

PHYSICS 102a, GENERAL PHYSICS
Sections A01, A02(online lectures), A03
2025

Course Coordinator and instructor: Alex van Netten email: vannette@uvic.ca

1. **TEXT:** Openstax free text book College Physics. See student resources in link below, <https://openstax.org/details/books/college-physics?Student%20resources>

2. **MARKING SCHEME:**

Midterm	10%	Oct 22 or Oct 23 online 7:00 pm to 8:30 pm
Labs	30%	in person at your lab scheduled time
Assignments	10%	available through Brightspace
Final	50%	During the exam period and in person

(Some scaling could occur if necessary.)

3. There are weekly assignments using Brightspace and can be accessed by clicking course tools and selecting the quizzes section on brightspace(not assignment section). A series of video lectures will be posted each week for the online lecture section, these will also be available for the in person lectures.
4. All students must register in a Physics 102a lab section. Students are required to obtain a passing mark in the lab in order to pass the course. If a student cannot complete the lab on the assigned day due to unavoidable circumstances, the student should contact the lab instructor ASAP. All labs will be held at the scheduled time and in person. The lab schedule for all sections is given in Brightspace.
5. Students are reminded that they should have passed Math 12 and Physics 11 and should normally have taken or be taking Math 102 or 100/101 as a co-requisite. They are advised to take Math 100/101 if they are planning to take further courses in Physics.
6. A student may obtain, at most, 4.5 units of credit from 100 level Physics courses.
7. Grades may be posted using student identification numbers but not names. If any student wishes to opt out of this practice they should notify the instructor.
8. The midterm will be online and students must do the exam alone and with no assistance. The only acceptable calculator is the Sharp EL-510R(or equivalent at the bookstore) which can be bought at the Bookstore for about \$10. The final exam will be in person during the exam period.

TABLE 1
PHYSICS 102a SYLLABUS FOR THE FALL TERM, 2025

Approx.. hours +-.5 hrs	Chapter	Topics Covered (Text: College Physics, Open Stax)	Sections or Pages Text Omitted
1	1	INTRODUCTION. Standards of length, time and mass, dimensions of physical quantities, significant figures, coordinate systems.	-
4	2	KINEMATICS. Displacement, velocity, acceleration, motion with constant acceleration, free fall.	-
4	3	TWO-DIMENSIONAL KINIMATICS. Vectors and scalars, properties/components of a vector , projectile motion.	3.5
4	4(5.1)	DYNAMICS: FORCE AND NEWTON'S LAWS OF MOTION. Force, Newton's laws of motion, mass and weight, applications of Newton's laws, friction(CH 5.1).	-
3.5	7	WORK, ENERGY, AND ENERGY RESOURCES. Work, kinetic and potential energy, conservative and non-conservative forces, work-energy theorem, conservation of energy, power.	7.8 and 7.9
3	8	LINEAR MOMENTUM AND COLLISIONS. Linear momentum and impulse, conservation of momentum, elastic ((8.4) momentum only) and inelastic collisions, glancing collisions.	8.7 and (elastic collision equations)
3.5	6	UNIFORM CIRULAR MOTION AND GRAVITATION Angular velocity, centripetal acceleration and force, Newton's law of gravitation.	6.4
3	9	ROTATIONAL EQUILIBRIUM AND DYNAMICS. Torque and the second condition of equilibrium, center of gravity, examples of objects in equilibrium.(notes will cover center of mass calculation)	9.5 and 9.6
3	11	FLUIDS STATICS. States of matter, elastic properties of solids(Chapter 5.3), density and pressure, variation of pressure with depth, buoyant force and Archimedes' principle, fluids in motion(qualitative), surface tension. Just what was covered in class.	11.8(keep surface tension,11.9
1	13	TEMPERATURE, KINETIC THEORY AND GAS LAW. Thermometer and temperature scales, expansion of solids and liquids. (omit zeroth law, ideal gas, kinetic theory of gases.)	13.3,13.4,13.5
3	14	HEAT. Mechanical equivalent of heat, specific heat, calorimetry, latent heat, conduction, convection, and radiation (qualitative only). Global warming, qualitative	14.5,14.6 (qualitative) 14.7