

Research Computing Platform Student Internship Handbook

version 0.2



WEHI
brighter together

Table of Contents

Introduction	3
Benefits for Students	4
Application Process	5
Application Tips	6
Student Expectations	7
Supervisor Expectations	8
Code of Conduct	9
Weekly Schedule	10
Documentation	11
FAQs	12
Want to know more?	13

Introduction

03

The Research Computing Platform (RCP) is a collaborative, multi-disciplinary lab that supports and advocates for researchers and their computational research needs at WEHI.

RCP has established a student internship program with subjects provided at the University of Melbourne. We did this to leverage the experience we have in the RCP of working with student software interns by collaborating with labs.

It also allows us to share our knowledge and experiences with the students to help them to maximise their potential and build confidence

that they have the skills and initiative to handle future situations.

There are three intakes during the year, Semester 1, Semester 2, and Summer.

We aim to connect our student interns from the previous intake to the new students to help build relationships, explain the nuances of the projects, and allow the new students to make the most out of the internship.

We are constantly trying to improve the experience for our students and always appreciate feedback.



Conceptual

One of the key learnings that come through the student internships is the importance of understanding the high-level concepts of the domain the student is working in.

This is why there is a focus on getting the student to understand the concepts by reviewing and updating documentation, as well as writing and maintaining a presentation throughout the internship. Students are encouraged to present their work at the end of the internship.



Technical

The ability to learn quickly by doing your own research is important. Learning about new technologies and how to identify if they will be of use are handy skills to have.

That is why we encourage students to learn new technical skills by doing their own research and giving them to try different options when appropriate. Students are encouraged to discuss these learnings and any problems with their peers, so that students can be independent technically.



Questions

The internship is a time for questions, but to make the most out of the opportunity, it is important for students to do their own research before reaching out to their supervisor. One way of doing this is for students to reach out to their peers, so that they can refine their questions.



Collaboration

There are multiple internships running at the same time. We encourage students to collaborate within projects and across projects. This is why we meet weekly to share what is going on with other projects and other students.

Benefits for Students 04

There are many benefits for student interns in this program to help them progress in their careers by giving them opportunities to grow and learn in a safe environment and achieve their potential, which builds confidence.

Many students start the program having some level of technical skills, but very little understanding of how important it is to know the nuances and concepts of the work environment and domain knowledge.

This is why we give them the time to research the concepts and give them feedback on how to refine those concepts.

Student interns are provided with honest feedback to show where their skills and abilities place them, what kind of organisation they might be a good fit with, and how they can improve during and after the internship.

This would be the type of information given to a potential employer if your supervisor was provided as a referee for a job application.

Students also get the opportunity to learn non-technical skills such as keeping meeting notes, documentation, learning how to communicate, and giving presentations.

These skills allow students to be more effective at communicating their skills and abilities to potential employers in resumes, cover letters, and interviews.

Students also get the opportunity to deal with realistic data and real world problems, where the answers and the technical solution is not so clear as in their coursework.

All in all, students have the opportunity to leave the internship with an improved sense of confidence that they have the ability to handle new environments and domains, even if they haven't worked in that area before.

Kush Garg

Kush Garg was a student intern from the Master of Data Science who worked on the original data storage capacity planning project and had this to say about his time at WEHI.

"I would like to express my gratitude for all the support and guidance throughout this internship.

Also, it has been a great time working at WEHI. I learnt a lot in terms of real-world experience and starting a new project. The discussions and presentations helped me to improve my communication skills, develop curiosity around the problem statement and solutions."



Application Process

05

The interview process for this program is a work in progress and is constantly being refined. The current process looks like this:

1. Students apply for a WEHI student intern role.
2. Student applications are reviewed by RCP to move to the next step.
Students are notified if their application was not successful.
3. Students receive email to ask about their preferences [1].
4. Students are pre-interviewed [2] by RCP to help foster understanding of their abilities and interests.
5. Students are reviewed to see if they make it to the next step.
Students who are unsuccessful are notified.
6. Student applications are sent to the research co-supervisors [3] with initial recommendations.
7. Research co-supervisors identify students they might want to work with and interviews are organised.
8. Research co-supervisors identify students they want to work with.
9. RCP provides official offer to selected students.



[2] Pre-Interview questions:

- How do I pronounce your name?
- Can you tell me a story about learning a new concept quickly?
- Can you tell me a story about learning a new technical skill quickly?
- Do you have any questions?

[3] Research co-supervisors

are researchers who are working with RCP on these student intern projects. They are usually busy, so RCP helps to identify talented students that might be a good fit for these projects.

References:

- [1] Preference for professional or research, preference for data engineering, data analysis or software engineering.

Application Tips

06

Here are some general application tips for when you apply to this internship. These tips can also be used for applying to other opportunities like other internships or job applications.

You only have a limited time to catch our attention

Most people take 10 to 30 seconds to review an application (resume and cover letter) before they decide to keep reading or ditch it. In that short amount of time, you need to capture their interest.

Most job ads have selection criteria or something that they say they are looking for. Your job is to ensure that you explain to them quickly and easily that you have these criteria and they should interview you.

Provide a cover letter tailored to the organisation

A cover letter is like a written interview, in that you get an opportunity to tell a prospective employer all your good stories that relate to their organisation and the role. Tell me stories that show you are a good fit for this role, even if that isn't in a working environment.



A cover letter allows you to differentiate yourself from other candidates. It is an opportunity to share your stories and your strengths to create interest so you can get an interview. And just remember, the stories you write in your cover letter are the ones you will probably tell in your interview.

The other thing with a cover letter is it shows how interested you are in the role. If you have a generic cover letter that has one paragraph that talks about the application and why you are a good fit - that shows interest in the role and makes it easier for you to apply to multiple roles easily.

Student Support

07

We want to ensure that students have the right support to thrive in their internship.

This is why we have:

- a list of student expectations,
- a list of supervisor expectations,
- a Code of Conduct,
- a weekly project-specific meeting,
- a weekly technical meeting across all the students,
- a weekly meeting to share concepts and projects across all the students,
- and a buddy system for those students who are the only ones in their project.



The buddy system is an informal way to pair students up so that they can ask each other questions and provide support informally.



All of this infrastructure allows us to ensure that students feel supported to do their best in a safe environment.

As we are committed to continuous improvement, we always welcome new ideas to improve the experience of our students.

That is why we always review our processes after each student intake and while we are preparing for our new student intake.

Because we take students from more than one University of Melbourne faculty, we can ensure our student experience is diverse enough to support most, if not all, students.

Student Expectations 08

We have had a lot of success and impact working with student interns and these are the expectations we have provided to many students on what we expect from them. If you are looking to apply for a student intern position with us, this gives you a guide as to the culture that we aim to provide within the RCP co-supervised projects.

- You will abide by our Code of Conduct at all times
- You will always do your best and work on continuously improving yourself
- You will be upfront with us if something impacts your wellbeing, your learning ability, or your productivity
- You will be willing to ask “background” questions in team meetings or with team members to help you understand the high-level nuances of the problem
- You will provide us with suggestions on how we can do things better
- You will be willing to disagree with us and be willing to compromise with us
- You will help your fellow students as best you can, within reason
- You will be able to google simple examples and background information



- You will reach out to your peers to ask for help for intermediate technical problems
- You will document work in our project management system (when appropriate) and keep it up to date
- You will overcommunicate with us, especially if the internship is online

By following these expectations you will be setting yourself up to maximise your potential and make the most out of the opportunities available.

Students that don't match up to these expectations usually do not make the most of the internship. This makes it more difficult for us to recommend students to potential employers.

This is because it limits the types of work environments we would be comfortable recommending to potential employers.

Supervisor Expectations

We have had a lot of success and impact working with student interns and these are the expectations we have provided to many students on what they can expect from us. If you are looking to apply for a student intern position with us, this gives you a guide as to the culture that we aim to provide within the RCP projects.

- We will be patient with you and help build your skills, regardless of your level
- We will try to place you in a project that is tailored to your interests and abilities
- We will give you a safe environment in which to make mistakes and improve
- We will help you be a better all-around professional, including helping you with soft skills like talking with clients, requirements gathering, speaking in front of your peers, how to apply for jobs and job interviews
- We will help you understand the nuances of the high-level problem as a priority
- We will help you to understand tools that are available and when best to use them
- We will encourage you when you are doing well and guide you in areas to improve



Rowland



Julie

- We will encourage you to be a part of our team and community
- We are aware of bias against women, disability (including those with social or communication difficulties), race (to name just a few) and take this into account when providing opportunities for students

By following these expectations we aim to set you up to maximise your potential and make the most out of the opportunities available.

While the RCP follows these expectations, not all research co-supervisors may follow all of these expectations. RCP aims to provide any shortfall in support to ensure students are in a safe, productive environment.

Code of Conduct

10

This was originally taken from the Code of Conduct from Django. This is a snippet of the full Code of Conduct (RDM#0085).

This community is made up of a diverse mixture of researchers, research software engineers, professionals and students.

Diversity is what we are hoping to improve our communities and workplaces, but it can also lead to communication issues and unhappiness.

To that end, we have a few ground rules that we ask people to adhere to. This code applies equally to founders, mentors and those seeking help and guidance.

This isn't an exhaustive list of things that you can't do. Rather, take it in the spirit in which it's intended -a guide to make it easier to enrich all of us and the technical communities in which we participate.

This code of conduct applies to all spaces managed by the group. This includes chat rooms, the mailing lists, events, and any other forums created by the platform which the community uses for communication.



In addition, violations of this code outside these spaces may affect a person's ability to participate within them. If you believe someone is violating the code of conduct, please let us know.

- Be friendly and patient.
- Be welcoming.
- Be considerate.
- Be respectful.
- Be careful with the words you choose.

Weekly Schedule

11

This is an overview of what a standard week looks like for a student intern.

Monday is a day for project-specific meetings that are focused on providing conceptual guidance.

Tuesday is like Monday, a day for project-specific meetings that are focused on providing conceptual guidance.

Wednesday is for Hacky Hour. This is a technical support hour where you can ask technical questions to your student peers and to the RCP.

Thursday is for group student updates. Every week two students will be asked to share their updated presentation to the rest of the group.

Friday is a free day with no scheduled meetings.

Documentation

12

One of the ways that we can scale the number of students in this internship program is by providing quality documentation as part of the onboarding process.

We have an onboarding document (RDM#0138) that provides a list of things to do to ensure you have access to the majority of the resources at WEHI.

We expect that you will provide a daily high-level list of things you have worked on, along with a more detailed document of what you have found and what you have learned.

This allows us to understand your progress and makes it easy for us to recognise what kind of help you might need, or whether we need to give you more tasks that are more challenging.

This allows us to help you maximise your potential.

We are currently working on making as much of our high-level domain tutorials available so that anyone who is interested can gain an appreciation of the domain and its nuances.



One important part of the internship is providing documentation for the next intake of students.

By providing this documentation in an easy-to-understand way, it allows new students to get up to speed with what has happened before, lessons learned, and what to avoid in the future.

This benefits the outgoing students as they can see the benefits of their documentation, and it benefits the project as it means new students can "hit the ground running".

Documentation on how to apply for the internship is also available as part of this handbook.

FAQs

13

Here are some Frequently Asked Questions that we hear from students.

How do I know if I am eligible?

For the engineering students, please contact eng-placements [at] unimelb [dot] edu [dot] au.

For the data science and maths students, please contact science-industry-internships[at] unimelb [dot] edu [dot] au.

I know that the internships are usually 100% offsite, but what if I want to go into the office sometimes?

We are open to having some opportunities to go to the office, especially if we can catchup with the other students. It would not be that regular though, but this can be discussed with other students.

I'm confused about the difference between professional and research projects?

The projects in research are more complex than the professional ones, for those who love a challenge, are interested in biology, and are confident they can learn technical and conceptual ideas quickly.



The professional ones are more for those who want experience that might be aligned to business and are confident they can learn technical and conceptual ideas relatively quickly.

What is the difference between data engineering, data analysis, and software engineering?

Data engineering is focused on streamlining and cleaning data systematically. Data analysis is focused on cleaning data and analysing it using statistical or machine learning algorithms. Software engineering is focused on systematising analysis or tools that help us make decisions.

Want to know more?

14

We are always interested in discussing projects with enthusiastic students.

You can have a look at existing projects at <https://wehi-researchcomputing.github.io/students> where there will be access to code, presentations, documentation and other information in the future.

Once you have a look at this material, please check your eligibility for the Engineering Internship Program (ENGR90033), the Science & Technology Internships (SCIE90017), and the Data Science Industry Projects (MAST90106/7).

If you would then like to discuss this with Rowland or Julie, please contact them via email research [dot] computing [at] wehi [dot] edu [dot] au.

You can reach out to us even if we are not actively advertising for student internships. This will allow you to maximise your chance of being selected for the shortlist when you do apply in the future.

As we are focused on continuous improvement, we are always grateful to people who provide feedback. Please let us know of any comments, suggestions, or questions you have.



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