

PHYS 102 - COURSE OUTLINE

INSTRUCTOR: Jaclyn Semple

E-MAIL: jsemple@yukonu.ca

OFFICE LOCATION: A2507

CLASSROOM: A2202

TIME: Class: Tues/Thurs, 9 – 10:20am; **Lab:** Mon 1-4pm

DATES: Jan 4 – Apr 10, 2024

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.

COURSE REQUIREMENTS

Physics 101

Math 101 is co-requisite

EQUIVALENCY OR TRANSFERABILITY

Receiving institutions determine course transferability. Find further information at:

<https://www.yukonu.ca/admissions/transfer-credit>

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

Weekly breakdown of instructional hours

Lectures: 3 hours per week (combination of synchronous and asynchronous)

Labs: 3 hours per week

Classes are a blend of lecture and tutorial allowing for an opportunity to practice solving calculation-based problems related to the material being covered in class. Students with a sound physics background can expect to spend between two and four hours in preparation and study for every hour spent in class.

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.

Delivery format

In-person

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

EVALUATION

Reading quizzes	10%
Assignments/Quiz	15%
Midterm Test	15%
Final Exam	30%
Laboratory	30%
Total	100%

Reading Quizzes (10%)

There will be weekly reading quizzes during the term, worth a total of 10% of the final grade. The quizzes will be based on the pre-lecture textbook readings. Missed quizzes cannot be made up, but the lowest quiz result will be discarded.

Assignments (15%)

There will be weekly assignments due during the term, worth a total of 15% 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 (15%)

There will be one midterm test held during the term, worth 15% of the final grade.

Final Examination (30%)

The final examination will cover the entire course and is worth 30% of the final grade. It will be held at the end of the term during the exam period. **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.

COURSE WITHDRAWAL INFORMATION

Refer to the YukonU website for important dates.

TEXTBOOKS & LEARNING MATERIALS

- Halliday D, Resnick R, Walker J. *Fundamentals of Physics*. 11th Edition. Wiley, 2018.
- [WileyPLUS access](#) (includes an online copy of the textbook)
- Laboratory Manual for PHYS 102 (handed out in the first lab period)
- Scientific calculator

ACADEMIC INTEGRITY

Students are expected to contribute toward a positive and supportive environment and are required to conduct themselves in a responsible manner. Academic misconduct includes all forms of academic dishonesty such as cheating, plagiarism, fabrication, fraud, deceit, using the work of others without their permission, aiding other students in committing academic offences, misrepresenting academic assignments prepared by others as one's own, or any other forms of academic dishonesty including falsification of any information on any Yukon University document.

Please refer to Academic Regulations & Procedures for further details about academic standing and student rights and responsibilities.

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 by contacting the Learning Assistance Centre (LAC): LearningAssistanceCentre@yukonu.ca.

TOPIC OUTLINE

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

Specific dates of topic coverage and assessments may be subject to change.