

PHYSICS 1029 – PHYSICS FOR THE BIOLOGICAL SCIENCES II

COURSE SYLLABUS

1. COURSE DESCRIPTION

Physics 1029 – Physics for the Biological Sciences II: Fundamental physics concepts are introduced with examples in biological processes. Topics include fluid statics and dynamics, electricity (electrostatics and circuits), magnetism, oscillations & waves and sound.

Pre-requisites: One of Physics 1028A/B, 1301A/B, 1401A/B or 1501A/B.

Anti-requisites: Physics 1021, 1302A/B, 1402A/B, 1502A/B, the former Physics 1020, 1024, 1026.

Note: It is the **student's responsibility** to ensure that all pre-requisite and anti-requisite conditions are met or that special permission to waive these requirements has been granted by the Faculty. As per the *UWO Academic Policies*, "Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites."

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

2. COURSE OBJECTIVES

- Develop fundamental understanding of physics concepts in fluids, electrostatics, circuits, magnetism, and oscillations & waves along with their relevance to medical and biological sciences.
- Engage in critical analysis of problems individually and collaboratively.
- Develop physics problem-solving skills starting with fundamental principles.

3. COURSE LEARNING OUTCOMES

By the end of the course, students will be expected to meet the specific learning outcomes identified in the course document *Learning Objectives and Outcomes*. Use the document as a checklist to ensure complete coverage and understanding of the required topics or skills.

4. INSTRUCTIONAL TEAM

Instructors	Dr. Eugene Wong (Course Coordinator) Dr. Jan Cami Dr. Maryam Tabeshian
Office Hours	Live zoom sessions – see course OWL site for date/time.
Course Administrator	Dr. Maryam Tabeshian
Contact Info	Reach us at phys1029@uwo.ca for any administrative issues that cannot be posted to the chat forum. Allow 2-3 working days for a response from the instructors or course administrator. Post all physics-related questions to the OWL forum so they can be answered once for the benefit of all. <ul style="list-style-type: none">• Note: We will not respond to email from addresses other than your UWO email account (@uwo.ca) as we cannot ensure the legitimacy of the sender from other sources; also emails from other sources often won't make it through the UWO spam filter.
Lab Instructor	Dr. Shailesh Nene (physlab1@uwo.ca) for all concerns related to the labs.

5. COURSE DELIVERY

All components of this course will be online for Winter 2020-2021.

The Online Western Learning (OWL) system at <http://owl.uwo.ca> will be the launching platform for all of the online components. Log in using your UWO username and password, then find the PHYSICS 1029B 001 FW20 OWL site. Key buttons to explore:

- **Getting Started:** This starting point will provide an introduction to the course. Please go over these materials carefully and do not assume that they are the same from the Fall term.
- **Unit 01 - 05:** Each unit has a corresponding tab in the menu bar. Each unit is expected to span between 2 and 3 weeks.
- **OWL Forum Asynchronous Help Centre:** You can post questions any time at your convenience in the OWL Forum. Take a photo of the problem along with your attempt, upload it to OWL forum, and a course TA will provide a response within 48 hours.
- **Mastering Physics:** Your physics-assignment platform.
- **Perusall:** Your e-book platform with collaborative annotation assignments is where you can read and collectively discuss the course material within a subgroup of 50-100 students as we progress through the course.
- **Labs:** Videos, worksheets, data, and lab quizzes can be accessed from here. Visit Western's Bookstore online to purchase the access code for your lab manual, which will be redeemed on Perusall.
- **Group Assignments:** Group assignments will be posted in this tab.

Students are responsible for checking OWL and OWL **announcements** on a regular basis. All course material will be posted to OWL: <http://owl.uwo.ca>. This is the primary method by which information will be disseminated to all students in the class.

6. COURSE MATERIAL

- **Textbook:** This is the same textbook as for your Fall term (*Sears & Zemansky's College Physics*, 11th ed., by Young & Adams). On OWL, follow the Perusall button for the e-book platform. If you have access to this textbook on Perusall in the Fall term, you will have access to it in the Winter term.
- **Mastering Physics:** This is your assignment and quiz platform. You will need to use the **same login** to Mastering as in the Fall term. When you add this course with ID **wong91357**, you will not require any access codes. Failure to use your Western email address will result in no grades given to your assignments and quizzes.
- **Lab Manual:** Be sure to purchase the correct course lab manual from the bookstore. The digital lab manual is also hosted on Perusall. On OWL, follow the Perusall button, and then in Perusall, select the *First Year Physics Laboratory Manual* under Library in the left sidebar. You will be prompted to enter the access code.

7. COURSE EVALUATION

E-book Reading & Discussion Posts	10%	5 of 5 topics; completed on Perusall.
Assignments	15%	3 Group Assignments (9%) + 1 Setup (1%) 5 Mastering Physics (5%).
Labs	9%	3 of 3; see below for details.
Midterm	17%	Wednesday March 10 th 2021.
Quizzes	24%	4 of 4; 2 before Midterm, 2 after. No makeup quiz.
Final Examination	25%	Date & time to be announced.

See the document ***Physics 1029 Course Schedule*** for textbook coverage, timelines and deadlines.

Reading & discussion assignments on Perusall: There are 5 Perusall reading/discussion post assignments corresponding to the 5 units.

Group Assignment: Three **group problem solving** assignments (3% each) will be scheduled throughout the term, plus one initial setup/charter assignment (1%). The grouping and assignments will be released through OWL “Group Assignment” tab.

- Initial Setup & Charter: 1%. If you do not complete this, you will forfeit all 10% of the grades. You will be put into groups of 5.
- Three assignments, each contains 2 components
 - Creation (2%): create a 3-5 minute video on explaining the concepts and solving a problem from the pool of practice questions on Mastering Physics or from problems at the end of the textbook.
 - Feedback (1%): Comments on 3 or more other videos from other groups and your peers within your group.

Mastering Physics Assignments: Five sets of **conceptual** assignments are to be completed to help you gain deeper understanding of physics concepts. Four out of 5 assignments are sets of “Dynamic Study Modules” associated with each chapter of the textbook. You have unlimited attempts to complete these and is worth 1% each. Please see course schedule for due dates. These concepts will be primarily tested in the quizzes with a minor component on problem solving.

Mastering Physics Practice Problems: These are problem solving questions from your textbook which are not graded and without deadlines. Midterm and final exams will emphasize these problem solving questions in addition to conceptual questions. You will have more time to work on these problems, but we recommend that you do not leave them to just before exams.

Labs: Students are required to complete **all 3 labs** by their deadlines.

- Contact Dr. Shailesh Nene (physlab1@uwo.ca) for all concerns related to the labs.
- All labs will be online and completed with pre-collected data to accommodate the pandemic restrictions.
- **Pre-lab quiz on OWL:** as a replacement for submitting the *pre-lab* worksheets, complete the corresponding OWL quiz before proceeding to complete the lab and lab worksheets. You need a quiz score of >75%, but you have unlimited attempts to complete the pre-lab quiz. Failure to meet this requirement will a) prevent you from downloading the lab worksheets and b) lead to zero on the lab.
- **Lab worksheets:** download the lab worksheets from the OWL Labs tab. These can be completed electronically, or alternatively printed, completed, and scanned (or photographed), for submission via the Gradescope link on OWL.

Quizzes: Your understanding of the course content will be assessed over the term through 4 quizzes available on Mastering Physics. These quizzes will focus primarily on conceptual questions with a minor component on calculations. You will have a set time to complete a quiz once you have started. Communicating contents of the quizzes to others in any fashion (verbally, via social media, email, printouts, or any other means) is considered cheating; see 9.B below regarding cheating.

- 6% per quiz, all 4 quizzes count for course grade.
- No makeup quizzes will be given.

Midterm examination: The midterm exam will be online and maybe monitored using ProctorTrack. March 10th 2021.

Final examination: The final exam will be online and maybe monitored using ProctorTrack. The date and time will be determined and announced by the Office of the Registrar.

Note: Midterm and final exams will emphasize problem solving questions in addition to conceptual questions. Exams may cover materials from the textbook, lecture videos, labs and assignments.

Grades: All scores will be posted in the Gradebook on the course OWL site. Any errors, or appeals to your scores, must be reported to your instructor (via phys1029@uwo.ca) *within two weeks* of their initial posting. *Please note:* a) your *final exam* mark will only be posted to OWL after the end of the exam period, b) your *final course grade* must come officially from the Registrar's Office and will not be posted on OWL, and c) *final course grades* may need to be adjusted in order to conform to department policy.

8. **ACCOMMODATION AND ACCESSIBILITY**

Please refer to the UWO Academic Policies http://www.uwo.ca/univsec/academic_policies/ for further details on the policies in practice here.

Accommodation Policies — Students with disabilities should work with Western's Accessible Education (formerly SSD), which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The Academic Accommodation for Students with Disabilities policy can be found at:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf

Academic Consideration for Student Absences and Illness— If you are unable to meet a course requirement due to illness or other serious circumstances, you must seek approval for the absence as soon as possible. Approval can be granted either through a (1.) self-reporting of absence or via (2.) the Dean's Office/Academic Counselling unit of your Home Faculty.

1. **Self-reported Absence:** Students who experience an unexpected illness or injury or an extenuating circumstance (48 hours or less) that is sufficiently severe to temporarily render them unable to meet academic requirements (e.g., attending lectures or labs, writing tests or midterm exams, completing and submitting assignments, participating in presentations) should self-declare using the online Self-Reported Absence portal. This option should be used in situations where the student expects to resume academic responsibilities within 48 hours or less.

Students will have up to two (2) opportunities during the regular academic year to use an on-line portal to self-report an absence during the semester, provided the following conditions are met: the absence is no more than 48 hours in duration, and the assessment for which consideration is being sought is worth 30% or less of the student's final grade. Students are expected to contact their instructors within 24 hours of the end of the period of the self-reported absence, unless noted on the syllabus. Students are not able to use the self-reporting option in the following circumstances:

- for exams scheduled by the Office of the Registrar (e.g., December and April exams)
- absence of a duration greater than 48 hours,
- assessments worth more than 30% of the student's final grade,
- if a student has already used the self-reporting portal twice during the academic year

2. **Faculty of Science Academic Counselling Help Portal:**

- <https://help.sci.uwo.ca/servicedesk/customer/portal/3/user/login?destination=portal%2F3>

Students should also note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds, or for other reasons. *All documentation required for absences that are not covered by the Self-Reported Absence Policy must be submitted to the Academic Counselling office of a **student's Home Faculty**.*

For policy on Academic Consideration for Student Absences - Undergraduate Students in First Entry Programs, see:

www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Consideration_for_absences.pdf

and for the Student Medical Certificate (SMC), see:

www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf

Religious Accommodation — Students should consult the University's list of recognized religious holidays, and should give reasonable notice in writing, prior to the holiday, to the Instructor and an Academic Counsellor if their course requirements will be affected by a religious observance. Additional information is given in the Western Multicultural Calendar:

<https://multiculturalcalendar.com/ecal/index.php?s=c-univwo>

9. **ACADEMIC POLICIES**

The website for Registrarial Services is www.registrar.uwo.ca. In accordance with policy, www.uwo.ca/its/identity/activatenonstudent.html, the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.

A. Make-up Policy:

- a) *Mastering Physics Assignments* – Five sets of conceptual assignments will be available on Mastering Physics over the course term. No make-up assignments will be given. The due dates on the Mastering Physics assignments are “Best Before” dates. If you miss an assignment, you can complete it after the due date without incurring a penalty. The last date to submit these assignments is the last day of classes, April 12, 2021.
- b) *Labs* – All labs are completed remotely, and thus all labs must be completed, and no makeup labs are offered. An incomplete lab will be recorded as a zero and included in your lab average score.
- c) *Perusall reading assignments* – A total of 5 reading assignments covering the 5 topics are given. No makeup content will be available. No make-up Perusall reading assignments will be given. The due dates on the reading assignments are “Best Before” dates. If you miss a reading assignment, you can complete it after the due date. However, you may miss the interactions with fellow students and hence, harder, but not impossible to receive full marks. The last date to submit these assignments is the last day of classes, April 12, 2021.
- d) *Group Assignment* – No makeup will be available. If the group creation component (2%) of the assignment is missed **with academic accommodation (self-report absence or academic counselling)**, its grade will be shifted to the final exam. If you missed the group creation component, you automatically forfeit the feedback component of the grade (1%).
- e) *Quizzes* – Four out of 4 quizzes will be counted over the course term. No makeup quizzes will be given. With academic accommodation, (self-report absence or academic counselling), if a quiz was missed before the midterm, its grade will be shifted to the midterm. Similarly, if a quiz was missed after the midterm, its grade will be shifted to the final exam with academic accommodation.
- f) *Midterm* – One midterm will be offered on Wednesday March 10th, 2021. The makeup date for the midterm is Saturday March 13th, 2021.
- g) *Final Examination* – In accordance with Senate Policy, a Special Examination will be held within thirty days of the regular final examination for students who were unable to write the regular examination for medical or other documented reasons. Requests for such a Special Examination must be made to the Associate Dean, Faculty of Science via an Academic Counsellor. Note that if you fail to write the scheduled Special Examination, permission to write another Special Examination will be granted only with the permission of the Dean in exceptional circumstances and with appropriate supporting documents. In such a case, the date of this Special Examination normally will be the scheduled date for the final exam the next time the course is offered (e.g. the following December for this course).

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to the Dean's office as soon as possible and contact your instructor immediately. It is the student's responsibility to make alternative arrangements with their instructor once accommodation has been approved and the instructor has been informed. In the event of a missed final exam, a "*Recommendation of Special Examination*" form must be obtained from the Dean's Office immediately. For further information, see http://www.uwo.ca/sci/undergrad/academic_counselling/.

B. Cheating and Plagiarism

“Success (and failure) will come and go, but integrity is forever” - Amy Rees Anderson

University Policy states that cheating, including plagiarism, is a major scholastic offence. Scholastic offences are taken seriously, and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following: www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

The commission of a scholastic offence is attended by academic penalties that might include expulsion from the program. If you are caught cheating, there will be no second warning.

As per the UWO Academic Policies:

- Plagiarism: Students must write their essays and assignments in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing, such as footnotes or citations.
- All required papers may be subject to submission for textual similarity review to the commercial plagiarism-detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).
- Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

C. Online Course Conduct & Netiquette:

Note that disruptive behaviour of any type during online classes, including inappropriate use of the chat function, is unacceptable. Students found guilty of Zoom-bombing a class or of other serious online offenses may be subject to disciplinary measures under the Code of Student Conduct.

Only students using their UWO credentials will be permitted to access the course elements. If, for privacy reasons, you wish to use a pseudonym, you must have the pseudonym pre-approved by the course coordinator before being allowed to participate in any online component.

If you are experiencing any online harassment or bullying through the course platforms, report the behaviour immediately to the course coordinator. Perusall has a built-in option to flag an inappropriate comment (look for the exclamation icon), with automatic notification sent to the instructors.

Anyone posting inappropriate content or abusing the option to flag inappropriate content will be banned from further interactions, which eliminates any further grades or marks related to the collaborative platforms.

General considerations of “netiquette”:

- Use your computer and/or laptop if possible (as opposed to a cell phone or tablet).
- Keep in mind the different cultural and linguistic backgrounds of the students in the course.
- Be courteous toward the instructor, your colleagues, and authors whose work you are discussing.
- Be respectful of the diversity of viewpoints that you will encounter in the class and in your readings. The exchange of diverse ideas and opinions is part of the scholarly environment. “Flaming” is never appropriate.
- Be professional and scholarly in all online postings. Use proper grammar and spelling. Cite the ideas of others appropriately.

D. Remote Proctoring Software Tests and examinations in this course will be conducted using the remote proctoring service, Proctortrack. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide **personal information** (including some

biometric data) and the session will be **recorded**. More information about this remote proctoring service is available in the Online Proctoring Guidelines at the following link:

<https://www.uwo.ca/univsec/pdf/onlineproctorguidelines.pdf>

Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. Information about the technical requirements are available at the following link: <https://www.proctortrack.com/tech-requirements/>

E. Complaints and Suggestions: If you have a concern about something, please let us know. We rely on your feedback. Please contact initially the person most directly concerned – this will usually be your instructor. If that is not satisfactory, or if there is something more general bothering you, talk it over with the Physics & Astronomy Department Chair or the Associate Chair of Undergraduate Affairs (for contact information see <http://www.physics.uwo.ca>).

10. **SUPPORT SERVICES**

Accessibility — Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Student Accessibility Services (SAS) at (519) 661-2147 if you have any questions regarding accommodations.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: <https://www.uwo.ca/se/digital/>.

Counseling — Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on add/drop courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: <https://www.uwo.ca/sci/counselling/>

Learning Skills — Learning-skills counsellors at the Student Development Centre (www.sdc.uwo.ca) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Mental Health — Students who are in emotional/mental distress should refer to Mental Health@Western (www.health.uwo.ca/mental_health) for a complete list of options about how to obtain help.

Science Student Donation Fund — This course gratefully acknowledges support from the Science Student Donation Fund. If you are a B.Sc. or B.M.Sc. student registered in the Faculty of Science or Schulich School of Medicine and Dentistry, you contribute to the Science Student Donation Fund, which is administered by the Science Students' Council (SSC). One or more grants from the Fund have allowed for the purchase of lab equipment integral to teaching this course. However, you may opt out of the Fee by the end of September of each academic year by completing the online form linked from the Faculty of Science's Academic Counselling site. For further information on the process of awarding grants from the Fund or how these grants have benefitted undergraduate education in this course, consult the chair of the department or email the Science Students' Council at ssc@uwo.ca. In the front pages of your lab manual, you will find examples of some the lab equipment partially funded through the Science Student Donation Fund.

Student Council — Additional student-run support services are offered by the USC, westernusc.ca/your-services/#studentservices.