



UNSW Course Outline

PHYS1241 Higher Physics 1B (Special) - 2024

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General Course Information

Course Code : PHYS1241

Year : 2024

Term : Term 2

Teaching Period : T2

Is a multi-term course? : No

Faculty : Faculty of Science

Academic Unit : School of Physics

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

This course is designed for Physics majors and all students taking an Advanced Science program that includes Physics. PHYS1241 follows on from either PHYS1131 Higher Physics 1A or PHYS1141 Higher Physics 1A (Special). The topics covered in PHYS1241 are: Special

relativity; Electricity and Magnetism: electrostatics, Gauss's law, electric potential, capacitance and dielectrics, magnetic fields and magnetism, Ampere's law, the Biot-Savart law, Faraday's law, induction and inductance; Physical Optics: light, interference, diffraction, gratings and spectra, polarization; and Introductory quantum theory. The teaching activities include lectures, labs and problem-solving workshops.

Course Aims

This course aims to give potential physics majors opportunities to get to know each other while at the same time covering relevant physics content. This course gives an introduction to special relativity, electromagnetism, optics and modern physics, and to the techniques of analysis and problem solving in the physical world. With its companion subject (Physics 1A, Higher Physics 1A or (Special) Higher Physics 1A), this constitutes a broad introduction to physics. This background supports higher level study in physics.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Design and safely conduct experiments, analyse the outcomes and include reliable estimates of uncertainties in the measurements.
CLO2 : Communicate experimental results, relate these to theory, using tables, graphs and words.
CLO3 : Apply critical thinking skills in a range of advanced conceptual physical situations.
CLO4 : Use appropriate mathematical techniques, including calculus, to solve problems involving electromagnetism, special relativity, optics and introductory quantum mechanics.

Course Learning Outcomes	Assessment Item
CLO1 : Design and safely conduct experiments, analyse the outcomes and include reliable estimates of uncertainties in the measurements.	• Laboratory
CLO2 : Communicate experimental results, relate these to theory, using tables, graphs and words.	• Laboratory
CLO3 : Apply critical thinking skills in a range of advanced conceptual physical situations.	• Final examination • Quizzes
CLO4 : Use appropriate mathematical techniques, including calculus, to solve problems involving electromagnetism, special relativity, optics and introductory quantum mechanics.	• Final examination • Quizzes

Learning and Teaching Technologies

Moodle - Learning Management System

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Final examination Assessment Format: Individual	40%	
Laboratory Assessment Format: Individual	20%	
Quizzes Assessment Format: Individual	40%	

Assessment Details

Final examination

Assessment Overview

You will sit a two hour exam during the exam period.

Problems given in the exam will be based on the content from the course.

Course Learning Outcomes

- CL03 : Apply critical thinking skills in a range of advanced conceptual physical situations.
- CL04 : Use appropriate mathematical techniques, including calculus, to solve problems involving electromagnetism, special relativity, optics and introductory quantum mechanics.

Laboratory

Assessment Overview

You should complete pre-work each week on Moodle before attending the laboratory classes.

These constitute 10% of your overall laboratory grade (so 2% of your total final grade) and will cover some of the necessary background for your experiment, as well as require you to submit your plans for your own experiments in later weeks.

In the laboratory you will plan and conduct experiments, recording your data in a supplied laboratory notebook. Three times during the term you will submit a composite laboratory report to be marked. The weighting of each report will be 4%, then 6%, then 8% of your cumulative grade. You will be provided with guidance on what material to include in your writeup, with earlier reports receiving more guidance. Your demonstrator will provide you feedback through the

provided rubric and additional comments.

Course Learning Outcomes

- CL01 : Design and safely conduct experiments, analyse the outcomes and include reliable estimates of uncertainties in the measurements.
- CL02 : Communicate experimental results, relate these to theory, using tables, graphs and words.

Detailed Assessment Description

Please refer to Moodle for specific requirements of the labs.

Quizzes

Assessment Overview

You will complete regular online quizzes drawn from a large question bank at home during term with feedback programmed into the quizzes. This will form 10% of your mark for the course. Twice during the term you will take an invigilated 40-minute test which is drawn from the same question bank. Each of these will form 15% of your total mark for the course.

Course Learning Outcomes

- CL03 : Apply critical thinking skills in a range of advanced conceptual physical situations.
- CL04 : Use appropriate mathematical techniques, including calculus, to solve problems involving electromagnetism, special relativity, optics and introductory quantum mechanics.

Detailed Assessment Description

Please refer to Moodle for specific requirements of these quizzes.

General Assessment Information

Grading Basis

Standard

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 27 May - 2 June	Lecture	2 x 2-hour lectures
Week 2 : 3 June - 9 June	Lecture	2 x 2-hour lectures
	Laboratory	2-hour laboratory
	Workshop	2-hour workshop
Week 3 : 10 June - 16 June	Lecture	2 x 2-hour lectures
	Laboratory	2-hour laboratory
	Workshop	2-hour workshop
Week 4 : 17 June - 23 June	Lecture	2 x 2-hour lectures
	Laboratory	2-hour laboratory
	Workshop	2-hour workshop
Week 5 : 24 June - 30 June	Lecture	2 x 2-hour lectures
	Laboratory	2-hour laboratory
	Workshop	2-hour workshop
Week 7 : 8 July - 14 July	Lecture	2 x 2-hour lectures
	Laboratory	2-hour laboratory
	Assessment	Class Test 1
Week 8 : 15 July - 21 July	Lecture	2 x 2-hour lectures
	Laboratory	2-hour laboratory
	Workshop	2-hour workshop
Week 9 : 22 July - 28 July	Lecture	2 x 2-hour lectures
	Laboratory	2-hour laboratory
	Workshop	2-hour workshop
Week 10 : 29 July - 4 August	Laboratory	2-hour laboratory
	Assessment	Class Test 2

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
Year coordinator	Kate Jackson					No	No
Lab director	Thomas Dixon					No	No
Lecturer	Michael Schmidt					No	Yes
	Elizabeth Angstmann					No	No

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](https://student.unsw.edu.au/conduct).

Academic Honesty and Plagiarism

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](https://student.unsw.edu.au/current-students),
- The [ELISE training site](https://student.unsw.edu.au/elise), and
- The [Use of AI for assessments](https://student.unsw.edu.au/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](#)