PHYA22H3 Syllabus – Winter 2019

Physics II for the Life Sciences

Instructor:	Prof. Dan Weaver
Email:	dan.weaver@utoronto.ca
Office:	SW 506H
Office Hours:	To be announced & by appointment

Required text:

Physics for Scientists and Engineers: A Strategic Approach, 4th Edition by Randall D. Knight.

Suggested problems will be posted to Quercus regularly.

General course calendar description:

The course covers the main concepts of Waves, Optics, Electricity and Magnetism, and Atomic and Nuclear Physics. It provides basic knowledge of these topics with particular emphasis on its applications in the life sciences.

Prerequisite**:**

[PHYA10H3 or PHYA11H3 or (PHYA01H3)] and [MATA29H3 or MATA30H3 or MATA31H3]

Corequisite:

(MATA21H3) or MATA35H3 or MATA36H3 or MATA37H3.
Note: (MATA21H3) and MATA35H3 do not allow for many future programs in science.

Exclusion:

PHYA21H3, (PHY110Y), PHY132H, PHY135Y, (PHY138Y), PHY152H

Course organization: 3 hours of lecture, 3 hours of practical every week.

Course Evaluation:

Practicals:	15%
Formal lab report:	10%
Test 1:	15%
Test 2:	15%
Final Exam:	40%
Participation (clickers):	5%

Lectures:

There will be two lectures each week in SW 319:

Wednesdays 10 AM – 12 noon & Fridays 11 AM – 12 noon.

Participation in lectures will be graded through the use of clickers. These can be purchased from the U of T Bookstore. They must be registered with the course through Quercus.

Lecture slides and/or notes will be posted to Quercus.

Out of respect for other students in the class, please avoid distracting others, e.g., ensure phones are turned to silent, do not play games or videos, etc.

Tentative lecture schedule:

Week & dates	**Topic**	**Textbook section(s)**
Week 1 (Jan. 09 & 11)	Course intro & waves	Chapter 16
Week 2 (Jan. 16 & 18)	Superposition of waves	Chapter 17
Week 3 (Jan. 23 & 25)	Optics	Chapter 33 & 34
Week 4 (Jan. 30 & Feb. 01)	Lenses	Chapter 34 & 35
Week 5 (Feb. 06 & 8)	Electric Charge & Forces	Chapter 22
Week 6 (Feb. 13 & 15)	Electric Fields	Chapter 23
Week 7 (Feb. 27 & Mar. 01)	Electric Potential	Chapter 25
Week 8 (Mar. 06 & 08)	Current & Circuits	Chapter 27 & 28
Week 9 (Mar. 13 & 15)	Circuits	Chapter 28
Week 10 (Mar. 20 & 22)	Magnetism	Chapter 29
Week 11 (Mar. 27 & 29)	Atomic physics	Chapter 41
Week 12 (Apr. 03 & 05)	Nuclear physics	Chapter 42

Questions and email policy:

You can use the discussion board on Quercus to ask questions about the course and its content. Often, other students will respond quicker than TAs or I will.

Medical and personal issues should be discussed with me through email.

My email policy is to respond within two business days. You should consult your TA for their email policy; however, they are also balancing many obligations and should not be expected to reply to emails immediately. Please plan accordingly.

Please include PHYA22 in the email subject and provide your full name and student number in your message.

Tests and Exam:

The term tests and the exam will cover the lectures, practicals, and assigned sections of the textbook. All tests and exams are cumulative.

You will be permitted to bring a single 8.5" by 11" sheet of paper with hand-written notes on both sides (no photocopies) for the tests and exams. This aid sheet may contain anything you want.

Practicals:

There are six practical sections for this term:

MEETING SECTION	DAY	START TIME	END TIME	LOCATION	TA
PRA0003	Monday	13:00	16:00	SW 505 A	TBA
PRA0004	Monday	13:00	16:00	SW 505 D	TBA
PRA0005	Tuesday	09:00	12:00	SW 505 A	TBA
PRA0006	Tuesday	09:00	12:00	SW 505 D	TBA
PRA0007	Tuesday	13:00	16:00	SW 505 A	TBA
PRA0008	Tuesday	13:00	16:00	SW 505 D	TBA

You must attend your assigned practical session throughout the term.

Practicals are held every week and will involve a mix of problem solving and activities, performed in groups of 3 or 4 students. Work is collaborative; each group will receive one grade. Some of these activities will be marked each week.

You will not have to purchase a lab book for this course.

There will be a formal lab report required for this course, worth 10% of your grade. This will be submitted by your lab group (3 – 4 students). Details on expectations and grading will be discussed and posted later in the term.

Absence policy

Practicals are team-based. It is important you attend all sessions. Absences forfeit the grade for that week and, in addition, your overall practicals grade will be penalized by the cube of the number of absences. For example, 2 absences result in a penalty of $2^3 = 8\%$ and so on.

If you are more than 15 minutes late, you will be counted as absent and incur the cube of absences penalty. You can receive credit for group work if you arrive before the bulk of that work has begun at your TA's discretion.

Exceptions will be made for legitimate medical and personal reasons. For health reasons, please provide documentation from UTSC Health Services.

Relevant U of T Policies

Academic Integrity

The University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences.

Details: http://www.governingcouncil.utoronto.ca/policies/behaveac.htm

Potential offences in papers and assignments include using someone else's ideas or words without appropriate acknowledgement, submitting your own work in more than one course without the permission of the instructor, making up sources or facts, obtaining or providing unauthorized assistance on any assignment.

On tests and exams cheating includes using or possessing unauthorized aids, looking at someone else's answers during an exam or test, misrepresenting your identity, or falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes.

Recordings

Recording or photographing any aspect of a university course - lecture, tutorial, seminar, lab, etc. – without prior approval of all involved and with written approval from the instructor is not permitted. In the case of private use by students with disabilities, the instructor's consent will not be unreasonably withheld.

Accessibility

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach me and/or the Access*Ability* Services as soon as possible.

Access*Ability* Services staff (located in Rm SW302, Science Wing) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations 416-287-7560 or email ability@utsc.utoronto.ca. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.