



**PHYSICS**  
**Analytical Chemistry**  
**Applied Optics**  
203-924-DW (all sections)  
Winter 2017

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<b>Teacher</b>	Basim Assaf 7A.14, local 4011, physicsone@gmail.com						
<b>Pre-requisites</b>	High School Sec IV Science 558-404 or 402, or Physical Science 436 or CEGEP 982-003-50						
<b>Co-requisites</b>	None						
<b>Ponderation</b>	2-3-3 (2 hours of lecture, 3 hours of labs, and 3 hour of work outside class per week)						
<b>Course objectives</b>	This is the first physics course for students in the Analytical Chemistry program. The primary aim of the course is to acquaint students with the basic concepts required to understand the optical properties of the equipment used in Analytical Chemistry.						
<b>Course competencies</b>	<p>This course will allow the student to partially achieve the following competencies: 01DR: To understand how equipment operates. To explain the operation of the optical components of instruments used in chemical technology in order to understand how equipment operates.</p> <ol style="list-style-type: none"><li>To explain the operation of the optical components of instruments used in chemical technology.<ol style="list-style-type: none"><li>Proper identification of the following optical components: mirrors, prisms, lenses, polarizers, filters.</li><li>Exact description of radiation sources used in spectroscopic absorption and fluorescence, such as: black body radiation, arc lamps, cathode lamps, and lasers.</li><li>Correct explanation of the operation of wave separators such as the following: filters, diffraction grating, interferometers.</li></ol></li><li>To establish links between the operation of the equipment and the main detectors used in the equipment.<ol style="list-style-type: none"><li>Correct explanation of radiation detection, ion detection and electronic detection.</li></ol></li></ol>						
<b>Evaluation</b>	<p>The Institutional Student Evaluation Policy (ISEP) is designed to promote equitable and effective evaluation of student learning and is therefore a crucial policy to read and understand. The policy describes the rights and obligations of students, faculty, departments, programs, and the College administration with regard to evaluation in all your courses, including grade reviews and resolution of academic grievance. ISEP is available on the Dawson website.</p> <table><tr><td>Assignments</td><td>10%</td></tr><tr><td>Laboratory activities and projects<sup>y</sup></td><td>30%</td></tr><tr><td>Class tests</td><td>60%</td></tr></table>	Assignments	10%	Laboratory activities and projects <sup>y</sup>	30%	Class tests	60%
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Class tests	60%						

<sup>y</sup>Your teacher will provide a detailed breakdown of these components and a tentative test schedule during the first week of class.

In order to pass the course, students must show a basic understanding of the course material at the level covered in the lectures and in the lab. This is achieved by attaining a final grade of at least 60%, calculated according to the evaluation scheme above. **7A.14, 109fo explain th: courseeh**

**Teaching methods** The material will be presented using a mix of active learning activities, lectures, in-class problem solving, laboratory experiments and demonstrations. Laboratory periods will be used for experiments as well as class tests and lectures.

**Attendance & participation** Although class attendance is not compulsory, students should make every effort to attend all classes. In the event that a class is missed, the student is responsible for all material covered or assigned during that class. **Attendance during laboratory experiments and for class tests is however compulsory.** In the rare event that a student for valid reason (*e.g.* due to an intensive course, illness, *etc.*) is or anticipates to be absent during a laboratory experiment or for a class test, the student **must**, where possible, inform the teacher and provide the necessary documents before the absence or, at the latest, on the day of their return. If the absence is excused, students will have the opportunity to complete the assessment. All other assessments (readings, quizzes, lab activities, *etc.*) missed due to absence are:  
assigned a grade of zero where the absence is not excused;  
given zero weight in the calculation of the final grade where the absence is excused.  
For additional information regarding attendance, students should refer to the Institutional Student Evaluation Policy (ISEP section IV-C).

**Literacy standards** It is expected that students will be able to comprehend the course material and express themselves appropriately as a normal part of their academic performance in the course. Marks may be deducted for inadequate communication skills.

**Laboratory work** Experimentation is an essential part of science. Students will be expected to perform experiments and report on their results. Your teacher will provide you with instructions for lab experiments and activities (there is no manual to purchase). **Students must be present during the entire lab activity to receive credit.**

**Student conduct** Everyone has the right to a safe and non-violent environment. Students are obliged to conduct themselves as stated in the Student Code of Conduct and in the ISEP section on the roles and responsibilities of students (ISEP section II-D). Disruptions or excessive noise will not be tolerated. Students who do not comply with these rules will be asked to leave the class and may be referred to Student's Services for disciplinary action. **Mutual respect is the key to a harmonious learning environment.**

**Academic integrity** Cheating, copying, or any other form of academic dishonesty will not be tolerated. Students should acquaint themselves with the policy of the College on plagiarism and cheating. According to ISEP, the teacher is required to report to the Sector Deans Office (486-4830) if a student is found to have committed an act of academic dishonesty. **Academic integrity is the foundation of a quality education.**

**Course  
content**

Weeks	Topics
1-2	Oscillations and Simple Harmonic Motion
3	Waves
4	Electromagnetic Waves, Generation and Detection, The Electromagnetic Spectrum
5	Test 1
6	Geometric Optics, Reflection, mirrors
7	Prisms, Refraction, Lenses
8	Polarization
9	Color and Filters
10	Optical Instruments
11	Test 2
12	Interference and Diffraction
13	Modern Physics
14	Nuclear Reactions
15	Test 3

**Questions  
outside class**

All regular day program teachers will be available in their respective offices to their students during posted office hours. In the first week, your teacher will inform you of their schedule and will post it outside their office.

Room 7A.1 is the physics study room. At scheduled times, a teacher or peer tutor will be on duty there to answer your questions. The schedule of teachers and peer tutors will be posted outside of 7A.1 in the 2nd or 3rd week of term.