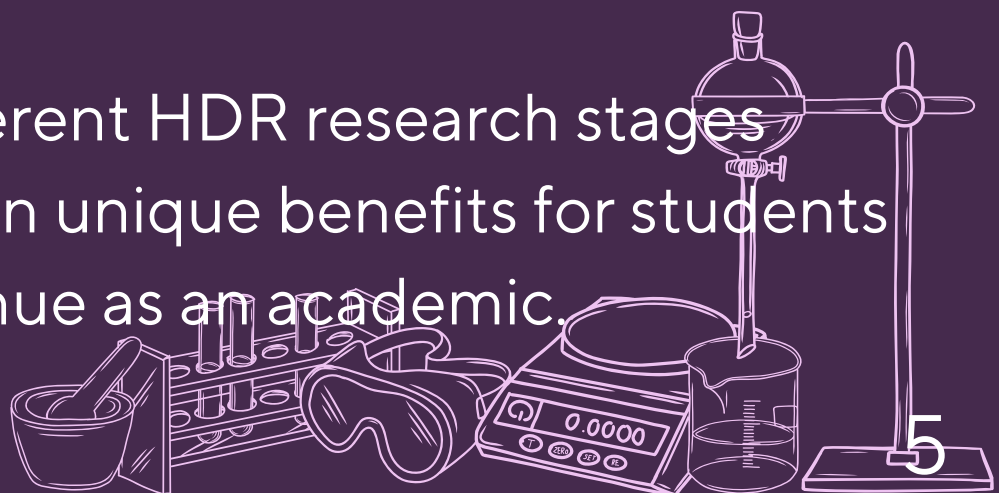
Who is research for and why?

1

ACADEMICS

It goes without saying that pursuing Higher Degree Research is a vital step for those aspiring to go down an academic career path. It can provide individuals with the key skills necessary to move forward in their careers and equip them for success.

Each of the different HDR research stages provide their own unique benefits for students hoping to continue as an academic.



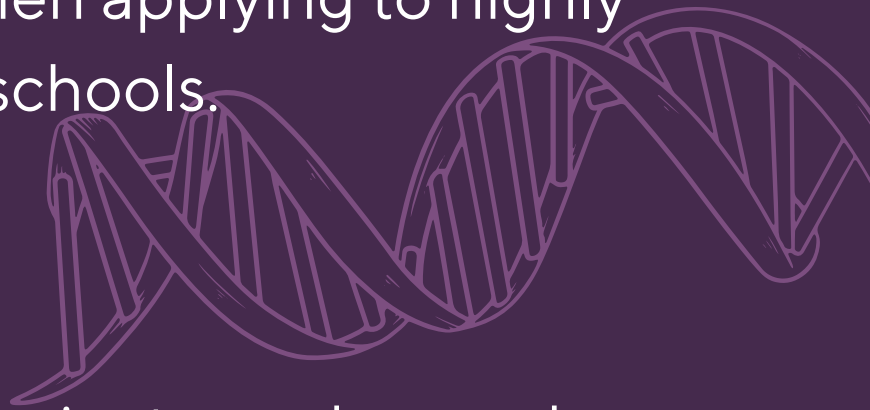
The background of the page features a detailed illustration of a human brain. The top half shows a network of neural connections in shades of blue and purple. The bottom half shows a cross-section of a brain hemisphere with a magnifying glass focusing on a specific area, rendered in a sketchy, textured style.

2

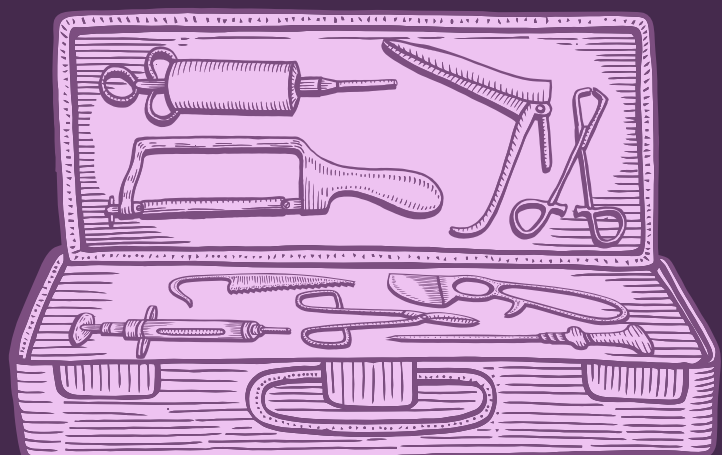
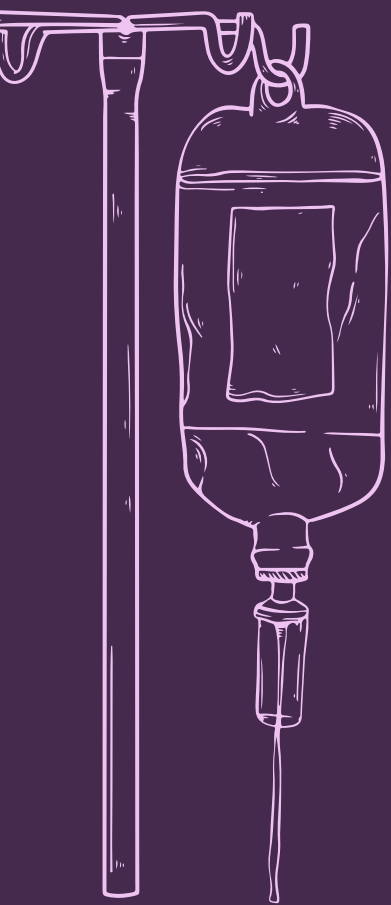
MEDICAL STUDENTS

Research and medicine go hand in hand in modern practice, from implementation of new treatments to a greater understanding of diseases and their pathology. However, what might not be known is the benefit research has for those hoping to go on to study medicine. It is a common misconception that research projects and honours years are only for those hoping to further their career in academia. Though this is true, it can also significantly help students hoping to go on and study medicine for a plethora of reasons.

These projects can help show initiative and interest in a topic which can give one the edge against their peers when applying to highly competitive medical schools.



Certain projects, such as an honours year, can also provide high GPAs if you are looking to attain a better one than your undergraduate GPA. Furthermore, it strengthens one's application by demonstrating the ability to take on rigorous and practical research.



How to get Started in Research During Undergrad

**SUMMER/WINTER RESEARCH
PROJECTS**

WHAT ARE THEY?

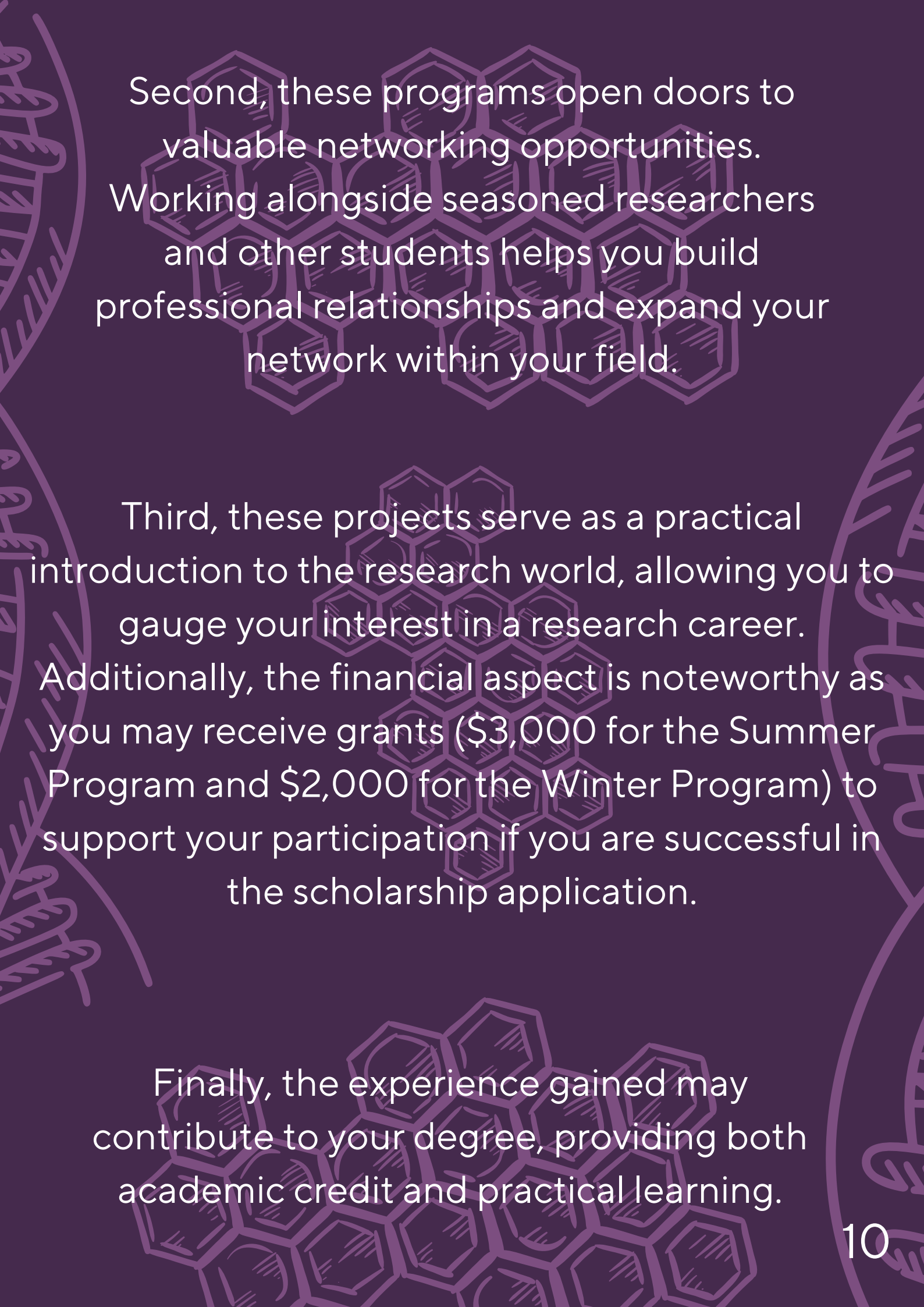
Summer and Winter Research projects provide undergraduate and postgraduate students with the opportunity to engage in hands-on research. These programs run during academic breaks. The Summer Program typically lasts six weeks (from early January to mid-February), while the Winter Program is four weeks long (June to July).

These projects provide a platform for students to work closely with UQ's distinguished academics and researchers on diverse projects across various disciplines. This hands-on experience is not only about contributing to existing research but also about immersing students in the research process, giving them a practical edge that complements their theoretical knowledge.



Participating in these research programs offers numerous benefits.

First, they are an excellent way to develop and hone practical skills such as research methodologies, critical thinking, and data analysis, which are crucial for both academic and professional success.



Second, these programs open doors to valuable networking opportunities. Working alongside seasoned researchers and other students helps you build professional relationships and expand your network within your field.

Third, these projects serve as a practical introduction to the research world, allowing you to gauge your interest in a research career. Additionally, the financial aspect is noteworthy as you may receive grants (\$3,000 for the Summer Program and \$2,000 for the Winter Program) to support your participation if you are successful in the scholarship application.

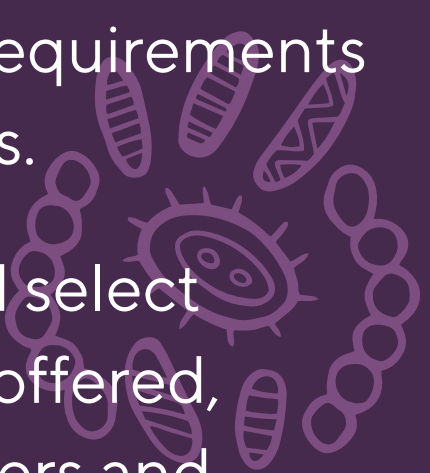
Finally, the experience gained may contribute to your degree, providing both academic credit and practical learning.

GETTING INTO IT

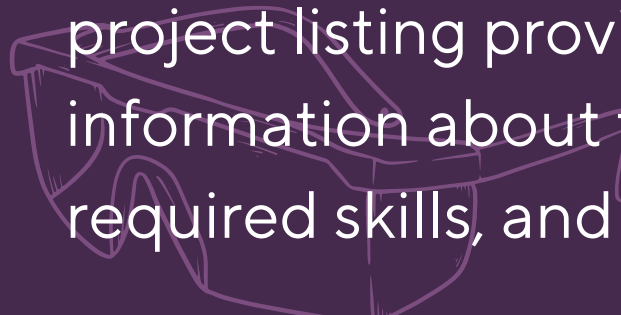
To participate in the Summer or Winter Research Programs, students should follow a series of steps.



Initially, checking eligibility is crucial. These programs are generally available to UQ students who have completed at least one year of study and have maintained good academic standing. From experience, however, these requirements are not strict if the supervisor allows.



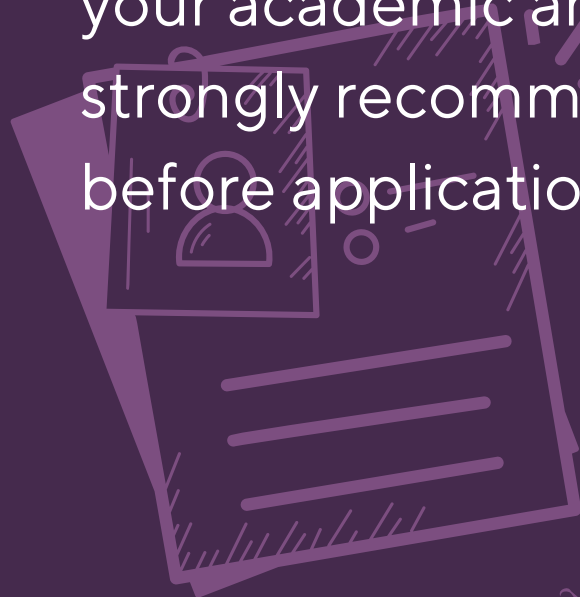
Next, students need to explore and select from the various research projects offered, which are detailed on the UQ Careers and Employability website. We will be providing details of some projects and researchers on our website, as outlined on Page 48. Each project listing provides summarised information about the research background, required skills, and objectives of the project.



The application process typically involves submitting a CV, a cover letter tailored to the selected project, and oftentimes, an academic transcript. Applications are submitted online, and it is vital to align your application materials with the project's goals. Meeting deadlines is critical; for instance, applications for the Winter Program usually close in April, while those for the Summer Program close in September.



Lastly, be prepared for any additional selection processes such as interviews or meetings with the supervisor, where you can articulate your interest in the project and how it aligns with your academic and career aspirations. It is strongly recommended to contact researchers before application for projects.



SCIE RESEARCH PROJECTS

WHAT ARE THEY?

SCIE research projects refer to semester long, course-based research projects offered through the university.

Examples of this, relevant to the biomedical science faculty, include SCIE3220 and SCIE3221, both level 3 program elective research courses counting for 2 units.

These courses are semester-long research projects under a supervisor of the student's choice in various fields. These courses have a lot of freedom in terms of content as the student is able to find a supervisor and project of their choosing and work with them for the duration of the semester. It is important to know that there are assessment pieces required to do within this course including presentations, literature reviews as well as project reports.

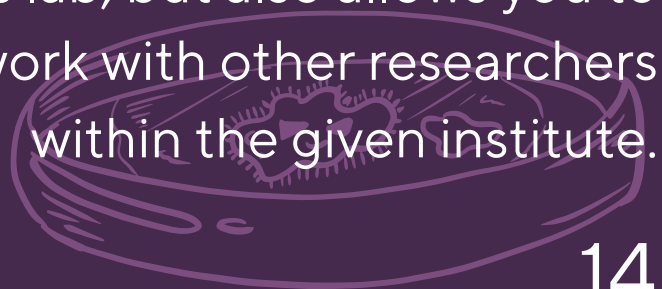
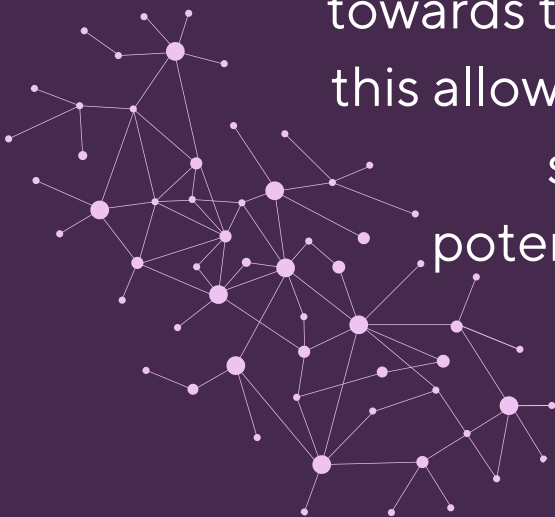
PURSuing SCIE PROJECTS

There are a range of reasons to do the SCIE courses or similar ones for both long and short-term benefits.

Firstly, these courses are a great way to get real-world experience in a research-focussed lab with some of the best academics Australia has to offer. This is a highly sought after opportunity to develop and refine one's technical skills in the laboratory while being in their undergraduate degree.



Secondly, the networking opportunities that can arise from these courses are highly valuable for individuals in their undergraduate studies whether it be their early years or towards the end of their degree. Not only does this allow you to work closely with your chosen supervisor's lab, but also allows you to potentially network with other researchers within the given institute.



Finally, and possibly one of the greatest advantages of courses such as these, is the possibility of using these to springboard into an honours degree.

Although this somewhat feeds off of the second advantage, many people use these courses in their final semester to potentially go directly into an honours degree with the lab of their SCIE research project supervisor. This in itself holds many benefits such as a smoother onboarding process, already knowing the nature of the work being done as well as already having good relations with others in the lab.

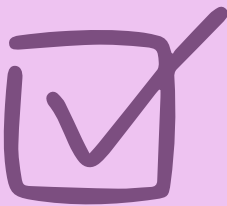
This is not a given, however, as you may realise that the type of research you're doing doesn't align with your interests but even so, having this experience under your belt will surely aid you in finding another honours project should you wish to.

GETTING INTO IT

Before searching for a research project supervisor, it is important to check the eligibility criteria of these courses.



Firstly, each of these require the completion of at least 24 units from the bachelor of biomedical science degree.



Secondly, the SCIE3221 course requires that one complete the SCIE3220 course first. The only reason for this is so that if the student should so choose, they are able to attain four units worth of research project-based courses for their degree.



Finally and most importantly, you cannot enrol in the course without approval from the School of Biomedical Science.

Approval from the School of Biomedical Science can be obtained by completing the application form which can be found in the electronic course profile (ECP) of the respective course.

It is at this point that you will need a supervisor as they will need to fill in details of the research project and sign off on your form. Finding a supervisor is primarily done by looking through the UQ researchers page and reaching out to them. It is important to find a researcher whose field of study interests you and therefore it also helps to read up on some of their work to show a genuine sense of curiosity and eagerness to involve yourself in it.

Another way to go about this is through lecturers or other academics who may have taught you over the years. This is also a great starting point to let them know of your interest in the topic.

Similar to a summer/winter research project, it is likely that you will need to attach your CV and academic transcript when reaching out to academics and potentially have meetings with them to gain a more in-depth understanding of their work and . These projects can be done in both semesters 1 and 2 as well as during the summer semester and are therefore great for students at all stages in their degree due to the flexibility and opportunities they provide.



Continuing Research Post-Graduates

HONOURS YEAR

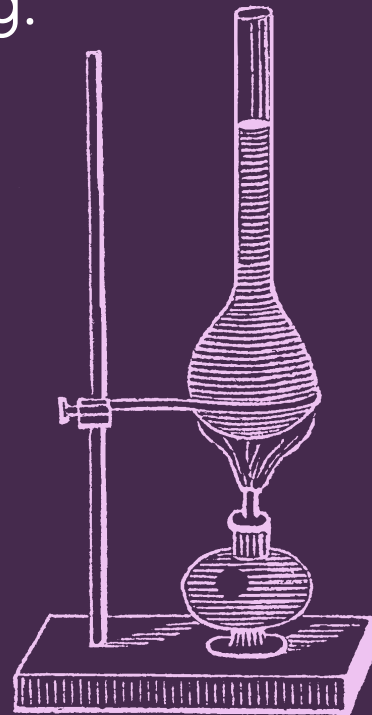
WHAT IS IT?

An Honours year at university entails a self-directed research project in a specific area of interest over a year. This is done under the supervision of a senior researcher, and/or other researchers in their lab, when both the student and supervisor agree to this honours project.

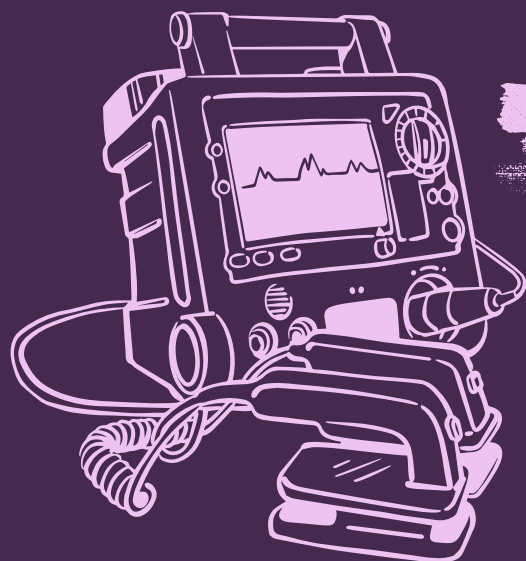
PURSUING HONOURS

There are various attractive benefits for undertaking an Honours project depending on your reasoning.

For a student hoping to get into research, Honours projects are an absolute necessity for starting on this pathway and developing your career through further study.

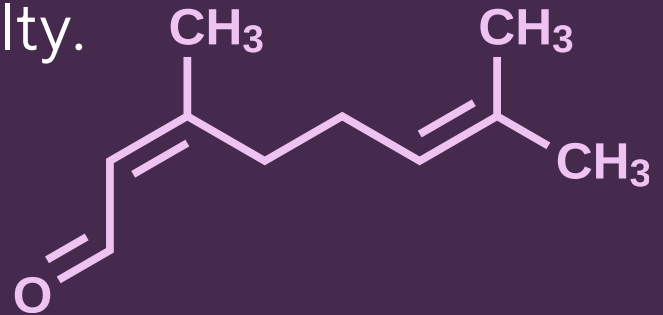


For a student studying medicine, Honours projects are a great way to gain a high GPA as the Honours degree GPA is separate to your undergraduate GPA and can hold great importance to interviewers/employers.



Another reason why Honours projects suit both of these pathways is that it can help consolidate your feelings on a specialty for your future career as well as improve your chances in going into this specialty.

For a student aiming for research, having a solid foundational knowledge of the concepts related to the specialty as well as the laboratory techniques and technology necessary would greatly improve your skill set.



For students aiming to go into medicine, it is a great talking point during interviews and again, having relevant foundational knowledge will help immensely.

GETTING INTO IT

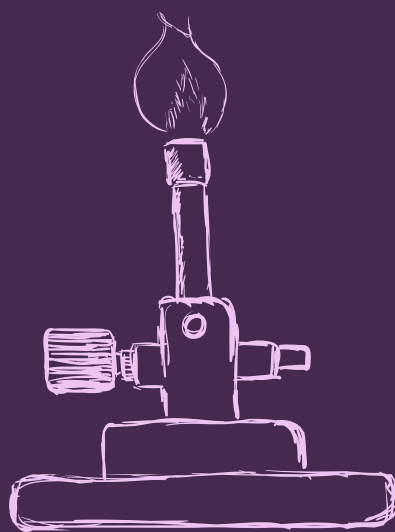
Getting into an Honours program requires a few steps which can be found [here](#).

Breaking this down, it firstly involves getting an idea of what you want an Honours qualification in, whether it be Science, Advanced Science, Biomedical Science or the plethora of other options available.

Once this has been done, it is vital to review the entry requirements of the Honours program. This usually involves attaining a GPA above a certain threshold, oftentimes having extra GPA requirements in relevant courses as well as having secured a supervisor. The next step is about understanding your financial commitments which can be especially important for international students. This is then followed by actually submitting your application and monitoring its progress.

Arguably, the most important part of this process is finding a supervisor. This needs to be an academic researcher who is doing work in a field related to that which you are interested in as well as being willing to take you in their lab for the Honours project. This document provides advice on the process of finding supervisors and Honours projects of interest in the 'Tips and Advice' section.

The application process has been visually demonstrated below, however, it must be noted that any dates seen in the pictures may not accurately depict the process structure after the date of this document's creation.



MASTERS

WHAT IS IT?

A Master's degree involves specialized study in a particular discipline, requiring a bachelor's degree for entry. Programs typically last two years full-time, though part-time options are often available. Coursework includes lectures, seminars, and practical or research projects, culminating in a dissertation or thesis.

PURSING IT

Pursuing a Master's degree can enhance your career prospects, provide opportunities for specialization (PhD), and potentially lead to higher earning potential. It also offers the chance to gain deeper insights into your field of interest, network with professionals and academics, and develop skills that are highly valued in the job market.

GETTING STARTED

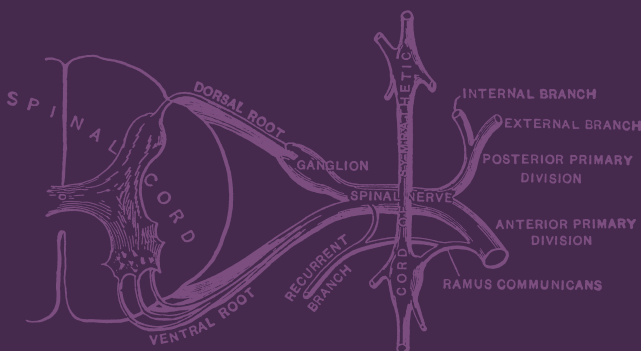
To apply for a Master's program, you'll need to meet specific entry requirements, which include a relevant undergraduate degree and a certain GPA (generally above 5). The application process involves applying through QTAC as you would for an undergrad degree and submitting academic transcripts from your bachelors.

PRIVATE RESEARCH

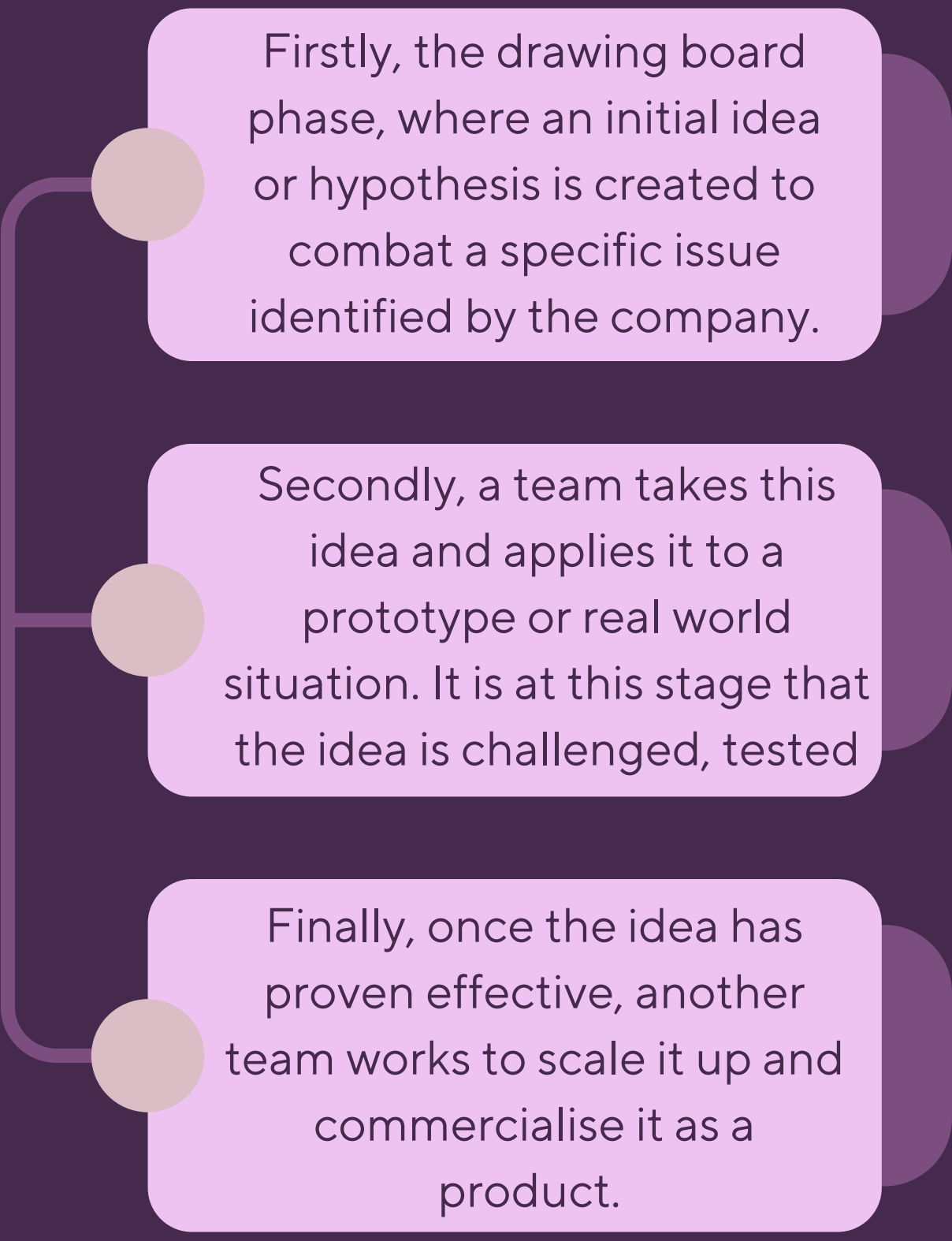
WHAT IS IT?

Private research involves companies which approach research projects with a short to medium timeframe to answer specific questions affecting the industry. These companies need to consider a variety of factors that other forms of research might not, such as product portfolio and product pipeline amongst a range of others, making decision making much more dynamic.

This is because overall, the focus of private research is to improve customer experience and increase company profits.



Research in the private sector can mainly be broken down into three main phases.



Firstly, the drawing board phase, where an initial idea or hypothesis is created to combat a specific issue identified by the company.

Secondly, a team takes this idea and applies it to a prototype or real world situation. It is at this stage that the idea is challenged, tested

Finally, once the idea has proven effective, another team works to scale it up and commercialise it as a product.

Each stage is a vital part of the process to ensure the product is effective and safe for commercial distribution.

Like every sector of research, the private industry has both positive and negative aspects to it, depending on your point of view.

ADVANTAGES

Fast decision making and approval process

More flexibility in type of research pursued than the public sector

More focussed on customer experience and company goals

DISADVANTAGES

Goals of the research can be more profit oriented at times

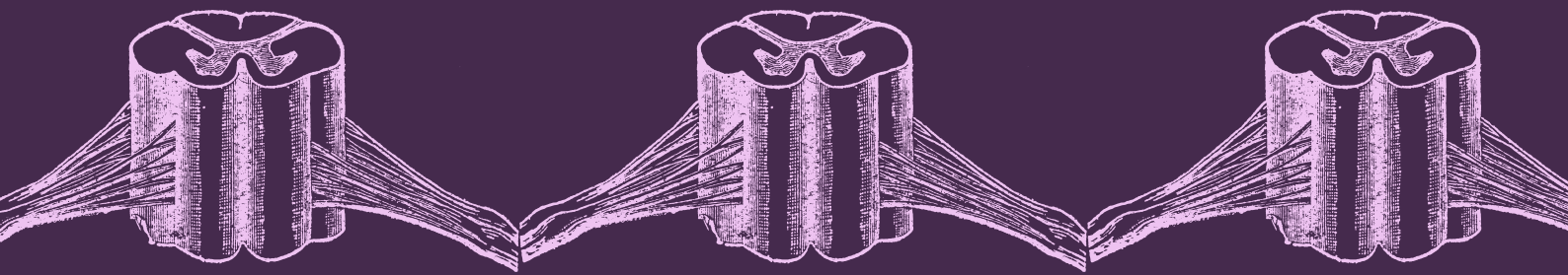
Negative results are not always disclosed to the public

Positive findings are sometimes withheld for some time to ensure financial gain can be increased



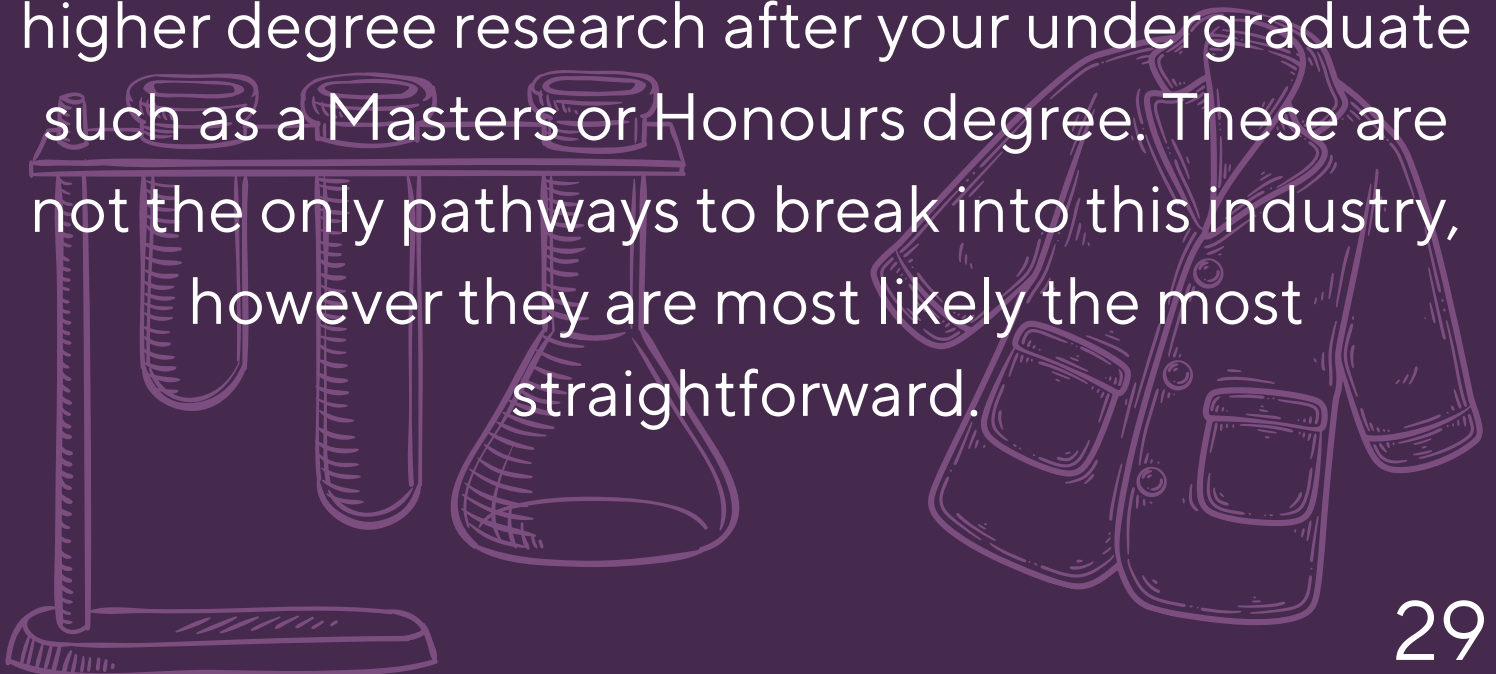
GETTING INTO IT

Securing a job in the private sector follows a simple process of applying at relevant companies. Often these are pharmaceutical companies but this is not necessarily always the case.



Certain qualifications that demonstrate laboratory competence are no doubt desired in these roles.

One of the best ways to do this as a university student would be to complete some form of higher degree research after your undergraduate such as a Masters or Honours degree. These are not the only pathways to break into this industry, however they are most likely the most straightforward.



However, what could an undergraduate student do now to increase your chances for success going down this pathway?

Industry expert and cofounder of Rhea Natural Sciences and Rhea Pharmaceutical Sciences Dr Haig Babikian has said that attending conferences that link academia and business is a great way to go about familiarising yourself with industry environments and understanding today's issues.





PHD

WHAT IS IT?

A PhD, or Doctor of Philosophy, is an advanced academic degree focused on original research, data analysis, and the presentation of findings in a dissertation. Typically taking three to four years to complete, a PhD involves deep investigation into a specific topic, contributing new knowledge to the discipline. The journey includes conducting original research, formulating research questions, and employing suitable methodologies to explore these questions. A significant part of this process is writing and defending a dissertation, which presents the research findings and demonstrates the candidate's scholarly contributions.

PURSUING A PHD

Pursuing a PhD offers numerous benefits. For those aiming for an academic career, a PhD is typically required for teaching and research positions such as post docs and lab heads. It allows individuals to become experts in their field of interest, providing personal fulfillment and the opportunity to explore their passion deeply. Moreover, a PhD can open doors to advanced positions in industry, government, and non-profit organizations where deep expertise and advanced research skills are highly valued. For more info and frequently asked questions, look [here](#) in the stories tab.



GETTING INTO THE PHD PROGRAM

To get into a PhD program, start by ensuring you meet the eligibility criteria, such as holding a bachelor's degree with honours or a master's degree with relevant research experience. Decide on a research topic that interests you and has scope for original research. Identify potential supervisors whose research interests align with yours and reach out to discuss your research ideas. Prepare a detailed research proposal outlining your research questions, methodology, and the significance of the study. Look for funding opportunities, such as scholarships, which can support you financially during your PhD. Finally, gather all required documents and submit your application to the university.



SCHOLARSHIP ADVICE

There are several tips and tricks to enhance your PhD journey.

Applying for scholarships can significantly ease the financial burden. Universities, government bodies, and private organizations offer various scholarships based on merit, need, or specific research areas.

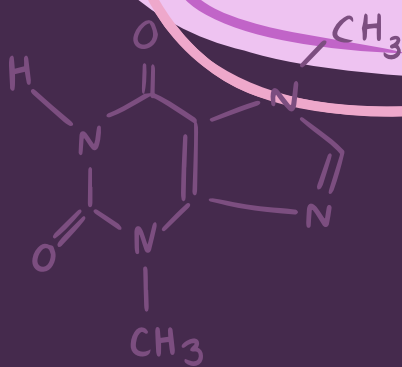


Networking is crucial; engage with academics and professionals in your field by attending conferences and seminars, as this can provide valuable insights and open opportunities for collaboration and mentorship.



Ensure your research interests align well with your potential supervisors and the department you are applying to, as a good fit can enhance the quality of guidance and support you receive.

Additionally, publishing your work in academic journals during your PhD can strengthen your academic profile and improve your career prospects.



Tips and Advice

FINDING RESEARCHERS

1

UNIVERSITY WEBSITES AND DEPARTMENTS

UNIVERSITY WEBSITES AND DEPARTMENTS

Visit the specific school or faculty pages on UQ's website. Each department often has a directory of academic staff, including their research interests, recent publications, and contact information.

RESEARCH CENTRES AND INSTITUTES:

UQ hosts several research centres and institutes that focus on specific areas. Exploring these can help you find researchers specializing in your area of interest. For instance, the Institute for Molecular Bioscience (IMB), Queensland Brain Institute (QBI), Translational Research Institute (TRI), Mater Research, Queensland Institute of Medical Research (QIMR) Berghofer and UQ Centre for Clinical Research (UQCCR). These institutes often list their researchers and their projects.

Institute for Molecular Bioscience (IMB):

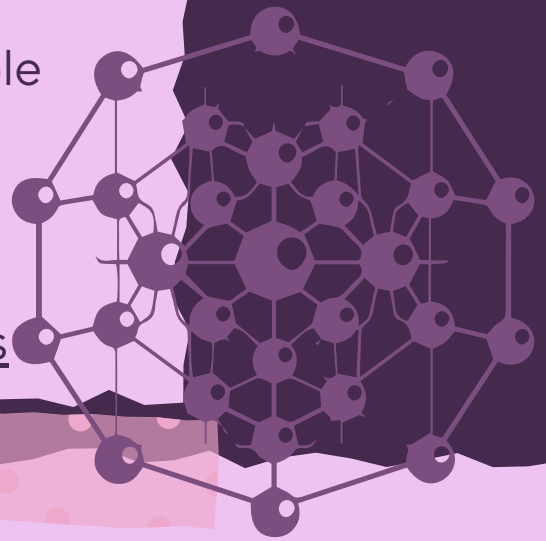
- Focus: Molecular bioscience, drug discovery, genomics, and biotechnology.
- Location: The University of Queensland, St Lucia.
- Website: [IMB](#)

Queensland Brain Institute (QBI):

- Focus: Neuroscience and brain research, including mental health, dementia, and neural development.
- Location: The University of Queensland, St Lucia.
- Website: [QBI](#)

Australian Institute for Bioengineering and Nanotechnology (AIBN):

- Focus: Bioengineering, nanotechnology, and sustainable energy solutions.
- Location: The University of Queensland, St Lucia.
- Website: [AIBN](#) and for [Honours](#)



Translational Research Institute (TRI):

- Focus: Translational medicine, including cancer, infection, inflammation, and metabolic diseases.
- Location: Princess Alexandra Hospital campus, Woolloongabba.
- Website: [TRI](#)



Mater Research:

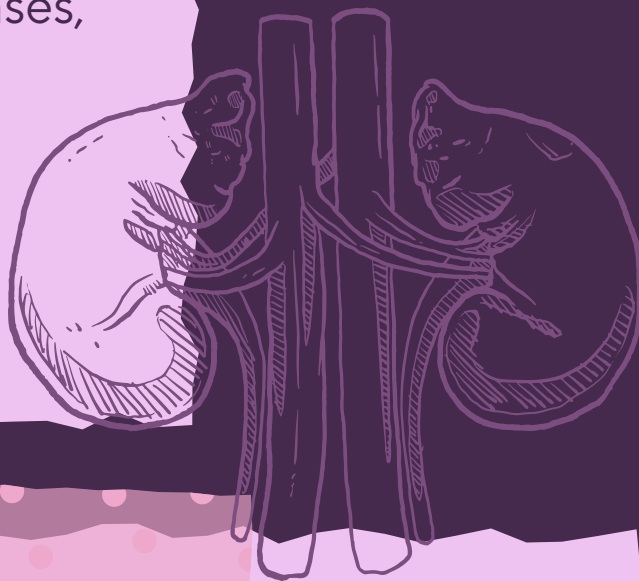
- Focus: Health and medical research, including cancer, neuroscience, maternal health, and chronic diseases.
- Location: South Brisbane.
- Website: [Mater Research](#)





Queensland Institute of Medical Research (QIMR) Berghofer:

- Focus: Cancer, infectious diseases, chronic disorders, and mental health.
 - Location: Herston.
 - Website: [QIMR Berghofer](http://www.qimr.berghofer.edu.au)
- 



UQ Centre for Clinical Research (UQCCR):

- Focus: Clinical research, including neuroscience, mental health, cancer, and chronic diseases.
- Location: Royal Brisbane and Women's Hospital campus, Herston.
- Website: [UQCCR](http://www.uqccr.edu.au)



ACADEMIC JOURNALS AND CONFERENCES:



UQ eSpace:

Access [UQ eSpace](http://www.uqespace.edu.au), the university's institutional repository, to find publications by UQ researchers. This can give you an idea of who is working in your field of interest.

Conferences Hosted by UQ:

Attend conferences and workshops organized by UQ societies and clubs. These events provide opportunities to meet researchers and learn about their work. Information on upcoming events can usually be found on the club's instagram pages such as Honour's Night hosted by UQ Association of Biomedical Students (UQABS).

3

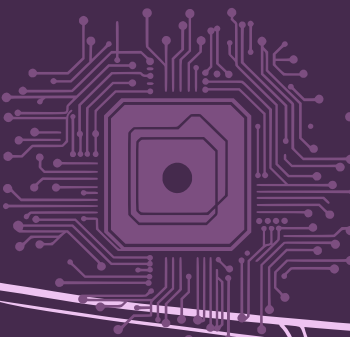
RESEARCHGATE AND GOOGLE SCHOLAR:

Use ResearchGate and Google Scholar to search for researchers based on their publications. Many UQ researchers have profiles on these platforms, which list their research outputs and contact information.

CONTACTING RESEARCHERS

Crafting a Personalised Email

- **Introduction:** Introduce yourself, mentioning your current status (e.g., undergraduate student, prospective PhD candidate) and your field of interest.
- **Research Interest:** Clearly state your research interests and why you are specifically interested in their work.
- **Purpose:** Explain why you are reaching out – whether you are seeking supervision for a research project, collaboration opportunities, or just wanting to learn more about their research.
- **Politeness and Professionalism:** Maintain a polite and professional tone throughout the email.



Email Template

Subject: Prospective Research Opportunity Inquiry

Dear Dr. [Last Name],

My name is [Your Name], and I am currently a [Your Current Position, e.g., third-year undergraduate student] studying [Your Major/Program] at [Your University]. I am writing to express my interest in your research on [Specific Research Topic or Field], which aligns closely with my academic and career aspirations.

Having read your recent publication on [Mention a Specific Paper or Project], I am particularly intrigued by [Specific Aspect of Their Research]. I am keen to gain further insight and experience in this area and would be honored to contribute to your ongoing research projects.

I am interested in exploring potential opportunities to work with you, either as part of the UQ [Summer Research Program, an Honors thesis project, or even as a PhD candidate]. I believe that under your guidance, I could develop my skills and contribute meaningfully to [Specific Research Topic or Field].

Please let me know if you are available for a brief meeting or if there are any current projects where you could use assistance. I am happy to provide my resume, academic transcripts, and any other necessary information.

Thank you for considering my request. I look forward to the possibility of discussing this further.

Kind regards,

[Your Full Name]

[Your Contact Information]

[Your LinkedIn Profile (if applicable)]

FINDING RESEARCHERS FOR DIFFERENT TYPES OF RESEARCH PROJECTS AT UQ:

1

SUMMER SEMESTER PROJECTS:

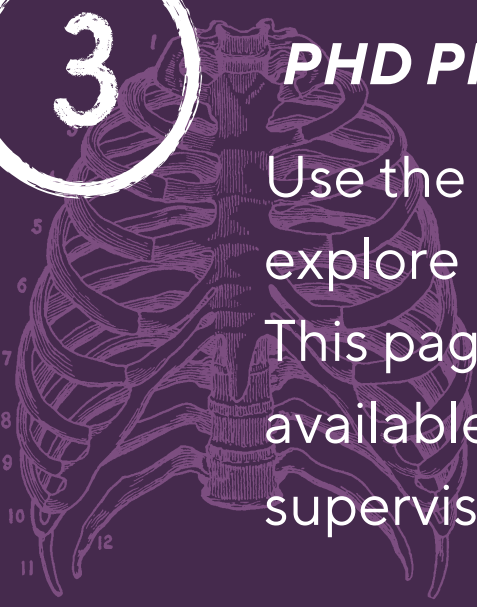
Check the [UQ Summer Research Program](#) page for a list of available projects and associated supervisors. This page often lists specific projects along with the names of the researchers.

2

HONOURS PROJECTS:

Visit the [UQ Honours Program](#) page for available projects where there are listings of potential supervisors and their research areas.

For information regarding specifics visit the [Honours Handbook](#)



3

PHD PROJECTS:

Use the UQ Graduate School website to explore potential PhD opportunities.

This page provides information on available projects, funding options, and supervisors.



For more detailed guidance, you can visit UQ's [research opportunities page](#) and explore their [PhD, MPhil, and Professional Doctorate stories](#).

Personal Experiences

“

As a Biomedical Science student at the University of Queensland, I had the incredible opportunity to take the SCIE3220 subject in my second year, which focused on advanced laboratory techniques and research methodologies. This course was conducted at the Queensland Brain Institute (QBI), a leading research facility renowned for its cutting-edge neuroscience research. During the semester, I participated in a project investigating how electrophysiology affects stroke outcomes in mice. This project aimed to understand the electrical properties of neurons and how these properties change after a stroke, providing insights into potential therapeutic targets. The SCIE3220 subject at UQ QBI was a transformative experience in my biomedical science education. It provided hands-on research experience, advanced my technical skills, and deepened my understanding of neuroscience. This project affirmed my interest in pursuing a career in medical research, particularly in understanding and treating neurological disorders.

-GAGANDEEP KAUR

”

“

I am currently a fourth year Biomedical Science/Science double degree student who has been lucky enough to be involved in a few research projects while at UQ. I completed a summer research program at QIMR-Berghofer for 6 weeks, working alongside professionals and refining my skills.

I found this opportunity really beneficial because it wasn't just a lab practical for a course where every step is perfectly laid out. Instead, I attended lab meetings where they would actively collaborate and brainstorm ideas and solutions. I was able to genetically modify cells with CRISPR, perform dissections and cultures and overall learn much more about the everyday life of a full-time research academic.

I am currently participating in the SCIE3220 course where I hope to complete a project looking at T cell discrimination of self and non-self. This is a keen interest of mine due to its clinical applications for cancer and many other autoimmune diseases. All in all, I have learned lots from these opportunities and hope to continue down this path with confidence in my skillset

”

-JACKSON DAVEY



Researcher Profiles

Introducing Researcher Profiles! We will be releasing researcher profiles on the website soon [here](#)! Use this to find the perfect supervisor for your honours, research projects or any other university research opportunities!

Check out our sample researcher profile!

DR. SONIA SHAH

A researcher at the University of Queensland, where she focuses on using genomics to improve the understanding, prevention, and treatment of cardiovascular diseases.

Her work addresses knowledge gaps related to cardiovascular risk, particularly among underrepresented groups such as women and individuals of non-European ancestry. She is the lead investigator of the South Asian Genes and Health in Australia (SAGHA) study, which aims to increase the representation of South Asians in cardiovascular genetics research.

Her research involves large-scale health and genomic datasets to explore cardiovascular risk factors unique to these populations and to better understand gender-specific risks in heart disease ([Institute for Molecular Bioscience](#)) ([Heart Foundation](#)).



Credits

We would love to thank everyone who has contributed to making this research guide possible.

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