

**COURSE OUTLINE (SYLLABUS) FOR UNDERGRADUATE COURSE Physics 1401 Fall Term 2021**

## 1. Course Information

### Course Information

**Physics 1401A, Introductory Physics I, Fall 2021, is delivered in-person. However, if the Covid-19 pandemic or other health related issue requires an on-line delivery, this course will be switched from one day to the other into an on-line format. This will be published in the Announcements on OWL immediately, and you will get clear instructions how to proceed! This will, of course, also affect the exams, tutorials/quizzes and the labs.**

### List of Prerequisites

Grade 12U Calculus and Vectors (MCV4U) or Mathematics 0110A/B

**Antirequisite(s):** Physics 1021, Physics 1028A/B, Physics 1301A/B, Physics 1501A/B, the former Physics 1020, 1024, 1026

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. Instructor Information

Dr. Silvia Mittler

PAB 208

Tel: 519 661 2111 ext 88592

Office Hours: by appointment Monday, Wednesday and Friday in-person  
by appointment via Zoom

e-mail: [smittler@uwo.ca](mailto:smittler@uwo.ca)

Students must use their Western (@uwo.ca) email addresses when contacting their instructor. Office hours are only on an appointment basis. Appointments can be made via e-mail.

For course related issues, technical problems or any questions about the lab please create a JIRA ticket on

<https://help.sci.uwo.ca/servicedesk/customer/portal/8>

Please note: e-mails to the course instructor on course related issues, technical problems or the lab will neither be answered nor a JIRA ticket created for you!

### 3. Course Syllabus, Schedule, Delivery Mode

An introductory calculus-based laboratory course in physics covering the foundational principles of kinematics, force and motion, energy, linear momentum, rotation, torque and angular momentum, gravitation, fluids: 0.5 course: weekly with in-person classes, weekly mandatory in-person Labs (4 labs, 1 on-line, 3 in-person) and /or in-person tutorials (5 tutorials), with on-line support including a marked PERSUALL: Reading and Annotation activity, lecture videos, MasteringPhysics simulation learning tools, demonstration videos, MasteringPhysics solving problem videos, unmarked MasteringPhysics *Dynamic Study Modules*, and unmarked weekly quizzes on MasteringPhysics for self-checking.

#### **Course Level Learning:**

Remember, understand, identify, explain, apply, analyze, and evaluate the concepts of: kinematics (including math review: vectors, derivatives and integrals) in 1D, kinematics and gravitation in 1D, kinematics in 2D and 3D, force and motion: Newton's Laws, energy (work, energy, power, conservation), linear momentum (center of mass, linear momentum, impulse, collision), rotation, torque and angular momentum, fluids.

This course is an in-person course, which means that there will be regular in-person classes, labs and tutorials starting September 13<sup>th</sup>, 2021 ("Week 1" on the OWL site). In "Week 0" (September 8<sup>th</sup>-12<sup>th</sup>, 2021) there is lots of independent reading to be carried out. Please see OWL – Overview and Course Overview for details.

The lectures are:

Monday, Wednesday and Friday from 9:30 am – 10:20 am for P1401 Section 001 in AHB-1R40 and  
Monday, Wednesday and Friday from 12:30 pm – 1:20 pm for P1401 Section 002 MC-110  
(AHB: Arts and Humanity Building; MC: Middlesex College)

The in-person labs are:

Monday evening 6:30 pm to 9:30 pm for P1401 Section 003, sub-section A, B, C and D  
Tuesday morning 9:30 am to 12:30 pm for P1401 Section 004, sub-section A, B, C and D  
Tuesday evening 6:30 pm to 12:30 pm for P1401 Section 005, sub-section A, B, C and D  
Wednesday evening 6:30 pm to 12:30 pm for P1401 Section 006, sub-section A, B, C and D of 48 each  
For more and detailed information about the on-line lab and the (first) in-person labs please see OWL - Course Overview and the Timetables in OWL in Resources – Lab Info!

There will be an in-person Help Center organized by the First Year-Teaching Team and from the student organization PASA (office: Physics and Astronomy Building, ground floor). Information about times and locations will be announced on OWL!

**Time Line through the term:**

This timeline is represented by the weekly organization (“Week 1” – “Week 12”) of the OWL site. The in-person lectures might be slightly off (ahead or behind) or on this schedule.

Week	Date	Chapter	Topic
0	Sep. 8 - 12	Appendices A, B, C, E and F	A: The International System of Units; B: Useful Mathematical Relations; C: The Greek Alphabet; E: Unit Conversion Factors; F: Numerical Constants; Prefixes for Powers of 10, Chapter 1.5: Uncertainties and Significant Figures
1	Sep. 13 - 10	1,2	Kinematics (including math review, vectors, derivatives and integrals) in 1D I
2	Sep. 20 - 26	1,2,13	Kinematics and Gravitation in 1D II and Excursion to Newton’s 2 <sup>nd</sup> Law
3	Sep. 27 – Oct. 3	3	Kinematics in 2D and 3D I, throwing an object and a car in a bend
4	Oct. 4 - 10	3, 4	Kinematics in 2D and 3D II, uniform circular motion
5	Oct. 12 - 17	5, 3	Force and motion I
6	Oct. 18 - 24	5,13	Force and motion II
7	Oct. 25 – 31	6,7	Energy (work, energy, power, conservation) I
	Nov. 1 - 8	Reading Week	
8	Nov. 8 - 14	6,7	Energy (work, energy, power, conservation) II
9	Nov. 15 - 21	8	Center of Mass, Linear Momentum, Collisions, Impulse
10	Nov. 22 - 28	9	Rotation
11	Nov. 29 – Dec. 5	10	Torque & Angular Momentum
12	Dec. 6 - 8	12	Fluids

Lab contact information: Dr. Shailesh Nene, Lab Coordinator  
 Material Science Addition M 2203  
<https://help.sci.uwo.ca/service/csd/customer/portal/8>

Direct all laboratory related questions or issues via the creation of a JIRA ticket (link above) to Dr. Shailesh Nene, not to your course instructor.

**Term Overview:**

Classes begin: September 8<sup>th</sup>, 2021, in-person classes: September 13<sup>th</sup>, 2021  
 Reading Week: November 1<sup>st</sup> – 7<sup>th</sup>, 2021  
 Classes end: December 8<sup>th</sup>, 2021

## 4. Course Materials

**Textbook:** University Physics, Volume 1 by Hugh D. Young & Roger A. Freedman 15th edition, Pearson, 2020 in combination with MasteringPhysics from Pearson and PERUSALL. The ISBN is **9780137321063**.

**Required:** An access code purchasable from the Western Bookstore for the text book, Mastering Physics, the accompanying on-line learning resources, and access to the text book's PERUSALL site (value package) is necessary.  
Use the OWL links to reach the Pearson website for Mastering Physics and PERUSALL.  
You need a GradeScope account ([www.gradescope.ca](http://www.gradescope.ca)). Entry code: **MYKW7M**.

**Lab Manual:** Physics Laboratory Manual 2021-2022 for Physics 1401A. This Lab Manual will be available on PERUSALL. You need to purchase an access code through the Western Bookstore.

**Calculator:** Sharp EL-510RNB or EL-510RN or Sharp EL-510RTB Scientific Calculator (non-programmable) are allowed in Tutorial Quizzes, the Midterm and the Final Exams. These are the only calculators allowed in any quiz or exam.

These items, the two access codes for these items, respectively, are available from the Western Bookstore: <https://bookstore.uwo.ca/> with the following info:  
UNIVERSITY PHYSICS 1401 (Young & Freedman) Value-Pack ISBN: **9780137321063**

**Do not register with any other e-mail accounts** such as gmail, yahoo, etc. on any of the used sites. These sites (OWL, MasteringPhysics, PERUSALL and GadeScope) recognize only the e-mail addresses ending with @uwo.ca. **This is mark relevant!**

Students are responsible for checking the course OWL site (<http://owl.uwo.ca>) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class.

All course material will be posted to OWL: <http://owl.uwo.ca>.

**OWL:** There is only one OWL sites for Physics 1401A for 001 and 002 and the labs. The course OWL site has a link to the Lab; a link to PERUSALL for reading and annotation and for the Lab Manual; a link to MasteringPhysics with the voluntary MasteringPhysics simulation learning tools, demonstration videos, MasteringPhysics solving problem videos, MasteringPhysics *Dynamic Study Modules*, and the End of Week Quizzes. The OWL site also contains recorded lecture videos.

If students need assistance with the course OWL site, they can seek support on the OWL Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

## Technical Requirements

stable internet connection  
Sharp EL-510RNB or EL-510RN Scientific Calculator

## 5. Methods of Evaluation

Student performance will be evaluated regularly throughout the term with the following homework/tests/quizzes:

**PERUSALL: Reading and Annotation:** Assignments open Saturdays at 0:00 (midnight Friday/Saturday), before the week starts with the respective material, and close the next Wednesday at 24:00 (midnight Wednesday/Thursday).

Example: *“Week 1” PERUSALL: Reading and Annotation opens midnight Friday/Saturday (Sept 10./11. 2021) in “Week 0”*

The scoring in the PERUSALL: Reading and Annotation is carried out as following:

- Contributing thoughtful questions and comments to the class discussion, spread throughout the entire reading
- Starting the reading early
- Breaking the reading into chunks (instead of trying to do it all at once)
- Reading all the way to the end of the assigned reading
- Posing thoughtful questions and comments that elicit responses from classmates
- Answering questions from others
- Up-voting thoughtful questions and helpful answers

Please see an example in OWL in Resources under PERUSALL.

Note: The annotations on PERUSALL can be seen from all students within the study group and are supposed to be strictly on the reading material and on previous annotations of peer students of the study group. PERUSALL annotations can for instance be questions or a helpful response to a question, e.g. enlighten about uncomprehend material, etc.: a learning tool. No personal comments are allowed, nor any disrespectful annotations. In the case, a student complains about being disrespectfully criticized or made fun of on PERUSALL about his/her annotations, questions, comments, etc. by a peer student, the student responsible for the inappropriate annotation and/or comment will be removed from the PERUSALL study group and will receive a mark of zero for the entire PERUSALL component of the course!

**Tutorial Quizzes, Midterm and Final Exam** will be in-person in appropriate lecture halls. Specific information, e.g. locations and times (date, duration, start) will be posted or announced on OWL. Midterm and Final Exams are scheduled mainly by the university due to room requirements.

**Midterm: Sunday, October 31<sup>st</sup>, 2021 from 9:00 am to 12:00 noon. Rooms will be announced on OWL!**

The Tutorial Quizzes cover material from recent weeks. The Midterm will cover the material up to the Midterm (“Week 0” – “Week 7”). The Final will cover all material of the entire course but with an emphasis of the material covered after the Midterm including fluids, the material of the short end-of-term week.

### Laboratory

The Labs are mandatory and marked item in this course. Please make sure that you fulfill the pre-lab quiz requirement of at least 75% to successfully finish the entire lab.

The in-person lab component of the course is under the responsibility of Dr. Shailesh Nene. All necessary information and instructions about the Labs can be found on OWL (Course Overview and Resources- Lab Info) and in the Lab Manual available through PERUSALL. Any questions about the labs should be addressed to Dr. Nene via a JIRA ticket:

<https://help.sci.uwo.ca/servicedesk/customer/portal/8>

All in-person labs have a Pre-Lab-Quiz (infinite tries). You need to have **passed** these with **75%** before you can go to the respective lab, and before you submit your lab-report on GradeScope. Failure to meet this 75% requirement of the pre-lab quiz will lead to zero on the Lab even if you submitted a good lab report! The on-line lab Measurement & Uncertainties (M&U) does not have a pre-lab quiz nor lab-worksheets. For a successful M&U Lab you need to pass the Measurement & Uncertainties Lab Quiz where you have 2 tries.

You need a minimum of 3 successful labs to pass the lab component of the P1401 course and, therefore, pass one of the P1401 course passing conditions. Please see box below on course passing regulation!

The four labs have deadlines for the pre-labs and the lab-report submission to GradeScope! Detailed information is posted on OWL – Course Overview.

The overall course grade will be calculated as listed below:

Weekly PERUSALL (best 10 out of 12)	5%
Tutorial Quizzes (best 3 out of 4)	10%
Midterm Exam	35%
Final Exam	40%
Laboratory	10%

**Important: In order to pass Physics 1401, a student must obtain:**

- (1) a passing mark in the laboratory component **and**
  - (2) a mark of 50% or greater in the average of the two exam grades (Midterm and Final).
- Students failing the lab component of the course and/or the exam component will be assigned a final course mark of no more than 40%.

In case that the in-person course delivery has to be changed to all on-line delivery due to Covid-19 or another health challenge, the tutorial quizzes will be omitted and the remaining 2.5 % or 5% or 7.5% or

10% mark value (depending on how many tutorial quizzes have already been performed) will be moved to the Final Exam.

The Department of Physics and Astronomy may, in exceptional cases, adjust the final course marks in order to conform to Departmental policy.

### **Accommodated Evaluations**

**(1) Midterm Examination (Make-up):** There will be **one** Make-up Midterm exam that may be written only with the permission of the Academic Counselling office of your home faculty. The time and date for the Midterm Make-up Exam will be announced on the course OWL site.

**(2) Final Examination (Make-up):** In accordance with Senate Policy, a **(one)** Special Examination will be held within thirty days of the regular final examination for students who are unable to write the regular final examination for medical or other documented reasons. To schedule a Make-up Final Exam, please contact your faculty's Academic Counselling Office as soon as you are able to do so. They will assess your eligibility to write the Special Exam (the name given by the university to a makeup Final Exam) and inform your course instructor.

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation". [http://www.registrar.uwo.ca/examinations/exam\\_schedule.html](http://www.registrar.uwo.ca/examinations/exam_schedule.html)

**(3) PERUSAL Reading and Annotation:**

No make-up for RERUSALL: Reading and Annotation as this is a group activity! The 10 best out of the 12 will be counted towards the mark, so missing it twice will not affect the mark!

**(5) Laboratory:**

No in-person make-up for missed labs! All 4 labs will count towards the final grade. If you PASS all 4 labs you will get your final lab grade as 10%. One lab can be miss without failing the entire course, i.e. if you miss one lab without accommodation, you will PASS the course with 3 completed labs and your final lab grade will be 7.5%. If a second lab is missed, you need approved accommodation from academic counseling, and then you can do this lab in an on-line fashion. After one missed lab a Self-Reported-Absence (SRA) is not accepted. SRA is not accepted if a GradeScope deadline is missed!

*Please note that any work missed will be assigned a zero mark.*

**(6) Tutorial Quizzes:**

No make-up for Tutorial Quizzes: The 3 best out of the 4 will be counted towards the mark, so missing it once will not affect the mark! *Please note that any work missed will be assigned a zero mark.*

## 6. Student Absences

### Academic Consideration for Student Absences

Students who experience an extenuating circumstance (illness, injury or other extenuating circumstance) sufficiently significant to temporarily render them unable to meet academic requirements may submit a request for academic consideration through the following routes:

- (i) Submitting a Self-Reported Absence (SRA) form provided that the conditions for submission are met. To be eligible for a Self-Reported Absence:
  - an absence must be no more than 48 hours
  - the assessments must be worth no more than 30% of the student's final grade
  - no more than two SRAs may be submitted during the Fall/Winter term
- (ii) For medical absences, submitting a Student Medical Certificate (SMC) signed by a licensed medical or mental health practitioner to the Academic Counselling office of their Faculty of Registration.
- (iii) Submitting appropriate documentation for non-medical absences to the Academic Counselling office in their Faculty of Registration.

Note that in all cases, students are required to contact their instructors within 24 hours of the end of the period covered, unless otherwise instructed in the course outline.

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

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/accommodation\\_illness.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_illness.pdf)

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

[http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/medicalform.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf).

### Religious Accommodation

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Counselling office of their Faculty of Registration. Please consult University's list of recognized religious holidays (updated annually) at

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



### **Absences from Final Examinations**

If you miss the Final Exam, please contact the Academic Counselling office of your Faculty of Registration as soon as you are able to do so. They will assess your eligibility to write the Special Examination (the name given by the University to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a “Multiple Exam Situation” (e.g., more than 2 exams in 23-hour period, more than 3 exams in a 47-hour period).

If a student fails to write a scheduled Special Examination, the date of the next Special Examination (if granted) normally will be the scheduled date for the final exam the next time this course is offered. The maximum course load for that term will be reduced by the credit of the course(s) for which the final examination has been deferred. See the Academic Calendar for details (under [Special Examinations](#)).

## **7. Accommodation and Accessibility**

### **Accommodation Policies**

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

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/Academic\\_Accommodation\\_disabilities.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf)

## **8. Academic Policies**

The website for Registrarial Services is <http://www.registrar.uwo.ca>.

In accordance with policy,

[https://www.uwo.ca/univsec/pdf/policies\\_procedures/section1/mapp113.pdf](https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf),

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.

Sharp EL-510RNB or EL-510RN or Sharp EL-510RTB Scientific Calculator (non-programmable) are allowed in Tutorial Quizzes, the Midterm and the Final Exams. These are the only calculators allowed in any quiz or exam.

**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 Web site:

[http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/scholastic\\_discipline\\_undergrad.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf).

Computer-marked multiple-choice tests and exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

Please do not use solutions from “checking” softwares or “checking” on-line sites on any test/quizzes/exams for your voluntary work and especially not for marks. Your activities there are time logged and can be compared with your exam activities for the course!

In the event of a health lock-down, Midterm and/or Final exams in this course will be conducted using a remote proctoring service. 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**. Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western’s Remote Proctoring website at:

<https://remoteproctoring.uwo.ca>.

## 9. Support Services

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

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 Accessible Education at (519) 661-2147 if you have any questions regarding accommodations. The lectures are available on the OWL in recorded form with captioning.

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/>.

Learning-skills counsellors at the Student Development Centre (<http://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.

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

Additional student-run support services are offered by the USC, <http://westernusc.ca/services>.