



UNSW

UNSW Course Outline

EDST6958 Investigating Science Method - 2024

Published on the 12 May 2024

General Course Information

Course Code : EDST6958

Year : 2024

Term : Term 2

Teaching Period : T2C

Is a multi-term course? : No

Faculty : Faculty of Arts, Design and Architecture

Academic Unit : School of Education

Delivery Mode : In Person

Delivery Format : Non Standard

Delivery Location : Kensington

Campus : Sydney

Study Level : Postgraduate, Undergraduate

Units of Credit : 6

Useful Links

[Handbook Class Timetable](#)

Course Details & Outcomes

Course Description

This is a hybrid course. It is available to both undergraduate and postgraduate students. The course content, delivery and assessment will be identical for both groups of students.

This course is designed to develop in Initial Teacher Education students the appropriate pedagogies for Teaching Stage 6 Investigating Science, as well as offering an insight into the nature and practice of science. Initial Teacher Education students will develop skills in planning, teaching, assessing, contextualising science, managing practical work in science classrooms, and integrating ICT resources into lessons. Important issues such as student prior learning, student differences and safety are also considered. Students will critically evaluate the features of effective classroom practice. The course focuses on the requirements and philosophy of the NSW Stage 6 Investigating Science syllabus.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Identify essential elements of the NESA Science Syllabus documents, and strategies to support students as they transition between stages
CLO2 : Use strong knowledge of subject content to plan and evaluate coherent, goal-oriented and challenging lessons, lesson sequences and teaching programs which will engage all students
CLO3 : Set achievable learning outcomes to match content, teaching strategies, resources and different types of assessment for a unit of work in Science
CLO4 : Provide clear directions to organise and support prepared activities and use resources
CLO5 : Assess and report on student learning in Science to all key stakeholders
CLO6 : Identify the characteristics of an effective Science teacher and the standards of professional practice in teaching, especially the attributes of Graduate teachers

Course Learning Outcomes	Assessment Item
CLO1 : Identify essential elements of the NESA Science Syllabus documents, and strategies to support students as they transition between stages	<ul style="list-style-type: none">• Scope and sequence for Stage 6• Prepare a unit of work for Stage 6
CLO2 : Use strong knowledge of subject content to plan and evaluate coherent, goal-oriented and challenging lessons, lesson sequences and teaching programs which will engage all students	<ul style="list-style-type: none">• Scope and sequence for Stage 6• Prepare a unit of work for Stage 6
CLO3 : Set achievable learning outcomes to match content, teaching strategies, resources and different types of assessment for a unit of work in Science	<ul style="list-style-type: none">• Scope and sequence for Stage 6• Prepare a unit of work for Stage 6
CLO4 : Provide clear directions to organise and support prepared activities and use resources	<ul style="list-style-type: none">• Scope and sequence for Stage 6• Prepare a unit of work for Stage 6
CLO5 : Assess and report on student learning in Science to all key stakeholders	<ul style="list-style-type: none">• Scope and sequence for Stage 6• Prepare a unit of work for Stage 6
CLO6 : Identify the characteristics of an effective Science teacher and the standards of professional practice in teaching, especially the attributes of Graduate teachers	

Learning and Teaching Technologies

Moodle - Learning Management System

Learning and Teaching in this course

Rationale

Lectures, tutorials and assignments will cover a variety of approaches to teaching, learning and assessing in the classroom. Emphasis will be placed on the relationship between the nature and practice of science, the role and value of science in society and science pedagogy. A particular focus will be on strategies that can promote student engagement and achievement in science.

Student-centred activities will form the basis of the course. These activities will draw on the prior discipline knowledge of the students and will allow them to engage in relevant and challenging experiences that mirror those they will be expected to design for the range of secondary students they will later teach.

Teaching strategies

- Explicit teaching, including lectures, to foster an understanding of students' different approaches to learning and the use of a range of teaching strategies to foster interest and support learning.
- Small group cooperative learning to understand the importance of teamwork in an educational context and to demonstrate the use of group structures as appropriate to address teaching and learning goals.
- Structured occasions for reflection on learning to allow students to reflect critically on and improve teaching practice.
- Extensive opportunities for whole group and small group dialogue and discussion, allowing students the opportunity to demonstrate their capacity to communicate and liaise with the diverse members of an education community, and to demonstrate their knowledge and understanding of method content.
- Online learning.
- In tutorials, students will be expected to work in small groups to develop diverse products such as narratives, contexts, sections of units of work, lesson plans, teaching resources, and assessment tasks.

These activities will occur in a classroom climate that is supportive and inclusive of all learners.

Other Professional Outcomes

AUSTRALIAN PROFESSIONAL STANDARDS FOR TEACHERS

Standard		Assessment/s
1.1.1	Demonstrate knowledge and understanding of physical, social, and intellectual development and characteristics of students and how these may affect learning.	*
1.2.1	Demonstrate knowledge and understanding of research into how students learn and the implications for teaching.	*
1.3.1	Demonstrate knowledge of teaching strategies that are responsive to the learning strengths and needs of students from diverse linguistic, cultural, religious, and socioeconomic backgrounds.	1, 2
1.5.1	Demonstrate knowledge and understanding of strategies for differentiating teaching to meet the specific learning needs of students across the full range of abilities.	1, 2
2.1.1	Demonstrate knowledge and understanding of the concepts, substance and structure of the content and teaching strategies of the teaching area.	1, 2
2.2.1	Organise content into an effective learning and teaching sequence.	1, 2
2.3.1	Use curriculum, assessment and reporting knowledge to design learning sequences and lesson plans.	1, 2
2.5.1	Know and understand literacy and numeracy teaching strategies and their application in teaching areas.	1, 2
2.6.1	Implement teaching strategies for using ICT to expand curriculum learning opportunities for students.	2
3.1.1	Set learning goals that provide achievable challenges for students of varying abilities and characteristics.	*
3.2.1	Plan lesson sequences using knowledge of student learning, content, and effective teaching strategies.	1, 2
3.3.1	Include a range of teaching strategies.	*
3.4.1	Demonstrate knowledge of a range of resources, including ICT, that engage students in their learning.	*
3.6.1	Demonstrate broad knowledge of strategies that can be used to evaluate teaching programs to improve student learning.	*
4.2.1	Demonstrate the capacity to organise classroom activities and provide clear directions.	*
5.1.1	Demonstrate understanding of assessment strategies, including informal and formal, diagnostic, formative, and summative approaches to assess student learning.	2, 3
5.2.1	Demonstrate an understanding of the purpose of providing timely and appropriate feedback to students	3

	about their learning.	
5.3.1	Demonstrate understanding of assessment moderation and its application to support consistent and comparable judgements of student learning.	1, 3
5.4.1	Demonstrate the capacity to interpret student assessment data to evaluate student learning and modify teaching practice.	2, 3
5.5.1	Demonstrate understanding of a range of strategies for reporting to students and parents/carers and the purpose of keeping accurate and reliable records of student achievement.	3
6.3.1	Seek and apply constructive feedback from supervisors and teachers to improve teaching practices.	1
7.1.1	Understand and apply the key principles described in codes of ethics and conduct for the teaching profession.	3
	* Covered during the course	

NATIONAL PRIORITY AREA ELABORATIONS

	Priority area		Assessment/s
A	Aboriginal and Torres Strait Islander Education.	5, 8	2
C	Information and Communication Technologies.	4-5, 8, 12	2
D	Literacy and Numeracy.	1, 4, 7-16, 17*, 18*, 19	1, 2, 3
E	Students with Special Educational Needs.	2, 6-7	1, 2, 3
F	Teaching Students from Non-English-Speaking Backgrounds.	2*, 5, 6*, 7, 9	1, 2
	* Covered during the course		

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Scope and sequence for Stage 6 Assessment Format: Individual	40%	Due Date: 07/08/2024 05:00 PM
Prepare a unit of work for Stage 6 Assessment Format: Individual	60%	Due Date: 28/08/2024 05:00 PM

Assessment Details

Scope and sequence for Stage 6

Assessment Overview

Create a scope and sequence, including learning outcomes, covering the HSC year, for a Year 12 class. Prepare an assessment task that directly links to the teaching and learning intentions.

Indicative length: 2000 words. A feedback sheet will be provided.

Course Learning Outcomes

- CLO1 : Identify essential elements of the NESA Science Syllabus documents, and strategies to support students as they transition between stages
- CLO2 : Use strong knowledge of subject content to plan and evaluate coherent, goal-oriented and challenging lessons, lesson sequences and teaching programs which will engage all students
- CLO3 : Set achievable learning outcomes to match content, teaching strategies, resources and different types of assessment for a unit of work in Science
- CLO4 : Provide clear directions to organise and support prepared activities and use resources
- CLO5 : Assess and report on student learning in Science to all key stakeholders

Detailed Assessment Description

- The scope and sequence should cover all 4 terms a Year 12 HSC class (all 4 terms).
- The assessment task is to directly link to the teaching and learning intentions within ONE term.

Assessment Length

2000 words

Assessment information

<ul style="list-style-type: none">• RUBRIC/FEEDBACK SHEET EDST6958 UNSW SCHOOL OF EDUCATION• Assessment Task 1: Scope and Sequence• Specific Criteria and Grading (FL/PS/CR/DN/HD)	
<ul style="list-style-type: none">• Understanding of the question or issue and the key concepts involved• Understands the task and its relationship to relevant areas of theory, research, and practice• Uses syllabus documents and terminology clearly and accurately• Sequences tasks and activities to suit logical learning progression• Integrates assessment task logically with learning intentions and learning sequence• Provides effective formative feedback for student sample	
<ul style="list-style-type: none">• Depth of analysis and critique in response to the task• Includes key syllabus content to allow demonstration of appropriate selection of outcomes for HSC• Demonstrates understanding of the NSW Quality Teaching Framework, the School Excellence Framework, and NESA Assessment Guidelines	
<ul style="list-style-type: none">• Familiarity with and relevance of professional and/or research literature used to support response• Demonstrates understanding of the need to differentiate lessons to cater for diverse learners including Aboriginal and Torres Strait Islander and EAL/D students• Understand effective assessment practices	
<ul style="list-style-type: none">• Structure and organisation of response• Organises and structures scope and sequence according to NESA guidelines and requirements• Follows NESA assessment guidelines	
<ul style="list-style-type: none">• Presentation of response according to appropriate academic and linguistic conventions• Shows excellent command of English grammar conventions including spelling, syntax, and punctuation	
<ul style="list-style-type: none">• General comments/recommendations for next time:	
<ul style="list-style-type: none">• Lecturer:• Recommended: /20 (FL PS CR DN HD)	<ul style="list-style-type: none">• Date:• Weighting: 40%
<p>• NB: The ticks in the various boxes are designed to provide feedback to students; they are not given equal weight in determining the recommended grade. Depending on the nature of the assessment task, lecturers may also contextualise and/or amend these specific criteria. The recommended grade is tentative only, subject to standardisation processes and approval by the School of Education Learning and Teaching Committee.</p>	

Hurdle rules

A hurdle requirement or hurdle rule is a course requirement that must be fulfilled in order to pass the course. In all courses within the School of Education, all assessments (regardless of their weighting) are hurdle requirements. That is, all assessments in a course must receive a pass

mark in order to pass the course. Where a student has failed to meet the requirements of an assessment, they may still be deemed to have met the hurdle requirement if the failure was due to a late penalty and if the overall mark for the course is still greater than 50.

Prepare a unit of work for Stage 6

Assessment Overview

Prepare a unit of work for Stage 6 (Year 12) which covers approximately half the term. Indicative length: 3000 words. A feedback sheet will be provided.

Course Learning Outcomes

- CLO1 : Identify essential elements of the NESA Science Syllabus documents, and strategies to support students as they transition between stages
- CLO2 : Use strong knowledge of subject content to plan and evaluate coherent, goal-oriented and challenging lessons, lesson sequences and teaching programs which will engage all students
- CLO3 : Set achievable learning outcomes to match content, teaching strategies, resources and different types of assessment for a unit of work in Science
- CLO4 : Provide clear directions to organise and support prepared activities and use resources
- CLO5 : Assess and report on student learning in Science to all key stakeholders

Detailed Assessment Description

- Half a term covers two consecutive sections (inquiry questions) of a module.

Assessment Length

3000 words

Assessment information

<ul style="list-style-type: none">• RUBRIC/FEEDBACK SHEET EDST6958 UNSW SCHOOL OF EDUCATION• Assessment Task 2: Unit of Work• Specific Criteria and Grading (FL/PS/CR/DN/HD)	
<ul style="list-style-type: none">• Understanding of the question or issue and the key concepts involved• Demonstrates knowledge of selected Stage 6 course and syllabus outcomes• Sequences tasks and activities to suit logical learning progression and meet selected outcomes for Year 12• Integrates formative assessment strategies throughout the unit of work	
<ul style="list-style-type: none">• Depth of analysis and critique in response to the task• Demonstrates understanding of academic and cultural diversity• Includes a variety of pedagogical strategies to suit content of the Stage 6 course• Designs appropriate activities and outlines lessons in sufficient detail without providing full plans• Provides effective feedback opportunities to inform students of their progress	
<ul style="list-style-type: none">• Familiarity with and relevance of professional and/or research literature used to support response• Demonstrates understanding of the need to differentiate lessons to cater for diverse learners• Understanding of a range of effective assessment practices	
<ul style="list-style-type: none">• Structure and organisation of response• Demonstrates ability to plan using backward mapping to meet selected outcomes• Presentation of effective and engaging learning sequence	
<ul style="list-style-type: none">• Presentation of response according to appropriate academic and linguistic conventions• Writes using correct Standard Australian English• Has proofread and edited work to avoid errors and incorrect usage	
<ul style="list-style-type: none">• General comments/recommendations for next time:	
<ul style="list-style-type: none">• Lecturer:• Recommended: /20 (FL PS CR DN HD)	<ul style="list-style-type: none">• Date:• Weighting: 60%
<p>• NB: The ticks in the various boxes are designed to provide feedback to students; they are not given equal weight in determining the recommended grade. Depending on the nature of the assessment task, lecturers may also contextualise and/or amend these specific criteria. The recommended grade is tentative only, subject to standardisation processes and approval by the School of Education Learning and Teaching Committee.</p>	

Hurdle rules

A hurdle requirement or hurdle rule is a course requirement that must be fulfilled in order to pass the course. In all courses within the School of Education, all assessments (regardless of their weighting) are hurdle requirements. That is, all assessments in a course must receive a pass

mark in order to pass the course. Where a student has failed to meet the requirements of an assessment, they may still be deemed to have met the hurdle requirement if the failure was due to a late penalty and if the overall mark for the course is still greater than 50.

General Assessment Information

**** Compulsory Class Task - Common Assessment Module ****

There are two parts to this task:

Part 1: Common Assessment Module (a separate module to be completed in addition to your Method course). It will be available to work on from Week 1 of UNSW Term 2.

- You will gather evidence from a variety of sources about learning outcomes; and use that information to improve learning and teaching.
- You will be sent further information about how to access the Module closer to the start of term. There will be drop-in sessions in Weeks 8-13. This is the same time that Method 2 runs.
- Weight: N/A. This is a hurdle requirement that must be completed to pass the course.
- Note: Further information about this Module will be available in Moodle.

Part 2: Common Assessment Module (in-class task). In the final Method tutorials, you will complete a class task that relates to the Common Assessment Module. This task consists of three components:

- Collect three or four authentic student responses to preferably two assessment tasks (these might be provided by your Method lecturer).
- Provide written feedback for the student responses, indicating strengths and areas for improvement in relation to the work sample and overall expectations/standards.
- Write a few lines that could be included in a mid-year report comment to parents.

General Assessment Information

Students are required to follow their course convenor's instructions when submitting their work for assessment. All assessment task/s are to be submitted online via Moodle by 5pm. Students are also required to retain all drafts, original data, and other evidence of the authenticity of the work for at least one year after submission/examination. For more detailed information about submission, late penalties, special consideration, and the like, visit the School of Education website on policies and procedures: [SED Policies and Procedures \(unsw.edu.au\)](http://unsw.edu.au).

Grading Basis

Standard

Course Schedule

Teaching Week/Module	Activity Type	Content
1	Lecture	<ul style="list-style-type: none">• HSC Investigating Science assessment requirements• School assessment and moderation• Assessing syllabus content• What is a scope and sequence
	Tutorial	<ul style="list-style-type: none">• Writing a scope and sequence• Performance band descriptions for Investigating Science
2	Lecture	<ul style="list-style-type: none">• Assessing student understanding• Valid and reliable assessment tasks
	Tutorial	<ul style="list-style-type: none">• Writing assessment notifications• Setting an assessment task
3	Lecture	<ul style="list-style-type: none">• Formative assessment techniques• Peer assessment• Self-assessment• Feedback
	Tutorial	<ul style="list-style-type: none">• Developing peer assessment and self assessment activities
4	Lecture	<ul style="list-style-type: none">• Feedback• Reporting
	Tutorial	<ul style="list-style-type: none">• How to give feedback that moves learners forward
5	Lecture	<ul style="list-style-type: none">• Characteristics of an effective Investigating Science teacher• Preparing for the first years of teaching
	Tutorial	<ul style="list-style-type: none">• Hurdle requirement as class activity Assessment and learning Self and peer assessment Moderation Feedback Reporting to parents and other key stakeholders
6	Lecture	<ul style="list-style-type: none">• The HSC format and process• HSC marking• Preparing students for HSC assessments• School assessment
	Tutorial	<ul style="list-style-type: none">• Designing classroom activities to develop Investigating Science exam techniques

Attendance Requirements

The School of Education has a minimum attendance requirement of 80% for classes, including lectures, tutorials, seminars, and other learning activities – irrespective of delivery mode. The attendance requirement is a minimum threshold for engagement and ensures that programs meet the requirements of external accreditation authorities (i.e., NESA), and for a range of programs (e.g., initial teacher education programs and other accredited postgraduate coursework specialisations). Students must register their attendance according to the course convenor's directions.

General Schedule Information

This course outline sets out the description of classes at the date the outline is published. The nature of classes may change during the term after the course outline is published. Moodle should be consulted for up-to-date class descriptions. If there is an inconsistency in the description of activities between the University timetable and the course outline (as updated in Moodle), the description in the course outline on Moodle applies.

Course Resources

Prescribed Resources

Required reading

Each student is required to obtain from the NESA website the following documents:

- Stage 6 Investigating Science Syllabus
- Stage 6 Support Materials

Students should ensure that they have access to a year 12 Investigating Science textbook.

Recommended Resources

Recommended textbooks

- Collins, S., Rudmann, S., Ellard, K., & Matchett, B. (2018). *Investigating Science in Focus HSC*. South Melbourne, Vic Cengage Australia.

Additional recommended books

- Bennett, T. (2020). *Running the Room*. John Catt Educational.
- Lemov, D. (2021). *Teach Like a Champion 3: 63 Techniques That Put Students on the Path to College*. (3rd ed.). Newark, United States: Jossey-Bass.
- William, D., & Leahy, S. (2015). *Embedding formative assessment: practical techniques for F-12 classrooms*. West Palm Beach, Fla.: Learning Sciences.

Useful websites

- NESA <http://syllabus.nesa.nsw.edu.au/science/>
- Science Teachers Association of NSW <http://www.stansw.asn.au>
- Education Endowment Foundation <https://educationendowmentfoundation.org.uk/>
- Barton, C. (n.d.). *Tips for Teachers Podcast*. Tips for Teachers. <https://tipsforteachers.co.uk/podcast/>

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Brian Webb				Email to arrange an appointment	No	Yes

Other Useful Information

Academic Information

Due to evolving advice by NSW Health, students must check for updated information regarding online learning for all Arts, Design and Architecture courses this term (via Moodle or course information provided).

Please see: <https://www.unsw.edu.au/arts-design-architecture/student-life/resources-support/protocols-guidelines> for essential student information relating to:

- UNSW and Faculty policies and procedures;
- Student Support Services;
- Dean's List;
- review of results;
- credit transfer;
- cross-institutional study and exchange;
- examination information;
- enrolment information;
- Special Consideration in the event of illness or misadventure;
- student equity and disability;

And other essential academic information.

Academic Honesty and Plagiarism

Plagiarism is using the words or ideas of others and presenting them as your own. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement.

UNSW groups plagiarism into the following categories:

- Copying: Using the same or very similar words to the original text or idea without acknowledging the source or using quotation marks. This includes copying materials, ideas or concepts from a book, article, report or other written document, presentation, composition, artwork, design, drawing, circuitry, computer program or software, website, internet, other electronic resource, or another person's assignment without appropriate acknowledgement.
- Inappropriate paraphrasing: Changing a few words and phrases while mostly retaining the original information, structure and/or progression of ideas of the original without acknowledgement. This also applies in presentations where someone paraphrases another's ideas or words without credit and to piecing together quotes and paraphrases into a new whole, without appropriate referencing.

- Collusion: Working with others but passing off the work as a person's individual work. Collusion also includes providing your work to another student for the purpose of them plagiarising, paying another person to perform an academic task, stealing or acquiring another person's academic work and copying it, offering to complete another person's work or seeking payment for completing academic work.
- Inappropriate citation: Citing sources which have not been read, without acknowledging the "secondary" source from which knowledge of them has been obtained.
- Duplication ("self-plagiarism"): Submitting your own work, in whole or in part, where it has previously been prepared or submitted for another assessment or course at UNSW or another university.

The UNSW Academic Skills support offers resources and individual consultations. Students are also reminded that careful time management is an important part of study. One of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting and proper referencing of sources in preparing all assessment items. UNSW Library has the ELISE tool available to assist you with your study at UNSW. ELISE is designed to introduce new students to studying at UNSW, but it can also be a great refresher during your study.

Completing the ELISE tutorial and quiz will enable you to:

- analyse topics, plan responses and organise research for academic writing and other assessment tasks
- effectively and efficiently find appropriate information sources and evaluate relevance to your needs
- use and manage information effectively to accomplish a specific purpose
- better manage your time
- understand your rights and responsibilities as a student at UNSW
- be aware of plagiarism, copyright, UNSW Student Code of Conduct and Acceptable Use of UNSW ICT Resources Policy
- be aware of the standards of behaviour expected of everyone in the UNSW community
- locate services and information about UNSW and UNSW Library

Use of AI for assessments

As AI applications continue to develop, and technology rapidly progresses around us, we remain committed to our values around academic integrity at UNSW. Where the use of AI tools, such as ChatGPT, has been permitted by your course convener, they must be properly credited and your submissions must be substantially your own work.

In cases where the use of AI has been prohibited, please respect this and be aware that where unauthorised use is detected, penalties will apply.

Submission of Assessment Tasks

Turnitin Submission

If you encounter a problem when attempting to submit your assignment through Turnitin, please telephone External Support on 9385 3331 or email them on externalteltsupport@unsw.edu.au

Support hours are 8:00am – 10:00pm on weekdays and 9:00am – 5:00pm on weekends (365 days a year). If you are unable to submit your assignment due to a fault with Turnitin, you may apply for an extension, but you must retain your ticket number from External Support (along with any other relevant documents) to include as evidence to support your extension application. If you email External Support, you will automatically receive a ticket number, but if you telephone, you will need to specifically ask for one. Turnitin also provides updates on their system status on Twitter.

Generally, assessment tasks must be submitted electronically via either Turnitin or a Moodle assignment. In instances where this is not possible, alternative submission details will be stated on your course's Moodle site. For information on how to submit assignments online via Moodle: <https://student.unsw.edu.au/how-submit-assignment-moodle>

Late Submission Penalty

UNSW has a standard late submission penalty of:

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

Students are expected to manage their time to meet deadlines and to request [Special Consideration](#) as early as possible before the deadline. Support with [Time Management is available here](#).

School-specific Information

Policies and Procedures

For more detailed information about School of Education policies and procedures visit the following website: [SED Policies and Procedures \(unsw.edu.au\)](https://sed.unsw.edu.au/policies-and-procedures).

School Contact Information

School of Education. Arts, Design and Architecture. Ground Floor, Morven Brown Building (Map Reference F20).

- T: +61 2 93851977
- E: education@unsw.edu.au
- W: <https://www.arts.unsw.edu.au/education>