UNSW Course Outline

SCIF1001 Level 1 Research Skills - 2024

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General Course Information

Course Code : SCIF1001
Year : 2024
Term : Term 3
Teaching Period : T3
Is a multi-term course? : No
Faculty : Faculty of Science
Academic Unit : Faculty of Science
Delivery Mode : In Person
Delivery Format : Standard
Delivery Location : Kensington
Campus : Sydney
Study Level : Undergraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

In this first year capstone course, students will embark on a journey of scientific inquiry, collaborating in interdisciplinary peer groups to develop research-driven solutions to pressing global challenges. Building on foundational scientific principles, this course emphasizes

research methodologies and the application of theoretical concepts to real-world contexts. This course is tailored to the Bachelor of Advanced Science students and challenges them to explore the historical and theoretical foundations of technological advancements, critically analyzing their impact on society and the environment.

Students will form interdisciplinary teams to tackle complex problems in project areas ranging from climate change, public health, to life on other planets. The projects encourage integration of disciplinary expertise and personal perspectives, fostering innovative solutions and critical thinking in scientific inquiry. Students will also develop essential skills in project management, data analysis, and scientific problem-solving.

Moreover, this course guides students to reflect on their academic and personal growth in the early stages of their program. Workshops will help students select their major, refine their professional identity, and plan for future academic and career milestones in subsequent years.

Assumed knowledge: This course is tailored for first-year Bachelor of Advanced Science students who have completed 24 units of credit towards their program. Bachelor of Science students take the equivalent course, SCIF1000. No specific disciplinary knowledge is required, but a passion for interdisciplinary collaboration and advanced scientific inquiry is essential. This course should be taken at the end of your first year of your Science degree, it is designed to improve your skills before you undertake second year studies.

Course Aims

This course aims to

• Enable students to develop research skills by refining and expanding on core transferable skills.

• Prepare students for research activities in years 2 and 3 by engaging in complex scientific problem solving

• Foster high-level interdisciplinary collaboration among students from diverse scientific backgrounds, preparing them for research environments and professional settings.

• Assist students in developing a scientific identity and guide them to select a science Major and develop a career pathway.

• Reinforce how Program Learning Outcomes (PLOs), the set of core skills students should acquire by graduation, complement disciplinary knowledge, and encourage students to integrate

theoretical and practical insights into their research pursuits.

• Introduce students to the interdisciplinary and societal implications of cutting-edge scientific research, emphasising its impact on global challenges and technological advancements.

• Provide a robust foundation of knowledge and practical experience that prepares students for advanced project-based learning and professional development opportunities in subsequent academic years.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Apply advanced scientific methodologies, project management techniques, and innovative problem-solving strategies within a team-based setting to effectively address a project brief.
CLO2 : Critically analyse diverse data, literature, and resources to effectively address and resolve issues presented in a project brief.
CLO3 : Utilise reflective practice in scientific thinking and professional work within an interdisciplinary context.
CLO4 : Practice effective teamwork skills, demonstrated by self-management and evaluation of personal and peer performance within a project team.
CLO5 : Communicate scientific information clearly and effectively through written and visual formats, tailored for both expert and general audiences.
CLO6 : Analyse and critically evaluate the historical, theoretical, and ethical foundations of technological advancements, demonstrating advanced skills in scientific inquiry and interdisciplinary thinking to assess their multifaceted impacts on society and the environment.

Course Learning Outcomes	Assessment Item
CLO1 : Apply advanced scientific methodologies, project management techniques, and innovative problem-solving strategies within a team-based setting to effectively address a project brief.	• Thinking Like a Research Scientist: Team-Based Learning Activities • Weekly Project Workbook
CLO2 : Critically analyse diverse data, literature, and resources to effectively address and resolve issues presented in a project brief.	• Thinking Like a Research Scientist: Team-Based Learning Activities • Weekly Project Workbook
CLO3 : Utilise reflective practice in scientific thinking and professional work within an interdisciplinary context.	• Weekly Project Workbook
CLO4 : Practice effective teamwork skills, demonstrated by self-management and evaluation of personal and peer performance within a project team.	• Thinking Like a Research Scientist: Team-Based Learning Activities • Weekly Project Workbook
CLO5 : Communicate scientific information clearly and effectively through written and visual formats, tailored for both expert and general audiences.	• How Science Advances: Exploring Technological Evolution and Impact • Presenting Your Project • Thinking Like a Research Scientist: Team-Based Learning Activities • Weekly Project Workbook
CLO6 : Analyse and critically evaluate the historical, theoretical, and ethical foundations of technological advancements, demonstrating advanced skills in scientific inquiry and interdisciplinary thinking to assess their multifaceted impacts on society and the environment.	• How Science Advances: Exploring Technological Evolution and Impact

Learning and Teaching Technologies

Moodle - Learning Management System

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
How Science Advances: Exploring Technological Evolution and Impact Assessment Format: Individual	20%	
Thinking Like a Research Scientist: Team-Based Learning Activities Assessment Format: Individual	20%	
Presenting Your Project Assessment Format: Individual	10%	
Weekly Project Workbook Assessment Format: Group	50%	

Assessment Details

How Science Advances: Exploring Technological Evolution and Impact

Assessment Overview

For this assessment, you will choose a specific technology and conduct in-depth research to explore its evolution, origins, and scientific underpinnings. Your task is to write a comprehensive, long-form piece of writing similar to an article in a reputable publication like "The Conversation." Your article should not only describe the technology but also critically analyse its development in relation to scientific discoveries and innovations over time.

This assessment is released in Week 1 and is due in Week 7. The word limit is 1500-2000 words. Feedback will be released in Week 9 via a marking rubric.

Course Learning Outcomes

- CLO5 : Communicate scientific information clearly and effectively through written and visual formats, tailored for both expert and general audiences.
- CLO6 : Analyse and critically evaluate the historical, theoretical, and ethical foundations of technological advancements, demonstrating advanced skills in scientific inquiry and interdisciplinary thinking to assess their multifaceted impacts on society and the environment.

Generative AI Permission Level

Simple Editing Assistance

In completing this assessment, you are permitted to use standard editing and referencing functions in the software you use to complete your assessment. These functions are described

below. You must not use any functions that generate or paraphrase passages of text or other media, whether based on your own work or not.
If your Convenor has concerns that your submission contains passages of AI-generated text or media, you may be asked to account for your work. If you are unable to satisfactorily demonstrate your understanding of your submission you may be referred to UNSW Conduct & Integrity Office for investigation for academic misconduct and possible penalties.
For more information on Generative AI and permitted use please see here.

Thinking Like a Research Scientist: Team-Based Learning Activities

Assessment Overview

During weeks 1-5 and 7-9 (inclusive), you will complete pre-class activities covering a range of foundational topics essential for scientific inquiry and professional development. As part of each pre-class activity, you will individually complete an online quiz to assess your understanding of the material. You will have one attempt for each weekly quiz. You will then repeat the quiz during class individually after group discussions. Content for each quiz will vary each week but will be somewhere between 5-10 questions of variable length (a combination of multiple choice/select an answer and short answer).

At the start of each practical class, you will engage in in-depth discussions with your peers to review and refine your answers from the pre-class quiz. These discussions encourage you to articulate your reasoning and learn from your peers, fostering collaborative learning and a deeper comprehension of the material.
You will then complete the quiz again, individually, to evaluate your shared understanding and application of the topics discussed. The questions for both quizzes come from the same pool of questions, but will not be the same across both quizzes. This iterative approach ensures that you not only grasp theoretical concepts but also develop skills in teamwork, communication, and critical thinking, essential for successful scientific careers.

The team-based learning design ensures you and your team members will be better prepared for the group and individual project-based activities in the rest of the class.

Marks and Feedback: All quizzes are equally weighted. You will receive a score and feedback immediately on your individual pre-class quiz attempt. You will receive a separate score for the

quiz during class.
Your final mark for this task will be calculated as an average of the scores in the 6 weeks where you achieve the highest scores (ie, the lowest 2 weekly scores will be dropped). For each week, the final quiz score will be based on the pre-class (70%) and during-class (30%) scores.

Course Learning Outcomes

- CLO1 : Apply advanced scientific methodologies, project management techniques, and innovative problem-solving strategies within a team-based setting to effectively address a project brief.
- CLO2 : Critically analyse diverse data, literature, and resources to effectively address and resolve issues presented in a project brief.
- CLO4 : Practice effective teamwork skills, demonstrated by self-management and evaluation of personal and peer performance within a project team.
- CLO5 : Communicate scientific information clearly and effectively through written and visual formats, tailored for both expert and general audiences.

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No Assistance

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Presenting Your Project

Assessment Overview

In Week 10 of the course, you will present a short (approximately 5-10 minute) project pitch to your peers. This pitch is designed to showcase the importance of your scientific discipline (scientific persona) in addressing your teams' interdisciplinary real-world project challenge.

Your presentation should effectively communicate the relevance and contributions of your discipline to the broader project goals. The aim is to emphasize the importance of your scientific discipline (scientific persona). You may use slides, videos, or pre-approved models as part of your presentation.

Complete guidelines will be provided in Week 1 and discussed in class during Weeks 7 and 8. Feedback will be provided through a marked rubric on Moodle (after Week 10).

Course Learning Outcomes

- CLO5 : Communicate scientific information clearly and effectively through written and visual

formats, tailored for both expert and general audiences.

Assignment submission Turnitin type

Not Applicable

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Weekly Project Workbook

Assessment Overview

Each week, during class in Weeks 1-5 and 7-9 (inclusive), you will complete interactive Moodle workbook tasks designed to track and develop your team project. These workbook tasks are integral to documenting your progress and ensuring clarity in your team's approach. Each workbook task will encompass both group and individual components, emphasizing collaboration and disciplinary contributions. Questions will be divided into group response questions and individual response questions, and the grades distributed according to the breakdown below.

- Group Responses: 30% of overall mark
- Individual Responses: 20% of overall mark

These workbook tasks serve to scaffold and support your team in developing a robust project plan, fostering interdisciplinary collaboration, and addressing challenges in data integrity and project impact. They are intended to facilitate learning through practical application of course concepts and prepare you for real-world interdisciplinary teamwork scenarios.

Submission and Feedback:
• Submission: Workbook tasks for Weeks 1-5 are due at the end of Week 5 and workbook tasks for Weeks 7-9 are due in Week 10.
• Weighting: The two workbook task submissions (Weeks 1-5 and 7-9) are weighted equally.
• Feedback: Active feedback will be provided each week during class. Written feedback will be

provided two weeks after submission via the assessment rubric.

Hurdle requirements:

1. To pass the course, all workbooks must be completed and submitted on time. These workbook tasks are critical to maximise learning opportunities and project advancement, and late submissions may impact your team's ability to progress effectively.
2. You must receive a passing mark on all workbooks in order to pass the course.

Course Learning Outcomes

- CLO1 : Apply advanced scientific methodologies, project management techniques, and innovative problem-solving strategies within a team-based setting to effectively address a project brief.
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- CLO3 : Utilise reflective practice in scientific thinking and professional work within an interdisciplinary context.
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General Assessment Information

Grading Basis

Satisfactory

Course Schedule

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Angela Moles					No	Yes

Other Useful Information

Academic Information

Upon your enrolment at UNSW, you share responsibility with us for maintaining a safe, harmonious and tolerant University environment.

You are required to:

- Comply with the University's conditions of enrolment.
- Act responsibly, ethically, safely and with integrity.
- Observe standards of equity and respect in dealing with every member of the UNSW community.
- Engage in lawful behaviour.
- Use and care for University resources in a responsible and appropriate manner.
- Maintain the University's reputation and good standing.

For more information, visit the UNSW Student Code of Conduct Website.

Academic Honesty and Plagarism

Referencing is a way of acknowledging the sources of information that you use to research your assignments. You need to provide a reference whenever you draw on someone else's words, ideas or research. Not referencing other people's work can constitute plagiarism.
Further information about referencing styles can be located at https://student.unsw.edu.au/referencing

Academic integrity is fundamental to success at university. Academic integrity can be defined as a commitment to six fundamental values in academic pursuits: honesty, trust, fairness, respect,

responsibility and courage. At UNSW, this means that your work must be your own, and others' ideas should be appropriately acknowledged. If you don't follow these rules, plagiarism may be detected in your work.
Further information about academic integrity, plagiarism and the use of AI in assessments can be located at:

- The Current Students site,
- The ELISE training site, and
- The Use of AI for assessments site.

The Student Conduct and Integrity Unit provides further resources to assist you to understand your conduct obligations as a student: https://student.unsw.edu.au/conduct

Submission of Assessment Tasks

Penalty for Late Submissions

UNSW has a standard late submission penalty of:

- 5% per day,
- for all assessments where a penalty applies,
- capped at five days (120 hours) from the assessment deadline, after which a student cannot submit an assessment, and
- no permitted variation.

Any variations to the above will be explicitly stated in the Course Outline for a given course or assessment task.

Students are expected to manage their time to meet deadlines and to request extensions as early as possible before the deadline.

Special Consideration

If circumstances prevent you from attending/completing an assessment task, you must officially apply for special consideration, usually within 3 days of the sitting date/due date. You can apply by logging onto myUNSW and following the link in the My Student Profile Tab. Medical documentation or other documentation explaining your absence must be submitted with your application. Once your application has been assessed, you will be contacted via your student email address to be advised of the official outcome and any actions that need to be taken from there. For more information about special consideration, please visit: https://student.unsw.edu.au/special-consideration

Important note: UNSW has a “fit to sit/submit” rule, which means that if you sit an exam or submit a piece of assessment, you are declaring yourself fit to do so and cannot later apply for Special Consideration. This is to ensure that if you feel unwell or are faced with significant circumstances beyond your control that affect your ability to study, you do not sit an examination or submit an assessment that does not reflect your best performance. Instead, you should apply for Special Consideration as soon as you realise you are not well enough or are otherwise unable to sit or submit an assessment.

Faculty-specific Information

Additional support for students

- The Current Students Gateway
- Student Support
- Academic Skills and Support
- Student Wellbeing, Health and Safety
- Equitable Learning Services
- UNSW IT Service Centre
- Science EDI Student Initiatives, Offerings and Guidelines