



DEPARTMENT OF ACADEMIC UPGRADING

PHYSICS 0120 COURSE OUTLINE

INSTRUCTOR:	Nancy Fraser	PHONE:	539 – 2980
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OFFICE HOURS:	As posted on my office door.		

PREREQUISITE(S)/

COREQUISITE(S):

MA 0110, & SC 0110 or PC 0110/ MA 0120

A minimum grade of 60 % in Ma 0110 and PC 0110 is recommended.

REQUIRED TEXT/

RESOURCE MATERIALS:

College Physics by Wilson (any edition – the 7th edition is the current edition)

- Lab notebook (250 page coiled notebook is fine do not spend the money on a real lab notebook)
- **Non**programmable calculator – this is the only electronic device allowed during tests or exams.
- 10 quad to 1 cm graph paper are also required.

SUPPLEMENTARY

TEXTS:

These textbooks are available in A-204

1. Elements of Physics by Smith and Copper (1979) (Especially good for waves.)
2. Physics: Principles and Problems, by Zitzewitz (any edition)
3. Modern Physics by Trenklein (1990, and 1994)

CALENDAR

DESCRIPTION:

The topics to be covered include: linear and two dimensional velocity, acceleration, forces; vector versus scalar quantities from mathematical and graphical perspectives; Newton's three laws of motion; equilibrium forces, incline planes; centripetal force and acceleration, Kepler's three laws of planetary motion, Newton's law of gravity; work, power kinetic, gravitational potential and conservation of energy; transverse and longitudinal waves and interference of waves, resonance and Doppler effect.

Credit/Contact Hours: This is a 5 credit course and meets 6 hours per week (approximately 4 hour lecture and 2 hours lab).

DELIVERY MODE(S): Lecture will be the main method of delivery. There will also be several experiments throughout the course.

OBJECTIVES:

Students should

1. understand theory, memorize formulae related to kinematics and be able to solve problems in which acceleration is constant.
2. be able to interpret and draw x-t, v-t, and a-t graphs.
3. be able to do calculations from x-t, v-t, and a-t graphs.
4. understand theory related to relative velocity and be able to solve related problems.
5. be able to add vectors using the component method.
6. understand theory, memorize formulae related to projectile motion and be able to solve related problems.
7. understand theory, memorize formulae related to Newton's three laws of forces and be able to solve related 2-dimensional problems.
8. understand theory, memorize formulae related to use work, power, and energy and solve related problems.
9. understand theory, memorize formulae related to centripetal motion and be able to solve related problems.
10. understand theory, memorize formulae related to Newton's Law of Gravitation and be able to solve related problems.
11. understand theory, memorize formulae related to waves: water, and sound be able to solve related problems.
12. understand theory, memorize formulae related to reflection, refraction, diffraction and interference of each type of wave and be able to solve related problems.
13. understand theory, memorize formulae related to Doppler Effect, beats, resonance, supersonic velocities, shock waves and be able to solve related problems.

TRANSFERABILITY:

This course is equivalent to Alberta grade 11 physics and is transferable to other post secondary institutions.

GRADING CRITERIA:

Regular attendance is expected of all students, and is crucial to passing the course. Students who miss classes will soon find themselves falling behind and failing. Lateness will not be tolerated as it interrupts the instructor and fellow classmates. As per Department Policy, if you miss more than 15 % of classes per semester (approximately 1 day/week) in any course, you may be debarred from the final exam for that course.

If a student is going to miss a test or midterm he/she **must** contact the instructor prior to the test or midterm in order to be considered for a rewrite. There may be a deduction of 10% for test rewrites. A certificate (a doctor's or a note from the funeral home) will be required to make up the final exam. **You will receive a grade of F if you do not write the final exam.**

Laboratory attendance to each specific experiment is compulsory. There are NO 'makeup' labs in this course. Missed labs will result in a grade of 0 %.

Penalties for late **assignments** are as follows: (Assuming that I have not returned the marked assignments)

1 day late – 20%, 2 days late – 50%, 3 days late – 100%

Penalties for late **lab reports** are as follows:

5 minutes after due time - 10 %, 24 hours after due time - 100%

Marking Scheme:

Assignments	15%
Labs	15%
Midterm	20%
Tests	10%
Final Exam	<u>40%</u>
Total	100%

GRANDE PRAIRIE REGIONAL COLLEGE			
GRADING CONVERSION CHART			
Alpha Grade	4-point Equivalent	Percentage Guidelines	Designation
A ⁺	4	90 – 100	EXCELLENT
A	4	85 – 89	
A ⁻	3.7	80 – 84	FIRST CLASS STANDING
B ⁺	3.3	77 – 79	
B	3	73 – 76	GOOD
B ⁻	2.7	70 – 72	
C ⁺	2.3	67 – 69	SATISFACTORY
C	2	63 – 66	
C ⁻	1.7	60 – 62	
D ⁺	1.3	55 – 59	MINIMAL PASS
D	1	50 – 54	
F	0	0 – 49	FAIL
WF	0.0	0	FAIL, withdrawal after the deadline

EXAMINATIONS: See asterisks on the timeline table.

*Test 1

**Test 2

Midterm

***Test 3 (If time permits. There usually is not time.)

There will be a three hour **final exam** at the end of the course. The time and date are set by the Registrar's office.

STUDENT RESPONSIBILITIES:

Students will:

- be at class regularly and on time. (If you miss more than 10 per semester of classes in any course, you may be debarred from the final exam for that course.)
- complete all pre-class and pre-lab assignments before arriving in class.
- keep up with course material.
- if experiencing difficulties with course get help immediately.
- catch up on missed material before the next class.
- provide documentation for missed midterms or finals.
- be aware of penalty for not writing the final.

STATEMENT ON PLAGIARISM AND CHEATING:

Please refer to pages 49-50 of the College calendar regarding plagiarism, cheating and the resultant penalties. These are serious issues and will be dealt with severely.

COURSE SCHEDULE/TENTATIVE TIME LINE:

Days	Topic	Required Reading
2	Review metric conversion, and significant figures	Chapter 1
6	Kinematics 1-dimension (Formulae and Graphically)	Chapter 2
3	Vector addition (omit Triangular Method and vector subtraction)	Pgs 68 – 79
2	Relative velocity	Pgs 88 – 94
2	*Projectile motion (Kinematics 2 – dimensions)	Pgs 80 – 88
8	*** Newton's three laws of forces***	Pgs 103 – 132
1	Work, power	Pgs 141 – 147, 166 – 168
1	Energy	Pgs 150 – 166
2	Centripetal motion	Pgs 228 – 235
1	**Newton's Law of Gravitation, Kepler's Three Laws	Pgs 238 – 251
1	Define waves and elasticity (In this section you will NOT be responsible for all the formulae. You are responsible for the concepts.)	Pgs 455 – 470
1	Hooke's law, period of a simple pendulum, simple harmonic motion	Pgs 456 – 470
3	***Transverse waves, reflection, refraction, diffraction interference, principle of superposition as they relate to water waves.	Pgs 470 – 479 450 – 460
8	Sound: Definition, speed of sound in air, reflection, refraction, diffraction Interference of sound: principle of superposition beats, resonance in open and closed air columns, 2-point interference, as they relate to sound waves.	Pgs 471– 521
1	Doppler effect	Pgs 507 – 510
1	Supersonic velocities	Pgs 510 – 512