

Faculty of Science

School of Physics

PHYS1001: Physics 1 (Regular)

Semester 1 , 2012 | 6 Credit Points | Coordinator: A/Prof. Joe Khachan (khachan@physics.usyd.edu.au)

1 Introduction

PHYS 1001 is the first part of a broad 3-semester overview of physics at Junior and Intermediate levels for students who have successfully studied physics at high school. Together with either PHYS 1003 or PHYS 1004 and 12 credit points of Junior Mathematics, PHYS 1001 provides the necessary background knowledge and practice of scientific skills for students who wish to enrol in intermediate units of study in physics, in the environmental, medical and life sciences, or in engineering.

1.1 Assumed Knowledge and Prohibitions

It is assumed that students have completed the equivalent of 2 unit HSC Physics and gained 65 marks or better. Recommended concurrent units of study are MATH1001/1901 and MATH1002/1902. PHYS1001 may not be counted with PHYS1002 or PHYS1901

2 Course Aims, Learning Objectives and Graduate Attributes

2.1 Course Aims

The focus of this unit is to introduce you to the key concepts in three foundation areas of physics: mechanics, thermal physics and wave motion. You will be familiar with the basic concepts of mechanics and waves from school but thermal physics will be new to you. The unit is designed to help you develop appropriate methods of study that will allow you to become an independent learner, capable of organising new information into a coherent conceptual framework and applying it in both familiar and unfamiliar situations. In addition, you are introduced to basic experimental skills in the measurement of physical quantities and analysis of experimental data.

2.2 Learning Outcomes

After successfully completing this unit, you should be able to demonstrate:

1. an understanding of the key concepts in three foundation areas of physics - mechanics, thermal physics and wave motion;
2. the ability to apply these concepts to develop models, and to solve qualitative and quantitative problems in scientific and engineering contexts, using appropriate mathematical and computing techniques as necessary ;
3. an understanding of the nature of scientific measurement, and skills in the measurement of physical quantities and the handling of data;
4. the ability to find and analyse information and judge its reliability and significance;
5. the ability to communicate scientific information appropriately, both orally and through written work;
6. the ability to engage in team and group work for scientific investigations and for the process of learning;
7. a sense of responsibility, ethical behaviour and independence as a learner and as a scientist.

2.3 Graduate Attributes

Graduate Attributes are generic attributes that encompass not only technical knowledge but additional qualities that will equip students to be strong contributing members of professional and social communities in their future careers. The overarching graduate attributes identified by the University relate to a graduate's attitude or stance towards knowledge, towards the world, and towards themselves. These are understood as a combination of five overlapping skills or abilities, the foundations of which are developed as part of specific disciplinary study. For further details please refer to the Science faculty website at:

itl.usyd.edu.au/graduateAttributes/facultyGA.cfm?faculty=Science

Graduate Attributes		Learning Outcomes
A Research and Inquiry		
A1.	Apply scientific knowledge and critical thinking to identify, define and analyse problems, create solutions, evaluate opinions, innovate and improve current practices.	2, 3, 4
A2.	Gather, evaluate and deploy information relevant to a scientific problem.	1, 2, 3, 4
A3.	Design and conduct investigations, or the equivalent, and analyse and interpret the resulting data.	2, 3, 4
A4.	Critically examine the truth and validity in scientific argument and discourse, and evaluate the relative importance of ideas.	2, 3, 4
B Information Literacy		
B1.	Use a range of searching tools (such as catalogues and databases) effectively and efficiently to find information.	4
B2.	Access a range of information sources in the science disciplines, for example books, reports, research articles, patents and company standards.	4
B3.	Critically evaluate the reliability and relevance of information in a scientific context.	1, 2, 3, 4
B5.	Use information technology to gather, process, and disseminate scientific information.	4, 5
C Communication		
C1.	Explain and present ideas to different groups of people in plain English.	5, 6
C2.	Write and speak effectively in a range of contexts and for a variety of different audiences and purposes.	5, 6
C4.	Present and interpret data or other scientific information using graphs, tables, figures and symbols.	3, 4, 5
C5.	Work as a member of a team, and take individual responsibility within the group for developing and achieving group goals.	5, 6
C6.	Take a leadership role in successfully influencing the activities of a group towards a common goal.	6, 7
D Ethical, Social and Professional Understanding		

D1.	Demonstrate an understanding of the significance and scope of ethical principles, both as a professional scientist and in the broader social context, and a commitment to apply these principles when making decisions.	7
D2.	Appreciate the importance of sustainability and the impact of science within the broader economic, environmental and socio-cultural context.	7
E Personal and Intellectual Autonomy		
E1.	Evaluate personal performance and development, recognise gaps in knowledge and acquire new knowledge independently.	3, 4, 7
E2.	Demonstrate flexibility in adapting to new situations and dealing with uncertainty.	3, 7
E3.	Reflect on personal experiences, and consider their effect on personal actions and professional practice.	7
E4.	Set achievable and realistic goals and monitor and evaluate progress towards these goals.	7
E5.	Demonstrate openness and curiosity when applying scientific understanding in a wider context.	7

For further details on course learning outcomes see the Specific Objectives listed in the Lecture Module Outlines available on the unit eLearning site.

3 Study Commitment

Students enrolled in any 6 credit point Junior unit of study offered by the Faculty of Science should consider spending up to 12 hours per week on that unit during the 13 teaching weeks of the semester and the study vacation. In PHYS 1001 this involves:

Lectures

You will have 37 one-hour lectures divided into 3 lecture modules:

- **Mechanics (17 lectures)** - brief review of kinematics and dynamics, rotational mechanics
- **Thermal Physics (10 lectures)** - temperature, thermal properties of matter, the first and second laws of thermodynamics
- **Oscillations & Waves (10 lectures)** - basic oscillations and wave concepts, developed for mechanical, acoustic and water waves

The lectures are intended to guide you in your study of the textbook.

Tutorials/Workshops

You will have 12 one-hour Workshop tutorials based on and supporting the lecture modules. You will work in groups of four on a selection of qualitative and quantitative questions and problems, and investigate physical phenomena with demonstration apparatus. Tutors are present to assist you.

Assignments

You will be given 6 web-based *MasteringPhysics* sets of Assignment questions. *MasteringPhysics* provides questions that use a 'Socratic dialogue' - when you get stuck in answering a problem it offers a simpler problem and provides feedback tailored to your answers. It offers the opportunity to develop your understanding of concepts and your problem solving ability through compulsory assignment questions and optional extra questions

Laboratory Work

You will have 9 three-hour laboratory sessions, working in groups of three on a range of experiments with tutors to assist you. One session will be devoted, in part, to developing skills in computer data analysis. A ninth session will be occupied by a Practice test of lecture content and a laboratory Skills test.

Independent Study

You are expected to do up to 6 hours (per week) of independent study. Use this time to:

- read through and understand relevant sections of the textbook
- work through the assigned examples in the text
- attempt the *MasteringPhysics* questions
- study for the skills test and final examination

On-line exercise

You **must** complete an online exercise on *plagiarism and academic honesty* sometime before Friday 4 May. This exercise is located on the Library [Research and information skills](http://sydney.edu.au/library/elearning/learn/plagiarism/index.php) web site - go direct to <http://sydney.edu.au/library/elearning/learn/plagiarism/index.php>. A digital certificate of completion must be printed after completing the exercise and taken to the Lab session. This digital certificate can also be used for other non-Physics courses that have this requirement.

The following Learning Commitment Table summarises a suggested allocation of your time to meet these commitments.

In class activities	Hours
Lectures (37 @ 1 hr each)	37
Workshop Tutorials (12 @ 1 hr each)	12
Laboratory sessions (9 @ 3 hrs each)	27
Total	76

Independent Study	Hours
Reading of text for lectures (37 @ 0.5 hr each)	18.5
Reading of lecture notes after lectures (37 @ 0.25 hr each)	9.25
Revision and self assessment (13 @ 1 hr each)	13
Assignments (6 @ 3 hr each)	18
Preparation for practicals (8 @ 0.5 hr each)	4
Preparation for Practice and Skills test	4
On-line Plagiarism exercise	0.5
Total	67.25

Study Tips

You are now in control of your own study strategy, and as an adult learner it is up to you to devise a study plan that best suits you. If you attend classes regularly and involve yourself in all of these learning experiences, you will gain a good understanding of the course work. This will have a considerable impact on your exam preparation and performance.

Good study habits are also very important - we offer some suggestions on our Learning Physics web page sydney.edu.au/science/physics/current/learningphysics.shtml.

As **preparation**, you should read *How to Succeed in Physics by Really Trying* on pages vii - viii of the textbook. You should also read and understand Section 1.5, *Uncertainty and Significant Figures*, and Section 1.6, *Estimates and Orders of Magnitude*.

4 Learning and Teaching Activities

WEEKLY SCHEDULE

Lectures

You will be scheduled into one lecture stream (there are four streams), with three one-hour lectures per week in the lecture theatre indicated for your stream. All lectures are held in the Physics Building.

Lectures commence Mon 5 or Tue 6 March and end Thur 7 or Fri 8 June

- **Stream 1** - Slade Lecture Theatre - Mon 10am, Wed 10am, Fri 10am
- **Stream 2** - Slade Lecture Theatre - Tues 9am, Wed 12pm, Thurs 9am
- **Stream 3** - Slade Lecture Theatre - Mon 2 pm, Wed 2pm, Thurs 2pm
- **Stream 4** - Lecture Theatre 2 - Mon 4pm, Wed 4pm, Thurs 4pm

Please consult your personal timetable on myUni for more details.

NB: There are no lectures on Thursday 5 April, or over Easter (Friday 6 April to Friday 13 April) and on ANZAC Day Wednesday 25 April.

Tutorials/Workshops

You should attend a single one-hour workshop tutorial per week. All tutorials are held in **Room 331, Madsen Building**. Workshop tutorials start in the second week of semester commencing Monday 12 March. The final tutorial will be in the week commencing Monday 4 June.

Note that participation in Workshop Tutorials will be recorded. A mark of 2% of your final grade is allocated to Workshop participation. To obtain full marks you must take part in at least 9 out of 12 workshops.

Laboratory Work

The laboratory component is divided into several sections:

- 4 weeks - mechanics, fluid flow; including concepts, problem solving, use of computers in physics.
- 3 weeks - wave motion, lenses; planning and problem solving skills, use of computer in physics, data analysis and uncertainties.
- 2 weeks - registration and data analysis, Practice and and Skills tests.

You will be scheduled into one, three-hour laboratory session per week in the Carslaw Building on Level 4 - Rooms 401, 402, 407 and 408.

Your first laboratory session is during the second week of semester commencing Monday 12 March. The final laboratory session will be the week commencing Monday 28 May. **Some weeks there are no laboratory classes - consult the timetable on the back cover of your Lab Manual for details.**

Mastering Physics

All assignments are done using the *MasteringPhysics* system. *MasteringPhysics* may be accessed through the eLearning page or at masteringphysics.com. Instructions for registering can be found on the Mastering Physics webpage under the "support" tab.

You will need an access code to use the system. This can be obtained in several ways as follows:

- Purchase a new copy of the textbook and the access code is shrink-wrapped with the book. (cost

approximately \$200 to Coop members);

- Use a free code which can be obtained from the Physics Student Services Office, Room 210, in the 1st and 2nd week of semester.

The first two methods allow you to do assignments but also provide access to an electronic version of the textbook through *MasteringPhysics*. This is very valuable in that it allows easy access to the textbook when doing assignments (and saves you carrying around a heavy book). The third method allows you to do the assignments but does not provide access to the textbook. If you buy the textbook or the standalone code then that is better to register using its code rather than the more limited code which we supply.

The first time you login you need to choose a username and password. You also need:

- the course ID SUPHYS1001Y2012,
- your full 9 digit Student ID number (SID) (e.g. 307759311 or 200459311 – please enter this number correctly!)
- your preferred email address.

Subsequent logins require only your chosen username and password (so make sure you keep a record of them).

Questions in *MasteringPhysics* are presented in groups (called 'assignments' by the system) with a title such as *Mechanics - Assignment 1 and Tutorial Questions*. There are six 'assignments' for this unit of study. 'Introduction to *MasteringPhysics*' is an extra, short assignment illustrating the features of the system with a mark value (for completion) approximately half that of a regular assignment.

Assignment questions must be completed by 7pm (local time) on the due date. *MasteringPhysics* will not accept late assignments. Available marks ramp down to zero in the five hours after the assignment deadline. It is therefore essential that you seek permission if you need to submit the assignment late. Assignment questions remain accessible to you for review (but no more marks!) until the end of the semester.

Help in using *MasteringPhysics* can be obtained from:

- Extensive online help
- An FAQ list at sydney.edu.au/science/physics/pdfs/current/jphys/MP_faq.pdf
- A discussion group on eLearning for this unit is monitored by Physics staff
- email the *MasteringPhysics* coordinator, Dr Chris Dey, mastering_physics@physics.usyd.edu.au

If for any reason you cannot complete the assignment online, you may request a paper copy of the assignment and permission to submit a paper copy of the solution. Paper-based assignments will not be accepted unless permission is obtained beforehand, since the objective is for you to use the tutoring ability of *MasteringPhysics* to improve your ability to solve problems and your understanding of concepts.

5 Teaching Staff and Contact Details

Unit Coordinator	Email			
A/Prof. Joe Khachan	khachan@physics.usyd.edu.au			
Teaching Staff	Email	Room	Phone	Note
A/Prof. Mike Wheatland	michael.wheatland@sydney.edu.au	Physics, Room 463	9351 5965	Mechanics - stream 1
Prof. Dick Hunstead	R.Hunstead@physics.usyd.edu.au	Physics, Room 567	9351 3871	Mechanics - stream 2

Prof. Ross McPhedran	r.mcphedran@physics.usyd.edu.au	Physics, Room 309	9351 3872	Mechanics - stream 3
Prof. Anne Green	anne.green@sydney.edu.au	Physics, Room 564	9351 2727	Mechanics - stream 4
Prof. Iver Cairns	cairns@physics.usyd.edu.au	Physics, Room 383	9351 3961	Thermal - stream 1
Dr Pulin Gong	p.gong@physics.usyd.edu.au	Physics, Room 374	9036 9368	Thermal - streams 2, 3
A/Prof. Manju Sharma	m.sharma@physics.usyd.edu.au	Physics, Room 226B	9351 2051	Thermal - stream 4
Dr Helen Johnston	H.Johnston@physics.usyd.edu.au	Physics, Room 563	9351 2152	Waves - streams 1,2
Dr Greg Madsen	g.madsen@physics.usyd.edu.au	Physics, Room 559A	9036 5106	Waves - streams 3,4

6 Learning Resources

Textbook

The lecture modules are based on the textbook:

Young, H.D. and Freedman, R.A.. (2011). *University Physics (with Modern Physics)*. 13th edition, Addison-Wesley.

Textbooks can be purchased at the **Co-op Bookshop** for ~\$190 (to Co-op members).

Depending on your choice of units, the textbook you need may be different in first and second semesters. We will facilitate exchange of textbooks between students to ensure you only need to buy one textbook for the year. See the Physics Student Services Office for more information.

Laboratory Manual

The laboratory segment of the unit is covered by:

PHYS 1001 Physics 1 (Regular) Laboratory Manual, prepared by the School of Physics

Laboratory Manuals can be purchased at the **Co-op Bookshop** for ~\$10 (to Co-op members) and are also on the eLearning pages for this unit.

Lecture Module Outlines

There is a module outline for each of the three lecture modules, available on the eLearning pages for this unit. These list specific objectives that define what you should learn and understand about the detailed content of each

chapter of the textbook. Understanding a term or concept means that you should be able to:

- explain its meaning in writing and give examples;
- interpret it correctly when you read or hear it;
- use it correctly in your own writing; and
- apply it correctly to examples and problems.

The module outline also lists what sections of the textbook are relevant and recommended questions.

Web Resources

The University eLearning system elearning.sydney.edu.au provides resources to help you with your studies, please spend time getting acquainted with this site. *MyUni* sydney.edu.au/myuni is the student portal providing University information and services. Access to *MyUni* and eLearning requires a Unikey username and password that is issued with your confirmation of enrolment. The University provides computer facilities described on the *Student IT* pages at <http://sydney.edu.au/ict/student/>. The 'Current Student' link on the School of Physics web page sydney.edu.au/science/physics also provides resources to help you with your studies.

Email

The University provides you with email access based on your username. We may use this email address to provide you with important information regarding this unit of study. **We expect you to periodically read your email account or to forward mail from it to an account you do read (eg a gmail account).**

Where to go for help

If you need help, you can:

- as a first step, always check your unit [eLearning](#) pages for information, documents and links
- ask other students using the Discussion Board on the unit eLearning page.
- go to the Physics Student Services Office, Room 210 in the Physics building, or phone 9351 3037
- ask your lecturer or tutor
- ask a Duty Tutor - a staff member who is available Tuesday to Friday, 1-2 pm, in Physics LT4 to help you with problems with physics course material - available from Week 3 of semester.
- consult one of the many services provided by the University, such as the Maths Learning Centre. These can be found by choosing *Junior Physics Resources and Links* from the unit [eLearning](#) page or your *MyUni* pages sydney.edu.au/myuni.
- for Lab issues contact Dr Chris Stewart, Lab Coordinator, c.stewart@physics.usyd.edu.au
- for *MasteringPhysics* issues contact Dr Chris Dey, mastering_physics@physics.usyd.edu.au

Providing us with feedback

We welcome comments on all aspects of this unit. You should feel free to contact your lecturers, tutors or the First Year Coordinator by email using the [People@Physics](#) list on the Physics web pages. There is also a formal opportunity for feedback at the Staff-Student Liaison meeting, held one lunch time towards the end of semester with staff and student representatives from the various units of study, including this one.

Changes this year

As a result of student feedback and other initiatives there will be a number of changes this year:

- A full review of the Physics syllabus is underway, so your feedback is especially timely.
- Assessment policies are changing so progressively, but behind the scenes, there will be changes in the way your assessment marks are used to produce your final grade.
- We have a new building project underway - see <http://www.physics.usyd.edu.au/about/building.shtml>

7 Assessment Tasks

Assessment

Assessment tasks are intended to allow you to demonstrate what you have learned related to the goals of this unit. They also serve to encourage you to work with the material, but should not dominate your approach to learning. See them as another learning activity, accompanying and complementing those listed earlier.

Assessment of this unit of study is based on achievement of specific learning objectives (listed in the module outlines) demonstrated in a combination of assignments, examinations and laboratory work. Satisfactory performance in both the theory and experimental segments of the unit of study is necessary for a pass.

In addition, students in physics must be able to express themselves accurately by clear, efficient use of the English language in their written work. Spelling, grammar, punctuation and correct use of language will be taken into account when written reports and examination work are assessed. Students should refer to the University's WriteSite (<http://writesite.elearn.usyd.edu.au/>) if they are looking for guidance on grammar and other aspects of academic and professional writing.

You should be familiar with the new University Assessment policy, which can be found at http://sydney.edu.au/ab/policies/Assessment_Policy_2011.pdf

7.1 Summative Assessments

Assessment Task	Percentage Mark	Due Date	Learning Outcomes
Introduction to Mastering Physics	1	Week 2 Friday, 16 March 2012	1, 2, 4
Mechanics - Assignment 1 and Tutorial Questions (Ch. 4, 5)	1.5	Week 4 Monday, 26 March 2012	1, 2, 4
Mechanics - Assignment 2 and Tutorial Questions (Ch. 6, 7, 8)	1.5	Week 6 Monday, 16 April 2012	1, 2, 4
Mechanics - Assignment 3 and Tutorial Questions (Ch. 9, 10)	1.5	Week 7 Friday, 27 April 2012	1, 2, 4
Thermal Physics - Assignment 4 and Tutorial Questions (Ch. 17, 19)	1.5	Week 9 Friday, 11 May 2012	1, 2, 4
Thermal Physics - Assignment 5 and Tutorial Questions (Ch. 20, 13)	1.5	Week 11 Friday, 25 May 2012	1, 2, 4
Waves - Assignment 6 and Tutorial Questions (Ch. 13, 15, 16)	1.5	Week 13 Friday, 08 June 2012	1, 2, 4
Workshop Tutorials	2	Weekly (weeks: 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 and 13)	1, 2, 6, 7
Laboratory Work	20	Weekly (weeks: 2, 3, 4, 6, 8, 9, 10 and 11)	3, 4, 5, 6, 7
Laboratory Skills test	5	Week 12 (week starting Sunday, 27 May 2012)	4, 5
Practice Examination	3	Week 12 (week starting Sunday, 27 May 2012)	1, 2, 5, 7

Final Examination	60	Exam Period	1, 2, 5, 7
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Descriptions of Summative Assessments

Introduction to Mastering Physics

Each assignment (apart from the Introduction to *MasteringPhysics*) is divided into two components.

- **Tutorial Questions.** These all feature the full *MasteringPhysics* Socratic dialogue - when you get stuck in answering a problem it offers a simpler problem and provides feedback tailored to your answers. These have been selected by your lecturers to help your understanding and problem solving ability. They are not assessed but we strongly recommend you look at some of these questions, which will remain available after the assignment deadline until the end of the semester.
- **Assignment Questions** are compulsory questions and represent the minimum use you should make of the system. 8 questions are offered, each worth 5 marks even though some are a little longer than others. Each assignment is worth about 2% towards your total assessment. The questions are a mix: tutorial-style questions teaching you concepts and problem solving techniques; and end-of-chapter problems from the textbook. The tutorial-style questions have full hints and feedback, while the end-of-chapter questions do not.

The marking scheme gives a small reward when answers are achieved without using the hints, but no penalty if you do use them. See the *MasteringPhysics* FAQ at sydney.edu.au/science/physics/pdfs/current/jphys/MP_faq.pdf for more details.

Read each problem, then work on it before trying to enter your answer. We don't want you to sit down and type in the answers without working on and thinking about them first. Try the problem without a hint first, then, if you get stuck, try the hint. For assignment questions, we give you eight chances to get the correct answer (although there is a small penalty for wrong answers). The objective is to get the right answer using as much help as it takes.

Your answers need to be formatted correctly so be smart and use the help the system provides:

- Values of constants can be found using the 'constants' button near the top of the page.
- See the Help linked from "?" at the right end of relevant boxes for more help with formatting.
- Move your mouse over symbols in the question to see how to type them in correctly.

We encourage students to cooperate in understanding all the questions since the objective is to understand concepts and develop your problem solving ability. However all Assignment Questions using *MasteringPhysics* must be completed individually. Simply copying the work of another person without acknowledgment is plagiarism and contrary to University policies on Academic Dishonesty and Plagiarism in Coursework see

http://sydney.edu.au/learning/education_policy/academic_dishonesty_in_coursework_policy_2012.pdf.

MasteringPhysics marks the assignments automatically and you immediately know your result. Worked solutions to all Assignment Questions will be posted on the web, although you should have the answer once you complete each *MasteringPhysics* question. Note that some assignment questions use randomised values - i.e. different students see the question with different values.

Workshop Tutorials

Contributing to Workshop Tutorials is an important part of success in this Unit of Study. We measure your contribution by collecting group answer sheets and assigning an overall mark for your work during the semester, up to 2% of your final grade. To obtain full marks you must participate in at least 9 out of 12 workshops.

Laboratory Work

Assessment in the laboratory is based on successful completion of laboratory work. For each laboratory session, you are awarded a mark for successfully completing each checkpoint. Satisfactory performance in Laboratory work is necessary for a pass in the unit, but if you work well in the laboratory you will learn a lot and be well on the way to passing this unit.

Laboratory Skills test

The Skills test is a 40 minute paper-based test conducted in a laboratory session. It tests your ability to deal with uncertainties, graphing, estimating best fit lines and other skills you should acquire in lab sessions.

Practice Examination

The Practice Exam is a 40 minutes test covering the style of questions that you will see in the final examination. The test will only cover material from the Mechanics module of the unit.

Final Examination

In the examination at the end of the semester you will be asked to write descriptive answers to questions, to explain physical principles and to answer quantitative questions, all aimed at demonstrating your progress in achieving the goals of the unit. Ability to memorise formulas and manipulate them without understanding the associated physics will not be rewarded. Note that you must bring **your own calculator** to any Junior Physics examination. See the University policy on calculators

at http://sydney.edu.au/current_students/student_administration/examinations/students.shtml#calculators

7.2 Assessment Grading

Final grades in this unit are awarded at levels of HD (High Distinction), D (Distinction), CR (Credit), P (Pass) and F (Fail) as defined by the Academic Board Assessment Policy. These achievement levels are described below.

Details of the policy are available on the University's 'Policy Online' website

at http://sydney.edu.au/ab/policies/Assessment_Policy_2011.pdf.

The assessments for this unit are described in this unit of study outline. This description includes the purpose, timing and weighting of each assessment item and an explanation of how tasks relate to the learning outcomes of the unit. Students are responsible for actively engaging with these assessments, including carefully reading the guidance provided, spending sufficient time on the task, ensuring their work is authentic and their own (whether individual or group work), completing work on time and acting on feedback provided.

Assessment tasks are moderated to ensure their appropriateness, their consistency with the achievement level descriptors below and equity of grade distributions across the units offered by the Faculty of Science.

In Junior Physics, our aim is to give everyone a chance of a high grade, irrespective of their unit of study. To achieve this, we compare the units by having parts of the assessment in common. In the final examination for example, some questions are common on the various papers. We look at average marks for common and non-common questions to prevent one class being disadvantaged by, say, a difficult question that isn't on other papers. The result of this moderation process is a higher percentage of HDs and Ds in the Advanced unit (as you might expect), however the process also ensures there are HDs and Ds awarded in the other units of study to students who excel.

Grades:

High Distinction (HD)

At HD level, a student demonstrates a flair for the subject and comprehensive knowledge and understanding of the unit material. A 'High Distinction' reflects exceptional achievement and is awarded to a student who demonstrates the ability to apply subject knowledge to novel situations.

Distinction (D)

At D level, a student demonstrates an aptitude for the subject and a solid knowledge and understanding of the unit material. A 'Distinction' reflects excellent achievement and is awarded to a student who demonstrates an ability to apply the key ideas of the subject.

Credit (CR)

At CR level, a student demonstrates a good command and knowledge of the unit material. A 'Credit' reflects solid achievement and is awarded to a student who has a broad understanding of the unit material but has not fully developed the ability to apply the key ideas of the subject.

Pass (P)

At P level, a student demonstrates proficiency in the unit material. A 'Pass' reflects satisfactory achievement and is awarded to a student who has threshold knowledge of the subject.

8 Learning and Teaching Policies

Academic Dishonesty/Plagiarism

We will NOT accept assessments that are simply copied. Copying the work of another person without acknowledgment is plagiarism and contrary to University policies on **Academic Dishonesty and Plagiarism** http://sydney.edu.au/learning/education_policy/academic_dishonesty_in_coursework_policy_2012.pdf

Academic Dishonesty means seeking to obtain or obtaining academic advantage (for example, in assessments) by dishonest or unfair means or knowingly assisting another student to do so. Academic Dishonesty includes, but is not limited to:

- (a) recycling – that is, the resubmission for assessment of work that is the same, or substantially the same, as Work previously submitted for assessment in the same or in a different unit of study (except in the case of legitimate resubmission with the approval of the examiner for purposes of improvement);
- (b) fabrication of data;
- (c) the engagement of another person to complete or contribute to an assessment or examination in place of the student, whether for payment or otherwise or accepting such an engagement from another student;
- (d) communication, whether by speaking or some other means, to other candidates during an examination;
- (e) bringing into an examination forbidden material such as textbooks, notes, calculators or computers;
- (f) attempting to read other student's work during an examination;
- (g) writing an examination or test paper, or consulting with another person about the examination or test, outside the confines of the examination room without permission;
- (h) copying from other students during examinations;
- (i) Inappropriate use of electronic devices to access information during examinations.

Plagiarism means presenting another person's work as one's own work by presenting, copying or reproducing it without acknowledgement of the source. Plagiarism is a form of Academic Dishonesty, but is treated separately. Plagiarism includes presenting work for assessment, publication, or otherwise, that includes:

- (a) phrases, clauses, sentences, paragraphs or longer extracts from published or unpublished work (including from the Internet) without acknowledgement of the source; or
- (b) the work of another person, without acknowledgement of the source and presented in a way that exceeds the boundaries of legitimate cooperation.

Consideration of factors affecting your study

If your academic performance in a Science Faculty unit of study is adversely affected by **illness or some other serious event**, such as an accident, you should notify the **Faculty of Science Office** (level 2 of the Carlaw building) within 7 days after the period for which consideration is sought, by completing an *Application for Special Consideration* with accompanying documentation. This is especially important if you miss an examination.

If you have another reason for the Science Faculty to take account of your circumstances - religious commitments, legal commitments (e.g. Jury duty), elite sporting or cultural commitments (representing the University, state or country), or Australian Defence Force commitments (e.g. Army Reserve) - you should notify the **Faculty of Science Office** (level 2 of the Carlaw building) at least 7 days BEFORE the period for which consideration is sought, by completing an *Application for Special Arrangements* with accompanying documentation.

These two forms of Consideration should cover most allowable circumstances. However, if you have another reason for requiring the School of Physics to take account of your circumstances, you should notify the **School of Physics Student Services Office** immediately.

You should not submit an application of any type if

- there is no assessment associated with a missed class, or
- you have a reasonable opportunity to make up any work you missed.

If, for example, you miss an assignment, an application for appropriate Consideration is required to allow late submission, but we do expect the assignment to be submitted. Sometimes catching up may be impossible, in which case we will consider a pro-rata adjustment of your marks on the basis of an application for Consideration.

Special Consideration or Special Arrangements

To submit an application for *Special Consideration* or *Special Arrangements* you should:

1. Obtain the appropriate Application pack from the Student Information Office of the Faculty of Science, the Faculty website at sydney.edu.au/cstudent/ug/forms.shtml, or the Physics Student Services Office.
2. Complete the forms and obtain whatever original documentary evidence is appropriate. Note especially that the Professional Practitioner's Certificate is essential for Special Consideration on grounds of serious illness - Medical Certificates will NOT be accepted.
3. Take the original copy of all forms and documents, plus sufficient copies for each unit of study affected and yourself, to the Faculty of Science Student Information Office (NOT any other Faculty Office if you are seeking Consideration in a unit taught by Physics). They will sign/stamp both the original application form and the copies. In the case of Physics units, one copy of the documentation must then be submitted to the Physics Student Services Office. Keep one copy yourself. A formal decision on your application will be sent to your university email address within 14 days.

Students unsure what type of Consideration is appropriate, or unhappy with a Consideration decision, should consult the Physics Student Services Office.

Further details on University policy regarding Considerations can be found in the Academic Board Assessment Policy at http://sydney.edu.au/ab/policies/Assessment_Policy_2011.pdf. This document also contains details on other aspects such as Student Appeals against academic decisions.

For full details of applicable university policies and procedures, see the **Policy** web site at sydney.edu.au/policy.

Relevant forms are available on the Faculty Forms and Procedures web site at sydney.edu.au/science/cstudent/ug/forms.shtml