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SciX @UNSW

Student Guide 2019 / 2020

Introduction

SciX@UNSW supports Science Extension students to complete their research projects by providing them with access to UNSW Science's world-leading researchers and facilities.

SciX@UNSW supports Science Extension students to complete their research projects by providing them with access to UNSW Science's world-leading researchers and facilities. Students are matched to a research project and a UNSW Science mentor. Students are supported to produce their own independent research on a self-selected topic within their research project's scope. The program includes a five-day Summer School in late January 2020 at UNSW Sydney. Here, students will be upskilled in research techniques and perform hands-on experiments relevant to their research project.

SciX@UNSW was developed in response to the Science Extension Syllabus which encourages passionate Year 12 students to extend their understanding of modern scientific enquiry through the development of a scientific research project. UNSW Science has designed SciX@UNSW in collaboration with NSW science high school teachers to ensure that it is meaningful and thought-provoking to students. The research projects on offer to students explore a wide range of science research areas and were developed by experienced UNSW scientists.

This guide is designed to provide an overview of the program. Should you have any questions about SciX@UNSW please email sciX@unsw.edu.au.

We wish students the best of luck with their application into SciX@UNSW and look forward to welcoming the next SciX@UNSW cohort.



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Structure

SciX@UNSW is designed around supporting students to achieving the follow three key components

1. Develop a hypothesis (Dec 2019 - Jan 2020)
2. Research training - SciX@UNSW Summer School (Jan 2020)
3. Finalise research and report writing (Feb - June 2020)

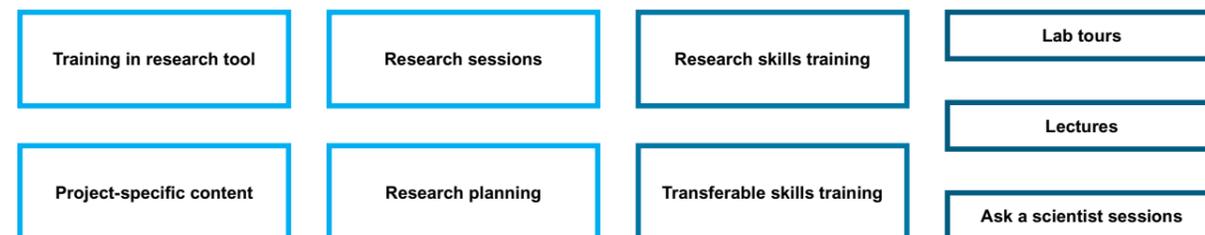
Students will also participate in group mentoring sessions to gain extra guidance on their research. The schedule and focus of these mentoring sessions will vary from project to project.

Develop a Hypothesis



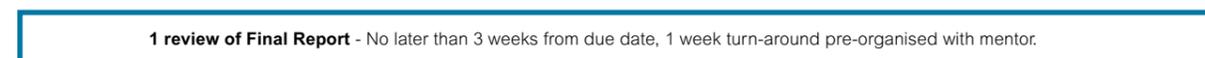
The SciX@UNSW mentors will support students to develop a preliminary research question and hypothesis based on the research techniques taught in the research project that they have been assigned to. Mentors will provide suggested project material and example hypothesis to guide students in this process. The mentors will also provide online material that encourages students to develop their research skills and to understand their research project more deeply.

Research Training



The SciX@UNSW Summer School will run 9am to 5pm from Monday, 20 January to Friday, 24 January at UNSW Sydney. Students will be shown how to collect the data necessary for their individual research and how to analyse their data to develop a conclusion. Students will also participate in skills training sessions, talks with researchers and visit research laboratories.

Finalise Research and Report Writing



The SciX@UNSW mentors will provide one succinct review of each student's Science Research Report within a prearranged one-week period. This review will occur at least three weeks prior to the due date of the Report.



Group mentoring sessions



The SciX@UNSW mentors will provide group mentoring sessions totaling 10 hours to students in their research project group. The mentoring sessions will provide further guidance to students as they develop their research. The individual needs of the different research projects means that each group will have a different mentoring timeline. Some SciX@UNSW mentors will work more with their students during the hypothesis stage while other groups will require more support during the report-writing stage. Students will be informed of their group's mentoring timetable upon acceptance into the program. The group mentoring sessions will not take place face-to-face and will generally occur through an online discussion forum or via video conferencing.

Timeline

Date	Description
Mid September to 28 October	Applications open
Early November	Successful applicants notified
December	Program starts. Students in consultation with their mentor develop a research question and hypothesis based on their specific research project
December - May	Scheduled online group mentoring sessions with your SciX@UNSW mentor
20-24th January	On-campus SciX@UNSW Summer School, including: <ul style="list-style-type: none"> • Research sessions with your SciX@UNSW mentor, including training in your specific research technique / methodology • Training in broader research skills • Lab tours, lectures and interactive discussions with UNSW researchers from a variety of fields
May - June	Pre-arranged one-round review of your Research Project Report by your SciX mentor. (review limited to one hour)

Mentoring Overview



The following information is designed to de-mystify the mentoring process and help students make the most of the mentoring experience.

SciX@UNSW defines mentoring as a process by which an experienced researcher provides structured support, advice and guidance to a student through the exchange of knowledge and technical support.

Your SciX@UNSW mentor will:

- Mentor participants in their research in a group setting for a total of 10 hours, not including the time spent at the SciX@UNSW Summer School. The timing and format of this group mentoring will be clearly articulated to successful applicants
- Provide you with access to and training in a specific research technique to utilise for your scientific research project in Science Extension
- Suggest potential research areas you could explore within your project's specific research context and technique, and provide preliminary readings
- Support you in accessing, understanding and citing relevant peer-reviewed scientific literature
- Support you in developing your research question and hypothesis that can be explored based on the project's research technique
- Answer your questions about the research methodology, and the rationale for this approach
- Support you in developing your research plan
- Provide suggestions and some training in how to analyse, present and discuss the data you obtain with your research technique
- Support you in considering future improvements in your methodology
- Support you in understanding the sources of systematic and random errors in your experiment, and understanding the reliability, accuracy, validity and limitations of your methodology

Within the time constraints of the SciX@UNSW Summer School and your mentoring sessions, you may ask your UNSW SciX mentor for guidance or advice on:

- General research skills, such as conducting a good literature review and producing high quality figures
- Publicly available data sources relevant to your project
- Preparing your Science Research Portfolio
- Preparing your Science Research Report
- Project-specific details relating to Science Extension syllabus points

Your UNSW SciX mentor will not:

- Provide training in statistical analysis or research techniques beyond those taught in the Summer School
- Explicitly teach syllabus points
- Write any component of your Science Research Report or Portfolio

To make the best of your experience in SciX@UNSW, we strongly recommend that you:

- Make sure you complete all the online pre-work associated with your project
- Be flexible with your hypothesis and research question
- Engage with the learning opportunities during the summer school
- Ensure you attend all training sessions during the summer school week; we cannot guarantee that mentors will have time to revisit missed material
- Be pro-active and responsive in discussions with UNSW staff and your fellow participants
- Ask questions if an instruction is unclear
- Ensure that you can independently perform the taught research technique
- Ask questions on the context of your project
- Ask questions!

Rules and Legalities

All participants must adhere to the core values within the UNSW Student Code of Conduct. The Code details UNSW's agreement to create a safe environment that fosters the potential of all participants to achieve their academic potential. It also outlines the obligations of students to behave in an ethical and safe manner and treat others and university resources with respect. The key points from this document are outlined below.

UNSW Science Responsibilities

- To provide a learning, teaching and research environment that enables students to achieve their full potential
- To provide an experience for students consistent with the University's values and guiding principles
- To ensure the well-being of all students is maintained in accordance with relevant Child Protection Legislations
- Ensure that the research technique you are using during the Summer School are safe and ethical, providing an explicit risk assessment for non-computational projects and discussing ethics for relevant projects

Student Responsibilities

- An obligation to act with integrity in academic work, to ensure that all academic work is conducted ethically and safely. Plagiarism undermines academic integrity and is not tolerated at UNSW
- An obligation to observe standards of equity and respect in dealing with every member of the University community
- An obligation to use and care for University resources in a lawful and appropriate manner

Program Fee Payment Terms & Conditions

The SciX@UNSW program fee is \$650 excluding GST per student. This fee partially covers the cost of resourcing the program. Payment instructions will be provided to students and their guardians upon acceptance into the program.

- First-round offer students must pay the program fee in full via credit card within 14 days of receiving an invitation into the program via email
- Should waitlisted students be accepted into the program they will have seven days to pay the program fee
- A small number of full and partial fee-waived positions are available to encourage a diversity of students to participate in the program. Students can select to be considered for these positions in the SciX@UNSW Application Form
- All payments are non-refundable

Program Enquiries

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