

PHYS111-22S1 INTRODUCTORY PHYSICS FOR PHYSICAL SCIENCES AND ENGINEERING 15 points, Semester 1 2022		
<p>Professor Mike Reid Course Coordinator Lectures: Week 1-5 (03) 369-4252 mike.reid@canterbury.ac.nz</p> <p>General Queries</p> 	<p>Dr Sha Luo Lecturer Lectures: Weeks 6-12 sha.luo@canterbury.ac.nz</p> 	<p>Cliff Franklin Laboratory Supervisor Ernest Rutherford 322 cliff.franklin@canterbury.ac.nz</p> <p>Queries about laboratory and tutorial allocations.</p> 

Course Objectives: To learn the basic laws of physics AND to see that physics can be interesting and relevant to your daily experiences! PHYS111 is a course designed for students who do not have a strong background in Physics. Success in PHYS111 will give you a good foundation for PHYS101 (offered in Semester 1 and Semester 2). PHYS111 is a ‘non-calculus’ course but does assume previous knowledge of Physics and Mathematics. If you have no background in Physics or Mathematics then you will have to work hard to keep up. Note that it is possible to take PHYS111 in either Semester 1 or Semester 2. Semester 2 is recommended if you have no previous background in physics.

How the course will work for this semester.

Due to covid concerns, the entire course will be available online. The lectures will be both live-streamed and available as recordings. We are currently planning that:

- 1. Lectures, Tutorials, and Drop-in sessions will be available in-person or online.**
- 2. Laboratories will be ONLY online.**
- 3. Homework quizzes will be ONLY online.**
- 4. Tests and Exams will be ONLY online.**

We encourage you to attend tutorials in person, if possible, since interaction with lecturers, tutors, and classmates is an important part of the learning process.

Workload

A 15-point course requires approximately 150 hours of work (some students may need considerably more to be successful). A guideline is that you should be working on course for at least 10 hours per week including contact hours.

Here is a guideline for how to spend these hours for PHYS111:

Lectures 3 hours per week (36 hours total)

Laboratories and laboratory reports 3 hours per week (36 hours total)

Tutorials 1 hour per week (12 hours total)

Homework Quizzes and other study 3 hours per week (36 hours total)

Test A (preparation plus test time) 7.5 hours

Test B (preparation plus test time) 7.5 hours

Exam (final preparation plus exam time) 15 hours

Success at university depends on YOU. You do not learn physics by watching; you only learn by doing problems yourself

Course textbook: *College Physics: A Strategic Approach, Global Edition (3e)*, by Knight, Jones and Field: <http://www.pearsoned.co.nz/9781292057156> and available at the Bookstore.

Lectures: (begin on Monday 22 February). Monday, Tuesday, Wednesday.

Login to your UC timetable (<https://mytimetable.canterbury.ac.nz/>) or check the Course Information website (<http://www.canterbury.ac.nz/courses/>) before lectures to find the up-to-date location of your classes and to allocate yourself to laboratories and tutorials.

Website: Weekly quizzes, 'hand-outs' and various other resources are available online via UC Learn at <http://learn.canterbury.ac.nz>.

Course content

Weeks 1-5: Motion in one and two dimensions; Newton's laws; work and energy; centre of mass; momentum; collisions; rotations.

Week 6: Oscillations and waves.

Weeks 7-12: Electrical circuits; electromagnetic waves; polarization; reflection and refraction; lenses; light as a wave; nuclear physics.

NOTE: A more detailed course outline with reading assignments for each lecture will be distributed at the start of each section. The **lectures**, **tutorials**, **homework**, and **laboratories** are designed to help you to make sense of the above course work and, while the lecturer, tutors and lab demonstrators are willing to assist you, it is your responsibility to learn and understand the material.

CREDIT

A satisfactory performance in the laboratory work and a 40% mark in the final exam are required to pass the course.

5%	Tutorial. Marks for <i>active</i> participation.
5%	Online homework problems pre and post tutorials.
20%	Two Term tests of 1 hour
15%	Laboratory (10% lab book checkpoint marking; 5% for best of two lab reports)
55%	Final examination three hours. Date to be announced

FINAL EXAMINATION

The final examination will be a three-hour written exam. This will count 55% toward your final mark in the course. It tests your grasp of the lectures, problems done on-line and in tutorials, and reading material. Bring your own calculator. Calculators must be approved – look out for announcements on how to get this done.

Previous exam papers are downloadable from the library website.

TERM TESTS

Tests are scheduled in Week 5 and Week 9.

LEARN

This course will make extensive use of *Learn*: <http://www.learn.canterbury.ac.nz/>. *Learn* is a web-based learning resource. **All course announcements, handouts, and homework will be on *Learn*.**

ONLINE PROBLEMS

There will be 12 weekly sets of pre- and post-tutorial online problems, on Learn, **starting in week 1. The pre-tutorial problems are designed to provide practice before the tutorial, and the post-tutorial problems test what you learned in the tutorial.**

The pre-tutorial homework will usually have a deadline of 11:59 pm Monday of the following week, but you should try to do it before the Friday Tutorial.

The post-tutorial homework will usually have a deadline of 11:59 pm on the Wednesday following the Friday Tutorial, but you are encouraged to do it as soon as possible after the Tutorial.

Each week will have the same assessment weight even if they have different numbers of questions. The best 8 weekly marks for pre- and post-tutorial homework will be counted towards your final grade.

TUTORIALS

PHYS111 has 12 tutorial sessions, **starting on Friday of Week 1.**

These will be small group parallel sessions. Students should allocate themselves to a tutorial via the timetable interface.

You are required to bring an *honest attempt* of the first question of each tutorial to the session, or upload your attempt if you are attending online.

Your participation in tutorials is essential – you learn physics by solving problems – and is important preparation for the test and exam. You will receive credit for participation. Your mark will be the best 8 tutorials.

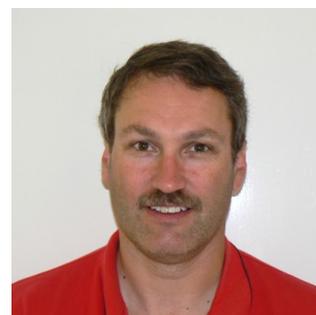
DROPIN/HELPDESK

Tutors will be available for the Monday and Tuesday for OPTIONAL Dropin Sessions, starting from Week 2.

You are welcome to discuss online problems (but don't expect to be given the answers!) as well as the course material in general.

LABORATORIES

Supervisor: Cliff Franklin, Ernest Rutherford 322
cliff.franklin@canterbury.ac.nz



The course includes 9 laboratory sessions of 3 hours each, running through terms 1 and 2. Please allocate yourself to a laboratory stream.

**Please attend the lab stream to which you have been assigned.
Contact Cliff for timetabling problems with Laboratories or Tutorials.**

The laboratory work complements the lecture material. Some experiments introduce you to particular experimental techniques. Others illustrate lecture topics. Satisfactory performance in the laboratory work is required to pass the course as a whole.

The laboratories would normally be in Ernest Rutherford 312 but are online for this semester.

The introductory session (**week 2**, week beginning 1st March) is to:

- Familiarise you with the laboratory procedures
- Discuss any timetabling problems

It is essential for you to attend this introductory session. You must purchase a Physics lab book from the Bookstore before your introductory lab in week 2. Cost is approximately \$15.

As well as the daily summary, you will be required to write up **TWO** of the experiments you perform as **formal reports**. These will be due at the end for the first and second terms. The best ONE of the marks will be used in the Laboratory Mark. Thus if you are happy with your first report mark, there is no need to complete the second. More information on formal report writing will be given early in the course and you will be given an example to follow.

ABSENCES FROM EXAMS AND TESTS

If you are **absent** from the test or exam, or if you consider that your performance in the test or exam was impaired, then you can apply for *Special Consideration*. Action SHOULD be taken within 5 days of the assessment.

The link with details can be found at

<https://www.canterbury.ac.nz/study/special-consideration/>

Note that an individual lab session is NOT available for Special Consideration. If you are absent or have impairment for a lab session then contact the Laboratory Supervisor.

Grades for students who are approved for a special consideration for the test or exam will be determined as follows: If they missed the test, then a mark will be allocated based on their exam results (and vice versa). Students who missed both test and exam will be considered on a case-by-case basis.

GENERAL INFORMATION

The School has general policies that apply to all courses regarding such matters as Dishonest Practice, Allowed types of calculators, Marks and Grades boundaries, Late Work, Academic Liaison, Assistance for Students with Disabilities, Reconsideration of Grades, Aegrotat Applications, Missing Tests etc. This information is available on the *Physics & Astronomy Undergraduate Courses* section of the Learn site.