



COURSE OUTLINE

PHYSICS 101

**45 HOURS
3 CREDITS**

PREPARED BY: Jaclyn Semple, Instructor

DATE: September 1, 2016

APPROVED BY:

DATE:

APPROVED BY ACADEMIC COUNCIL: (date)

RENEWED BY ACADEMIC COUNCIL: (date)

YUKON COLLEGE

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Course Outline prepared Jaclyn Semple, September 2016.

Yukon College
P.O. Box 2799
Whitehorse, YT
Y1A 5K4

ELEMENTARY PHYSICS I

INSTRUCTOR: Jaelyn Semple

OFFICE HOURS: Mon & Thu, 10-11am

OFFICE LOCATION: A2433

CLASSROOM: A2603

E-MAIL: jsemple@yukoncollege.yk.ca

TIME: Class: Tue & Thu, 2:30 – 4:30pm
Lab: Wednesday 1 – 4pm

TELEPHONE: 867-456-8548

DATES: September 8 – December 20, 2016

COURSE DESCRIPTION

Physics 101 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: vectors, linear kinematics, and dynamics in 2- and 3- dimensions; centre of mass; rotational kinematics and dynamics; energy and work; temperature, heat and the first law of thermodynamics; and 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 12 or PHYSICS 060 or PHYSICS 100
Math 100 is co-requisite.

EQUIVALENCY OR TRANSFERABILITY

UBC	Phys 101 (3)	UAF	Phys 103X (3)
UNBC	Phys 100 (4)	UAS	Phys S103 (3)
UR	Phys 111 (3)	TRU	Phys 1100 (3)
SFU	SFU PHYS 101 (3) - Q/B-Sci; YUKO PHYS 101 & YUKO 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) <u>or</u> 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: 3 hours per week
Labs: 3 hours per week
Tutorials: 1 hour per week, incorporated into the lecture time

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.

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.

COURSE REQUIREMENTS

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 (15%)

There will be *around* ten 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.

Tests (25%)

There will be two 60-minute tests held during scheduled class time. Each test is worth 12.5% of the final grade.

Final Examination (25%)

The final examination will cover the entire course and is worth 25% of the final grade. It will be held at the end of the term sometime during the exam period (December 7 – 20). The exact date of the exam will be announced as soon as it is set by the School of Science.

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

The student's grade will be calculated as follows:

Quizzes	5%
Assignments	15%
Tests	25%
Final Examination	25%
Laboratory	30%

REQUIRED TEXTBOOKS AND MATERIALS

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 101 (available for the first lab period)

ACADEMIC AND STUDENT CONDUCT

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

PLAGIARISM

Plagiarism is a serious academic offence. Plagiarism occurs when students present the words of someone else as their own. Plagiarism can be the deliberate use of a whole piece of another person's writing, but more frequently it occurs when students fail to acknowledge and document sources from which they have taken material. Whenever the words, research or ideas of others are directly quoted or paraphrased, they must be documented according to an accepted manuscript style (e.g., APA, CSE, MLA, etc.). Resubmitting a paper 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 College.

YUKON FIRST NATIONS CORE COMPETENCY

Yukon College 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 College program, you will be required to achieve core competency in knowledge of Yukon First Nations. For details, please see www.yukoncollege.yk.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 College Academic Regulations (available on the Yukon College 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) at (867) 668-8785 or lassist@yukoncollege.yk.ca.

OUTLINE OF TOPICS

Week	Chapter	Topic
1	2	Motion Along a Straight Line (review)
2	3	Vectors
3	4	Motion in Two & Three dimensions
4	5	Force & Motion
5	6	Force & Motion (cont'd)
6	7	Kinetic Energy & Work
7	7	Kinetic Energy & Work (cont'd)
8	8	Potential Energy & Conservation of Energy
9	18	Temperature, Heat, and the First Law of Thermodynamics
10	9	Centre of Mass & Linear Momentum
11	10	Rotation
12	11	Rolling, Torque, and Angular Momentum
13	15	Oscillations & Simple Harmonic Motion
14		Review

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