COURSE OUTLINE

PHYS 102
Elementary Physics II

3 CREDITS

PREPARED BY: Jaclyn Semple, Instructor
DATE: November 20, 2020

APPROVED BY: Joel Cubley, Chair, School of Science
DATE: December 17, 2020

ELEMENTARY PHYSICS II

INSTRUCTOR: Jaclyn Semple
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OFFICE HOURS: TBD
CLASSROOM: Online
TIME: Asynchronous Self-Study
DATES: Jan 4 – Apr 20, 2021

COURSE DESCRIPTION

Physics 102 is a calculus-based, first-year university-level physics course intended for students planning on a career in the physical sciences or engineering. Topics covered are: Coulomb's law, electric fields, Gauss' law, electric potential, capacitance, current, resistance magnetic fields, Ampere's and Faraday's laws with applications, inductance, and LC oscillations. Labs involve quantitative physics experiments with due recognition of systematic and random errors.

Physics 101 and Physics 102 together constitute a full course and satisfy requirements for 6 credits of first-year physics in the science degree programs at most Canadian universities.

PREREQUISITES

Physics 101
Math 101 is co-requisite

RELATED COURSE REQUIREMENTS

In Winter 2021, PHYS102 will be delivered remotely using the Zoom platform. Students are required to have access to a computer with a reliable internet connection. A headset with a microphone is recommended.

EQUIVALENCY OR TRANSFERABILITY

UBC	Phys 102 (3)	UAF	Phys 103X (3)
UNBC	Phys 101 (4)	UAS	Phys S103 (3)
UR	Phys 111 (3)	TRU	Phys 1200 (3)

SFU	SFU PHYS 102 (3) - Q/B-Sci; Yukon PHYS 101 & Yukon PHYS 102 = SFU PHYS 101 (3) - Q/B-Sci & SFU PHYS 102 (3) - Q/B-Sci & SFU PHYS 130 (0) - Q
UVIC	Phys 100L (1.5); Yukon Phys 101+102 = Phys 112 (3)

For more information about transferability contact the School of Science office.

LEARNING OUTCOMES

Upon successful completion of the course, students will:

- Have an understanding of fundamental concepts of classical physics.
- Have developed critical thinking skills.
- Have developed basic laboratory skills.

COURSE FORMAT

Lectures: asynchronous, self-study
Labs: 3 hours per week, in-person
Tutorials: 1 hour per week, online via Zoom (schedule TBD)

Course content will be delivered asynchronously. Expect to spend at least 15 hours per week on self-paced study and homework problems in order to fully understand the material. A one-hour tutorial will be held weekly, and students are encouraged to join the Zoom session so that they can ask questions in real-time and directly engage with the instructor.

Material will be posted on Moodle, including lecture notes, assignments, course announcements, suggested textbook problems, and other useful or interesting material related to the course.

Labs are a mandatory component of the course. In order to receive a passing grade in the lab, a student must complete the experiments and submit the required reports. If a lab period is missed, the report for that experiment cannot be submitted unless arrangements are made with the instructor. Expectations for the labs are outlined in the lab manual.

ASSESSMENTS:

Pre-Lecture Quizzes (5%)

There will be around ten quizzes during the term, worth a total of 5% of the final grade. The quizzes will be based on pre-lecture reading assignments. Missed quizzes cannot be made up, but the lowest quiz result will be discarded.

Assignments (10%)

There will be around ten assignments due during the term, worth a total of 10% of the final grade. Unless prior arrangements have been made with the instructor, late assignments will not be accepted and will thus receive a mark of 0.

Midterm Test (25%)

There will be one midterm test held during the term, worth 25% of the final grade.

Final Examination (30%)
The final examination will cover the entire course and is worth 30% of the final grade. **A minimum mark of 50% on the final exam is required in order to pass the course.**

Laboratory (30%)
The laboratory component is worth 30% of the final grade. This will be based on lab performance and lab reports. The specific evaluation criteria for the lab are detailed in the lab manual.

EVALUATION

Quizzes	5%
Assignments	10%
Midterm Test	25%
Final Exam	30%
Laboratory	30%
Total	**100%**

TEXTBOOKS AND MATERIAL

Halliday D, Resnick R, Walker J. *Fundamentals of Physics*. Extended 10th Edition. New York: Wiley, 2014. ISBN 978-1-118-23061-9

Laboratory Manual for PHYSICS 102 (handed out in the first lab period)

ACADEMIC AND STUDENT CONDUCT

Information on academic standing and student rights and responsibilities can be found in the current Academic Regulations that are posted on the Student Services/ Admissions & Registration web page.

PLAGIARISM

Plagiarism is a serious academic offence. Plagiarism occurs when a student submits work for credit that includes the words, ideas, or data of others, without citing the source from which the material is taken. Plagiarism can be the deliberate use of a whole piece of work, but more frequently it occurs when students fail to acknowledge and document sources from which they have taken material according to an accepted manuscript style (e.g., APA, CSE, MLA, etc.). Students may use sources which are public domain or licensed under Creative Commons; however, academic documentation standards must still be followed. Except with explicit permission of the instructor, resubmitting work which has previously received credit is also considered plagiarism. Students who plagiarize material for assignments will receive a mark of zero (F) on the assignment and may fail the course. Plagiarism may also result in dismissal from a program of study or the University.

YUKON FIRST NATIONS CORE COMPETENCY

Yukon University recognizes that a greater understanding and awareness of Yukon First Nations history, culture and journey towards self-determination will help to build positive relationships among all Yukon citizens. As a result, to graduate from ANY Yukon University program, you will be required to achieve core competency in knowledge of Yukon First Nations. For details, please see www.yukonu.ca/yfnccr.

ACADEMIC ACCOMMODATION

Reasonable accommodations are available for students requiring an academic accommodation to fully participate in this class. These accommodations are available for students with a documented disability, chronic condition or any other grounds specified in section 8.0 of the Yukon University Academic Regulations (available on the Yukon University website). It is the student's responsibility to seek these accommodations. If a student requires an academic accommodation, he/she should contact the Learning Assistance Centre (LAC): lac@yukonu.ca.

TOPIC OUTLINE

Week	Dates	Chapter	Topic
1	Jan. 4-8	-	Course Intro
2	Jan. 11-15	11	Rolling, Torque, and Angular Momentum
3	Jan. 18-22	15	Oscillations & Simple Harmonic Motion
4	Jan. 25-29	21	Coulomb's Law & Electric Charge
5	Feb. 1-5	22	Electric Fields
6	Feb. 8-12	23	Gauss' Law
7	Feb. 15-19	24	Electric Potential
	Feb. 22-26	-	**READING WEEK**
8	Mar. 1-5	-	**Midterm**
9	Mar. 8-12	25	Capacitance
10	Mar. 15-19	26	Current, Resistance, Simple Circuits
11	Mar. 22-26	27	Multiloop and RC Circuits
12	Mar. 29-Apr. 2	28	Magnetic Fields
13	Apr. 5-8	29	Magnetic Fields Due to Currents
14	Apr. 13-17	30	Induction & Inductance

Specific dates of topic coverage may be subject to change. Some topics may not be covered depending on time constraints.