School of Education

UNSW Arts, Design and Architecture

EDST6953

Physics Method 2

Term 2, 2022

Course Overview

Staff Contact Details

Convenors

Name	Email	Availability	Location	Phone
Oriana Miano	o.miano@unsw.edu.au	by appointment (please email)		

Tutors

Name	Email	Availability	Location	Phone
Matthew Couani	m.couani@unsw.edu.au	by appointment (please email)		

School Contact Information

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Acknowledgement of Country

UNSW Arts, Design and Architecture Kensington and Paddington campuses are built on Aboriginal Lands. We pay our respects to the Bidjigal and Gadigal peoples who are the Custodians of these lands. We acknowledge the Aboriginal and Torres Strait Islander peoples, the First Australians, whose lands, winds and waters we all now share, and pay respect to their unique values, and their continuing and enduring cultures which deepen and enrich the life of our nation and communities.

Image courtesy of the Office of the Pro Vice-Chancellor Indigenous [UNSW's Indigenous strategy]

Course Details

Units of Credit 6

Workload

150 hours including class contact hours, readings, class preparation, assessment, follow up activities, etc.

Summary of the Course

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.

In this course, you will learn how to teach Physics at an advanced level in secondary contexts. You will use relevant syllabus documents to develop innovative and engaging lesson plans and curriculum plans. You will learn and practise a range of teaching strategies that maximise the learning potential of all types of learners in a safe, supportive, and highly engaged classroom environment. You will design for and implement teaching strategies that incorporate digital and other innovative strategies. You will also learn about a range of assessment and feedback strategies in the discipline, with a focus on assessment in the senior secondary school.

Course Learning Outcomes

1. Identify essential elements of the NSW Physics Stage 6 Syllabus, and strategies to support students as they transition between stages
2. 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
3. Set achievable learning outcomes to match content, teaching strategies, resources and different types of assessment for a unit of work in Physics
4. Provide clear directions to organise and support prepared activities and use resources
5. Assess and report on student learning in Physics to all key stakeholders
6. Identify the characteristics of an effective Physics teacher and the standards of professional practice in teaching, especially the attributes of Graduate teachers

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 linguistics, 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	1, 2

	concepts, substance and structure of the content and teaching strategies of the teaching area	
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 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	Provide feedback to students on their learning	3
5.3.1	Make consistent and comparable judgements	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	Report on 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, 4-5, 7-16, 19 17-18	1, 2, 3 *
E	Students with Special Educational Needs.	2, 6-7	1, 2, 3
F	Teaching Students from Non-English-Speaking Backgrounds.	5, 7, 9 2, 6	1, 2 *

* Covered during the course

Teaching Strategies

Rationale for the inclusion of content and teaching approach

Lectures, tutorials and assignments will cover a variety of approaches to teaching, learning and assessing in the Physics 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 with Physics.

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 from readings on the Moodle website and online discussions.
- 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. Each group will be expected to upload and share their work in progress to Moodle. This work will be monitored by the tutors, and contribute to the total grade for each student. Students who are absent on the day, but who still wish to submit their tutorial work can email it to their tutor the next day only. A debriefing session will be conducted 15 minutes prior to the end of each tutorial.

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

Assessment

Assessment task	Weight	Due Date	Course Learning Outcomes Assessed
1. Scope and sequence for Stage 6	40%	03/08/2022 05:00 PM	1, 2, 3, 4, 5
2. Preparing a unit of work for Stage 6	60%	24/08/2022 05:00 PM	1, 2, 3, 5

Assessment 1: Scope and sequence for Stage 6

Due date: 03/08/2022 05:00 PM

PART 1: Create a scope and sequence, including learning outcomes, covering 10 weeks for a Year 12 class.

PART 2: Prepare an assessment task (not just an essay) that directly links to the teaching and learning intentions for the term's work. Your scope and sequence must indicate when the task will occur and how the feedback form the summative task can also be used for formative assessment. Make sure your instructions for the task are grammatically correct and communicate effectively for students.

Design a marking rubric, which also includes space for a holistic comment.

Provide and exemplar student answer for the assessment task. Write a feedback comment for this response outlining its strengths and indicating one aspect which could be further improved.

Feedback is provided via Moodle within two weeks of the submission date. Feedback is aligned to the rubric for each assessment.

Assessment 2: Preparing a unit of work for Stage 6

Due date: 24/08/2022 05:00 PM

Using the scope and sequence you prepared for Assessment 1 and also the feedback you have received, prepare a unit of work for Stage 6 which covers approximately half the term. You need to ensure the unit demonstrates you are ready to plan and teach effectively.

The unit of work should indicate all the formative assessment strategies which will provide students with feedback about:

a. What they can already do well
b. What they still need to improve
c. How they can effectively close the gap between a and b.

Include all activities and resources to support student learning. There must be at least one literacy activity/resource and one numeracy/ICT resource.

Feedback is provided via Moodle within two weeks of the submission date. Feedback is aligned to the rubric for each assessment.

Additional details

Task 3: Common Assessment Module

Structure: The Common Assessment Module will be available to work on from Week 1 of UNSW Term 2.

Weight: N/A (this a hurdle requirement that must be completed to pass the course).

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 it 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 (i.e., 18th July to 26th August 2022).

Note: Further information about this module will be available in Moodle.

Common Assessment Module (in-class task)

In the final Method tutorials, you will complete a task that relates to the Common Assessment Module.

This task consists of three components:

1. Collect five or six authentic student responses to preferably two assessment tasks.
2. Provide written feedback for the students which indicates strengths and areas for improvement in relation to this work sample and overall expectations/standards.
3. Write a few lines that could be included in a mid-year report comment to parents.

RUBRIC/FEEDBACK SHEET
EDST6953 PHYSICS METHOD 2
UNSW SCHOOL OF EDUCATION

Assessment Task 1: Scope and sequence for Stage 6

Specific Criteria	(-)——————————>(+)				
Understanding of the question or issue and the key concepts involved • Understanding of syllabus requirements regarding literacy, numeracy and the Working Scientifically skills • Understanding of strategies to develop literacy, numeracy and Working Scientifically skills • Understanding of Stage 6 Knowledge and Understanding requirements • Understanding of syllabus requirements regarding literacy, numeracy and the Working Scientifically skills • Understanding of strategies to develop literacy, numeracy and Working Scientifically skills • Understanding of Stage 6 Knowledge and Understanding requirements					
Depth of analysis and critique in response to the task • Ability to plan and assess for effective learning by designing teaching and learning activities using knowledge of the NSW syllabus documents or other curriculum requirements of the Education Act • Inclusion of 8 required teaching and learning activities • For each activity the following included: ◦ a description of a teaching and learning activity ◦ links to the syllabus, including outcomes **and** content statements ◦ a resource to provide to students, either as a pdf or as part of a website or app strategies to differentiate the activity for a least one identified group of students					

Specific Criteria	(-)——————————>(+)				
• Ability to plan and assess for effective learning by designing teaching and learning activities using knowledge of the NSW syllabus documents or other curriculum requirements of the Education Act • Inclusion of 8 required teaching and learning activities • For each activity the following included: ◦ a description of a teaching and learning activity ◦ links to the syllabus, including outcomes **and** content statements ◦ a resource to provide to students, either as a pdf or as part of a website or app strategies to differentiate the activity for a least one identified group of students					
Familiarity with and relevance of professional and/or research literature used to support response • Demonstration of knowledge of syllabuses, relevant policies, and procedures • Reference specifically to material, research and ideas presented in Physics method lectures and prescribed readings • Demonstration of understanding of relevant literature on Physics education • Demonstration of knowledge of syllabuses, relevant policies, and procedures • Reference specifically to material, research and ideas presented in Physics method lectures and prescribed readings • Demonstration of understanding of relevant literature on Physics education					
Structure and organisation of response • Use of an appropriate format, logical sequence, and appropriate format • Use of an appropriate format, logical sequence, and appropriate format					
Presentation of response according to appropriate academic and					

Specific Criteria	(-)——————————>(+)				
linguistic conventions • Clarity, consistency, and appropriateness of conventions for quoting, citing, paraphrasing, attributing sources of information, and listing references (APA style) • Clarity and appropriateness of sentence structure, vocabulary use, spelling, punctuation, and word length • Appropriateness of overall structure of response • Clarity and coherence of organization; logical sequence • Use of appropriate format • Clarity, consistency, and appropriateness of conventions for quoting, citing, paraphrasing, attributing sources of information, and listing references (APA style) • Clarity and appropriateness of sentence structure, vocabulary use, spelling, punctuation, and word length • Appropriateness of overall structure of response • Clarity and coherence of organization; logical sequence • Use of appropriate format					
General comments/recommendations for next time:					

Recommended: **/20 (FL PS CR DN HD)** **Weighting:** **40%**

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.

RUBRIC/FEEDBACK SHEET
EDST6953 PHYSICS METHOD 2
UNSW SCHOOL OF EDUCATION

Assessment Task 2: Preparing a unit of work for Stage 6

Specific Criteria	(-)——————————>(+)				
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 • 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					
Depth of analysis and critique in response to the task • Includes key syllabus content to allow demonstration of appropriate selection of outcomes for Preliminary • Demonstrates understanding of the NSW Quality Teaching framework, the School Excellence Framework and NESA Assessment Guidelines					

Specific Criteria	(-)——————————>(+)				
• Includes key syllabus content to allow demonstration of appropriate selection of outcomes for Preliminary • Demonstrates understanding of the NSW Quality Teaching framework, the School Excellence Framework and NESA Assessment Guidelines					
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 • Understands effective assessment practices • Demonstrates understanding of the need to differentiate lessons to cater for diverse learners including Aboriginal and Torres Strait Islander and EAL/D students • Understands effective assessment practices					
Structure and organisation of response • Organises and structures scope and sequence according to NESA guidelines and requirements • Follows NESA assessment guidelines • Organises and structures scope and sequence according to NESA guidelines and requirements • Follows NESA assessment guidelines					
Presentation of response according to appropriate academic and linguistic conventions • Shows excellent command of English grammar conventions including spelling, syntax, and punctuation • Shows excellent command of English grammar conventions including spelling, syntax, and punctuation					

Specific Criteria	(-)——————————>(+)
General comments/recommendations for next time:	

Recommended: **/20 (FL PS CR DN HD)** **Weighting:** **60%**

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.

Attendance Requirements

School of Education Attendance Requirement

The School of Education (SED) requires students meet a minimum attendance requirement of 80% of all scheduled classes (i.1. lectures, tutorials, workshops, seminars) for all courses. Attendance in person is required for tutorials, seminars, and workshops when course are delivered in face-to-face mode. It is the responsibility of students to ensure that their attendance is recorded for the face to face either by electronic means or via an attendance register. Attendance in online or blended mode will be assessed through digital. Further information can be found here.

Course Schedule

View class timetable

Timetable

Date/Module	Type	Content
1	Lecture	• The Physics Stage 6 Syllabus (Year 12) • Outcomes for skills, knowledge, and understanding • Building on Stage 6 Preliminary
	Tutorial	• Planning across Preliminary and HSC courses - continuity and logical skill development • How students demonstrate understanding of knowledge and skills
2	Lecture	• Using templates to develop an effective scope and sequence, and unit of work • Importance of backward mapping
	Tutorial	• Analysing and evaluating sequenced lesson plans for continuity of learning • Grouping outcomes to enhance learning
3	Lecture	• Teaching the maths and numeracy skills for success in Physics • Descriptions of band standards in Physics
	Tutorial	• Designing flipped lessons to support the mathematics for Physics • Analysis of student samples of work to plan future lessons
4	Lecture	• Inquiry learning - Student Research Projects (SRP) and Depth Studies for Physics • Organising fieldwork for Stage 6 Physics

	Tutorial	• Marking projects, depth studies, and assessment tasks for Stage 6 • Using NESA's Assessment Resource Centre
5	Lecture	• What makes an effective Physics teacher? • Planning for the unexpected • Where to next? Job readiness, accreditation, school expectations • Analysing school expectations using advertisements • Networking and professional development opportunities • Professional associations
	Tutorial	**Hurdle requirement as class activity** • Assessment and learning • Self and peer assessment • Moderation • Feedback • Reporting to parents and other key stakeholders Goals for PE2 Completing online course evaluation
6	Lecture	• Preparing students for HSC Science examinations • Unpacking, modelling, and workshoping Physics questions
	Tutorial	• Developing resources to address Physics specific exam techniques

Resources

Prescribed Resources

Required readings

Each student is required to obtain from the NESA website (https://syllabus.nesa.nsw.edu.au/physics-stage6/) the following documents:

- *NSW Stage 6 Physics Syllabus*
- Stage 6 Support Materials

It is not necessary to purchase Physics textbooks for this course. Textbooks will not usually be used during tutorials.

Optional senior textbook

- Xiao L. Wu., Farr, R. (2009). *Physics in Focus*.

Additional readings

- Bryson, B. (2004). *A Short History of Nearly Everything*. Black Swan, London.
- Harrison, N (2008). *Teaching and learning in Indigenous education.* Oxford, Sydney.
- Hazzard, J. (2004). *The Art of Teaching Science: Inquiry and Innovation in Middle School and High School*.
- Xiao L, Wu., Farr, R. (2009). *Physics in Focus* (eBook version).

Recommended websites

- NESA http://syllabus.nesa.nsw.edu.au/science/
- Science Teachers Association of NSW http://www.stansw.asn.au

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, it will be stated on your course's Moodle site with alternative submission details.

For information on how to submit assignments online via Moodle: https://student.unsw.edu.au/how-submit-assignment-moodle

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.

Correct referencing practices

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

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.)

For essential student information relating to:

- requests for extension;
- late submissions guidelines;
- review of marks;
- UNSW Health and Safety policies;
- examination procedures;
- special consideration in the event of illness or misadventure;
- student equity and disability;
- and other essential academic information, see

https://www.unsw.edu.au/arts-design-architecture/student-life/resources-support/protocols-guidelines

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