

EPPHYS 252: Modern Physics

Callaghan

Semester 1 - 2024



THE UNIVERSITY OF
NEWCASTLE
AUSTRALIA

The Pathways and Academic Learning Support Centre recognises and respects the unique history and culture of Aboriginal and Torres Strait Islander peoples and their unbroken relationship with the lands and the waters of Australia over millennia. We are dedicated to reconciliation and to offering opportunities for Aboriginal and Torres Strait Islander peoples to access and succeed in higher education. The Centre is committed to providing a culturally safe and inclusive environment for all.

OVERVIEW

Course Description	Modern Physics prepares students for the undergraduate study in science and engineering by developing a broad understanding of physics at the introductory level. It covers the basic concepts of force and energy, electromagnetism, atoms and space.
Academic Progress Requirements	Nil
Requisites	If you have successfully completed EPPHYS308 you cannot enrol in this course.
Assumed Knowledge	Year 10 level mathematics, including (but not limited to) scientific notation, basic algebra and trigonometry. If in doubt, discuss with Course Coordinator prior to finalising enrolment.
Contact Hours	Lecture Face to Face On Campus 2 hour(s) per week(s) for 13 week(s) starting Week 1 Tutorial Face to Face On Campus 1 hour(s) per week(s) for 12 week(s) starting Week 2
Unit Weighting	10
Workload	Students are required to spend on average 120-140 hours of effort (contact and non-contact) including assessments per 10 unit course.

COURSE OUTLINE

CONTACTS

Course Coordinator	Dr Murray Sciffer Murray.Sciffer@newcastle.edu.au (02) 4921 5800 Consultation: Please email to schedule an appointment.		
Teaching Staff	Other teaching staff will be advised on the course Canvas site.		
School Office	<table><tr><td>Callaghan Ground Floor, General Purpose Building (GP) Ph: 02 4921 5558 enabling@newcastle.edu.au</td><td>Ourimbah HO 168, Humanities Building Ph: 02 4348 4076 enabling@newcastle.edu.au</td></tr></table>	Callaghan Ground Floor, General Purpose Building (GP) Ph: 02 4921 5558 enabling@newcastle.edu.au	Ourimbah HO 168, Humanities Building Ph: 02 4348 4076 enabling@newcastle.edu.au
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SYLLABUS

Course Content	<ul style="list-style-type: none">• Measurement and vectors• Force and motion• Work and energy• Electric forces and fields• Potential, current and power• Electric circuits• Magnetic fields and currents• Waves and light• The structure of atoms and nuclei• Nuclear fusion and fission• Space and astrophysics• Experimental methods
Course Learning Outcomes	<p>On successful completion of this course, students will be able to:</p> <ol style="list-style-type: none">1. Identify, describe, and explain the fundamental principles of physics.2. Solve problems using the principles of physics with appropriate mathematics.3. Communicate problem solving ideas and methods through diagrams, words, and logical mathematical processes.4. Develop hands-on experimental skills of measurement and analysis in a laboratory setting.
Course Materials	Students will require a scientific calculator. All other course materials will be provided on the course Canvas site. Students are not required to purchase a textbook.

SCHEDULE

Week	Week Begins	Topic	Learning Activity	Assessment Due
1	26 Feb	Number & Measurement	Introductory Tutorial	
2	4 Mar	The Basics on Motion	Number & Measurement	- In class quiz 1 in tutorial on Thursday 7 th March
3	11 Mar	Electrostatics	The Basics on Motion	- In class quiz 2 in tutorial on Thursday 14 th March - Online quiz 1 Thursday 14 th March 11.59 pm
4	18 Mar	Voltage, Current and Power	Electrostatics	- In class quiz 3 in tutorial on Thursday 21 st March - Online quiz 2 Thursday 21 st March 11.59 pm
5	25 Mar	Electric circuits	Voltage, Current and Power	- In class quiz 4 in tutorial on Thursday 28 th March - Online quiz 3 Thursday 28 th March 11.59 pm
6	1 Apr	Magnetism	Electric circuits	- In class quiz 5 in tutorial on Thursday 4 th April - Online quiz 4 Thursday 4 th April 11.59 pm
7	8 Apr	Electromagnetic induction	Magnetism	- In class quiz 6 in tutorial on Thursday 11 th April - Online quiz 5 Thursday 11 th April 11.59 pm
Recess				
Recess				
8	29 Apr	Atomic Structure	Electromagnetic induction	- In class quiz 7 in tutorial on Thursday 2 nd May - Online quiz 6 Thursday 2 nd May 11.59 pm
9	6 May	Nuclear Physics	Atomic Structure	- In class quiz 8 in tutorial on Thursday 9 th May - Online quiz 7 Thursday 9 th May 11.59 pm
10	13 May	Radiation decay and biological effects	Nuclear Physics	- In class quiz 9 in tutorial on Thursday 16 th May - Online quiz 8 Thursday 16 th May 11.59 pm
11	20 May	Introduction to Astronomy and Space Physics	Radiation decay and biological effects	- In class quiz 10 in tutorial on Thursday 23 rd May - Online quiz 9 Thursday 23 rd May 11.59 pm
12	27 May	In class quiz 11 (Practical)	In class quiz 11 (Practical)	- In class quiz 11 in tutorial on Thursday 30 th May - Online quiz 10 Thursday 30 th May 11.59 pm
13	3 Jun	Revision Session	No Tutorial	
Examination Period				
Examination Period				

ASSESSMENTS

This course has 3 assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	In Class Quizzes	During tutorials each week from weeks 2 to 12	Individual	34%	1, 2, 3, 4
2	Online quizzes	Thursdays 11:59pm each week from weeks 3 to 13	Individual	16%	1, 2, 3
3	Final Examination	Examination period	Individual	50%	1, 2, 3

Late Submissions

The mark for an assessment item submitted after the designated time on the due date, without an approved extension of time, will be reduced by 5% of the possible maximum mark for that assessment item for each day or part day that the assessment item is late. Note: this applies equally to week and weekend days.

Assessment 1 - In Class Quizzes

Assessment Type	Quiz
Description	Closed book, free-response question quizzes completed in the tutorial. The best 8 out of 11 weeks will count towards your final grade.
Weighting	34%
Due Date	During tutorials each week from weeks 2 to 12
Submission Method	In class
Assessment Criteria	Correct answers
Return Method	In class
Feedback Provided	Feedback will be provided in Canvas

Assessment 2 - Online quizzes

Assessment Type	Quiz
Description	Short answer online quizzes completed in Canvas. The best 8 out of 11 weeks will count towards your final grade. Each quiz opens two weeks prior to its due date.
Weighting	16%
Due Date	Thursdays 11:59pm weeks 3 to 13
Submission Method	Online
Assessment Criteria	Correct answers
Return Method	Online
Feedback Provided	Feedback will be provided in Canvas upon completion of each quiz

Assessment 3 - Final Examination

Assessment Type	Formal Examination
Description	The final examination is an essential assessment task and is worth 50% of the final mark. This exam will enable you to demonstrate that the course material has been understood and that you can obtain the solution to physics problems selected from ALL lecture topics within the course. This examination permits the use of a memory aid.
Weighting	50%
Due Date	During the examination period
Submission Method	Formal exam
Assessment Criteria	Correct answers
Return Method	This assessment will not be returned
Feedback Provided	No feedback will be provided for this assessment

ADDITIONAL INFORMATION

Grading Scheme

This course is graded as follows:

Range of Marks	Grade	Description
85-100	High Distinction (HD)	Outstanding standard indicating comprehensive knowledge and understanding of the relevant materials; demonstration of an outstanding level of academic achievement; mastery of skills*; and achievement of all assessment objectives.
75-84	Distinction (D)	Excellent standard indicating a very high level of knowledge and understanding of the relevant materials; demonstration of a very high level of academic ability; sound development of skills*; and achievement of all assessment objectives.
65-74	Credit (C)	Good standard indicating a high level of knowledge and understanding of the relevant materials; demonstration of a high level of academic achievement; reasonable development of skills*; and achievement of all learning outcomes.
50-64	Pass (P)	Satisfactory standard indicating an adequate knowledge and understanding of the relevant materials; demonstration of an adequate level of academic achievement; satisfactory development of skills*; and achievement of all learning outcomes.
0-49	Fail (FF)	Failure to satisfactorily achieve learning outcomes. If all compulsory course components are not completed the mark will be zero. A fail grade may also be awarded following disciplinary action.

Communication Methods

Email is the principal form of communication at the university and within this course. Always use your student email (NUmail), rather than a private email address, and check this regularly. As Course Coordinator I will try to respond to your email within three (3) working days. I will not normally respond to emails over the weekends. Please be courteous in your email communication and in the online space.

Canvas is used to distribute course material, announcements and other information. It is also used for online quizzes and to allow students to track their individual progressive assessment results throughout the semester via Grades.

Discussions forums in Canvas can be used to ask questions about minor issues. Students are strongly encouraged to use these to communicate with each other, discuss issues relating to the course, and solve minor problems.

Attendance and Engagement

In addition to face-to-face hours in class, out-of-class study and related work will require an additional commitment of up to 10 hours per week of reading, preparation, and study time over the semester. Students are required to spend on average 120-140 hours of effort (contact and non-contact hours including assessment) per semester per 10 unit course.

To maximise your learning opportunities, you should read all relevant material prior to attending class.

It is strongly recommended that you attend your classes every week. Our data shows that you will get better results if you attend class with your peers. If you do have to miss a class, you should catch up on any missed work by accessing lecture recordings if you are enrolled face-to-face. While online tutorials are recorded, on-campus tutorials are not, so you should view other resources available on your Canvas site and contact your course coordinator if you would like advice on how to best catch up on any material that was missed. **If you are unable to attend classes regularly you should reach out to your course coordinator as soon as possible to discuss ways that you can continue to engage with the learning material.**

A plan of regular revision throughout the semester is also strongly recommended to help you manage your time, consolidate information and retain that knowledge for the duration of

the course and beyond.

Assessment items have been designed to reinforce and revise the course material, and ensure you are up to date with course content. You are required to submit all assessable items by the due dates unless prior arrangements have been made.

Additional Contact Details

If you have any questions about your course, please speak with your course coordinator, lecturer or tutor first. For general enquiries, please contact the Pathways and Academic Learning Support Centre Office or your Student Liaison Officer. Contact details for both the office and Student Liaison Officers can be found [here](#).

Yapug students can also contact your Indigenous Enabling Learning Advisor [Hannah Pipe](#) or your Program Convenor [Dan Collins](#).

Final Examination

This course has a formal examination. All formal examinations will be held during the [University's Examination Period](#). Your [exam timetable](#) will be available approximately 4 weeks before the exam period and you must ensure that you are available to undertake your exam at any time during the Examination Period.

If you are unable to attend a scheduled examination due to illness or you have another significant, verifiable reason, contact the Pathways and Academic Learning Support Office and advise your lecturer at the earliest opportunity. Completion of an [online Adverse Circumstances application](#) including appropriate documentation is required.

If you have a permanent or temporary disability or medical condition that means you may need adjustments made during your examination, you must register with [AccessAbility](#) at the start of semester so that these arrangements can be made.

If you have a Reasonable Adjustment Plan (RAP), your examination will be scheduled in accordance with it. If you are unable to attend your scheduled examination due to illness or other circumstance, you will need to submit an online Adverse Circumstances application and supply appropriate documentation to support your application. Your RAP is not able to be used as your documentation.

Adverse Circumstances

The University acknowledges the right of students to seek consideration for the impact of allowable adverse circumstances that may affect their performance in assessment item(s). Applications for Adverse Circumstances must be lodged via the online Adverse Circumstances system for all individual assessment items worth 30% or greater **by 11:00pm on the day the assessment is due**. For assessment items less than 30%, you will need to contact your Course Coordinator by 11:00pm on the due date of the assessment item.

Before applying you must refer to the [Adverse Circumstances Affecting Assessment Items Procedure](#) and the [Adverse Circumstances Affecting Assessment Items Policy](#).

Please note that students must submit their adverse circumstances application via the online Adverse Circumstances system by 11:00pm on the due date of the assessment item, even if you are using a [Reasonable Adjustment Plan \(RAP\)](#) as your supporting documentation.

Written Assessment Word Limits

If this course includes written assessments, the word limit listed will include headings, sub-heading, in-text citations, quotes and referencing but does not include the list of references, appendices and footnotes. You will not receive a penalty for exceeding the word limit (there is a tolerance of up to 10%), but any work after the maximum word limit may not be included within the allocation of marks.

Academic Misconduct

All students are required to meet the academic integrity standards of the University. These standards reinforce the importance of integrity and honesty in an academic environment. Academic Integrity policies apply to all students of the University in all modes of study and in all locations. Please refer to the [Student Academic Integrity Policy](#).

Oral Interviews (Vivas)

As part of the evaluation process of any assessment item in this course an oral examination

(viva) may be conducted. The purpose of the oral examination is to verify the authorship of the material submitted in response to the assessment task. The oral examination will be conducted in accordance with the principles set out in the [Oral Examination \(viva\) Procedure](#). In cases where the oral examination reveals the assessment item may not be the student's own work the case will be dealt with under the [Student Conduct Rule](#).

Workplace Health and Safety Requirements

There are no specific WH&S requirements for this course.

Software

Free Microsoft Office software is available to enrolled students [here](#) and includes 5 TB of free cloud storage with OneDrive.

Timetable

Your timetable for this course is available via the myUni Student Portal and can also be found [here](#).

Course Evaluation

Each year feedback is sought from students and other stakeholders about the courses offered in the University for the purposes of identifying areas of excellence and potential improvement.

Important Policy Information

The Help button in the Canvas Navigation menu contains helpful information for using the Learning Management System. Students should familiarise themselves with the [policies and procedures](#) that support a safe and respectful environment at the University.

This course outline was approved by the Director, PALS. No alteration of this course outline is permitted without Director approval. If a change is approved, students will be notified and an amended course outline will be provided in the same manner as the original.
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