

**PHY1023H: Principles of Physics****Course Information 2018**

**Description** PHY1023H is an algebra-based introductory course for Science students. Some calculus may be used. This course begins in the second quarter and is intended for students who have been advised to transfer to this course after initially registering for PHY1004W or PHY1031F. PHY1023H is an extended curriculum introductory physics course which is equivalent to PHY1031F in content and credits (18 HEQF credits at level 5), but the duration of PHY1023H is 1.5 semesters (2<sup>nd</sup> – 4<sup>th</sup> quarters). The course places an emphasis on the strengthening of foundational concepts and skills, the carefully-paced introduction of new material, and the development of sound approaches to effective learning.

Students who pass PHY1023H may proceed into PHY1032F (if not wanting to continue with physics beyond first year level) or PHY1004W (if wanting to continue with physics at second year level). Students who pass both PHY1023H and PHY1004W will be given credit for both courses (i.e. a total of 1.5 full courses).

**Lecturers & Course Tutor**

- **Convenor: Dr Dale Taylor** (15 weeks) [DL.Taylor@UCT.ac.za](mailto:DL.Taylor@UCT.ac.za)  
Office: James 4.05; 021 650 3367; WhatsApp: 082 515 1062.
- **Additional Lecturer: A/Prof. Saalih Allie** (3 weeks in 2<sup>nd</sup> semester)

Lecturer consultation times (for walk-in consultations) are on Vula. Appointments with lecturers may be organised by means of email or after lectures.

- **Course Tutor: Mr Kevin Barends** [BRNKEV010@myuct.ac.za](mailto:BRNKEV010@myuct.ac.za) 2 help sessions per week – see Vula for times and venue.

**Contact Time**

- **Monday – Thursday 3rd period** (10h00 – 10h45) **lecture** in MCB LT2.  
An attendance register is kept. All lectures are recorded and available for viewing and download on Vula.
- **Friday 3<sup>rd</sup> period: compulsory tutorial** in RW James Rm 3B. Students will work in small groups, usually on WPS questions. During this tutorial you will work in a group of three on an example or two from your WPS, on a whiteboard. You do NOT need to show your Friday working to a tutor
- **Tuesday 14h00-16h30: compulsory laboratory practical or whiteboard tutorial** in Phylab 1 or in RW James Rm 3B. See separate handout for schedule. The academic in charge of the laboratory is Dr Dale Taylor.

**Textbook**

- **Prescribed:** OpenStax *General Physics A*. Hard copies may be purchased in the Physics Department for R200 from the Physics Secretary in James 5.07 at 1 pm daily.
- **Recommended:** Knight, Jones & Field: *College Physics* (Pearson) either 2<sup>nd</sup> or 3<sup>rd</sup> edition.

**Course Admin**

- All resources and notices will be posted on the PHY1023H Vula site.
- Tests and other marked work will be returned to the pigeon holes next to the West entrance to James 3B. Lab reports will usually be returned at the start of the next laboratory session.
- There is a course WhatsApp site which you may join – see link on Vula.
- An information sheet will be provided for tests and the examination.

Component	% of Final Mark	Details
• Class tests	24 %	4 May, 10 Aug, 21 Sept at 10h00 in Phylab1 and 2 hour test during June examination period
• Weekly Problem Sets	6 %	
• Laboratory Reports	10 %	
• Laboratory Test	10 %	10 October 13h30-15h30 or 15h00-17h00
• Final Examination	50 %.	

The pass mark is 50% with no exam sub-minimum.

There is no lab exemption or exemption from whiteboard tutorials.

**DP**

To be allowed to write the final examination, students must be awarded DP, for which the requirements are:

- Minimum of 35 % class test average
- Minimum of 50 % for laboratory record
- Attendance at all tutorials

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## Syllabus

- **Laboratory skills:** scientific thinking, inquiry, experiment design, use of apparatus, data handling, uncertainty, report writing, computer skills (MSWord and Excel)
  - **Nature of Science**
  - **Tools and skills:** Essential mathematical, diagrammatic and conceptual tools and skills for Physics, co-ordinate systems, vectors, rates of change, the fundamental forces, mathematical techniques and their relationship with physical phenomena. (6 weeks)
  - **Mechanics:** kinematics, forces, dynamics, momentum, impulse, work, energy, power, collisions, rotation, rotational dynamics, torque, angular momentum, static equilibrium, gravitation.(6 weeks)
  - **Properties of matter:** elasticity, hydrostatics, hydrodynamics. (2 weeks)
  - **Vibrations and waves:** simple harmonic motion, damped oscillations, forced oscillations, resonance, travelling waves, superposition, standing waves, sound waves, sound intensity, Doppler Effect. (4 weeks)
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## Student Responsibilities

### You are expected to:

- Take responsibility for your learning.
- Participate fully in all lectures, tuts and labs.
- Sign the register in lectures, tuts and labs.
- Bring a calculator to lectures.
- Keep a file of your physics notes, with separate sections for notes, WPS, tutorials and tests.
- Collect marked work from the PHY1023H pigeonholes next to the West door of James 3B.
- Speak up if anything is not as it should be, for example, problems with marks, resources on Vula, lecture videos, assistants. You may approach the lecturer directly (after a lecture / in their consultation time / by appointment / by email / WhatsApp) or through the class rep (in which case you may choose to remain anonymous). Class rep details are on Vula.
- Avoid plagiarism (pretending someone else's work is yours).
- Show respect to others. (In particular, return other students' work to the correct pigeonhole.)

### WPS: You are expected to:

- **Submit** your WPS answers each week through Vula (or on paper if specifically directed to do so). Note that there is no concession for late submission. You are welcome to work together with a study group on your WPS, but note that your answers will be different.
- **Check** your own WPS solutions against the solutions published on Vula (see Resources/WPS Solutions).
- Use **help sessions** with the course tutor to assist with current and past WPS difficulties.

*Note:* The WPS and the tutorials are a good indicator of the type and standard of questions which can be expected in tests and exams!

### Administration: You are expected to:

- Check your UCT email regularly, or set up an auto-forward to your preferred email account.
- Respond to any emails from the course convenor which require a response.
- Check your marks on the Physics Marks WebApp from time to time (follow the link from Vula). If there are any mistakes, it is your responsibility to give the relevant lab report / test to the course convenor.

### You are expected to ask questions / ask for help when you need it. You can:

- Consult the course tutor during a help session. (See Vula for times and venue)
- Use the Vula Q&A tab to ask the lecturer questions anonymously. (Note that when an answer is posted on Q&A, the person who asked the question automatically gets an email notification when the question is answered.) You can also see questions which other students have asked, and the responses.
- Ask the lecturer after a lecture or during their consultation time or make an appointment, or ask by email / WhatsApp.

### Missed tests / tutorials / practicals / lectures:

- Attendance at practicals, tutorials, tests and examinations is compulsory.
  - Exemption from class tests will not be granted; students missing a test due to illness will sit another test as soon as they have recovered, provided that a medical certificate has been produced. You must speak to the course convenor within a day of your medical certificate lapsing.
  - If you miss a whiteboard tutorial or laboratory practical, you must complete the 'missed activity excuse form' (on Vula) and submit it to the course convenor. Exemption from practicals and tutorials will only be considered on medical or compassionate grounds and normally requires a medical certificate or a letter of support
  - Short leave from the course: If you wish to be granted an exemption or extension for a course requirement associated with a planned short absence from the course, then there is a form to complete (available on the course Vula site). This form needs to be submitted to the course convenor at least 3 working days prior to the period in question. Irreversible plans (such as flight bookings) must not be made before approval of leave is granted. Completion of the form is not required for medical certificates obtained on the day of the unplanned illness. These should be submitted in the usual way to the course convenor.
  - You should catch up any missed lectures, using the Vula videos. (Leftover handouts are in the filing cabinet in MCB LT2. You can help yourself to these before/after lectures. If you cannot find leftovers, then you need to get them yourself from Vula. Please do NOT ask the lecturers for leftovers.)
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