Science Department
Grade 12, Physics University Preparation, SPH4U (1.0 credit)

Course Prerequisite: **Grade 11 Physics University Preparation (SPH3U)** **Teacher:** Ms. Dennie
Textbook: Nelson "Physics 12"(replacement cost $100) **Subject Head:** D. Lanziner

Course Description
This course enables students to deepen their understanding of physics concepts and theories. Students will continue their exploration of energy transformations and the forces that affect motion, and will investigate electrical gravitational, and magnetic fields and electromagnetic radiation. Students will also explore the wave nature of light, quantum mechanics, and special relativity. They will further develop their scientific investigation skills, learning, for example, how to analyse, qualitatively and quantitatively, data related to a variety of physics concepts and principles. Students will also consider the impact of technological applications of physics on society and the environment.

Course Units
In science students will demonstrate scientific investigation skills in the four areas of skills (initiating and planning, performing and recording, analysing and interpreting, and communicating) and, identify and describe careers related to the fields of science under study, and describe the contributions of scientists to those fields.

The following units of study will be covered:
- Dynamics
- Energy And Momentum
- Gravitational, Electric And Magnetic Fields
- The Wave Nature Of Light
- Quantum Mechanics And Special Relativity

Evaluation Breakdown
The student will be provided with numerous and varied opportunities to demonstrate achievement in all four categories of knowledge and skills - *Knowledge/Understanding*, Thinking/*Investigation*, *Communication*, and *Application* as indicated below (±5%):

Knowledge/Understanding	**30 %**
Thinking/Investigation	**20 %**
Application	**10 %**
Communication	**10 %**
Exam & Culminating Activities	**30 %**

Knowledge/Understanding
- Understanding concepts, facts and terms, relationship among concepts.
- Primarily assessed from tests and/or quizzes

Thinking/Investigation/Communication
- Design/performance of lab experiments/activities, recording, analysis and interpretation of experimental data, problem solving
- Effective communication using correct scientific terminology, symbols and units, following instructions for communication or written material
- May be assessed during performance labs, lab reports, assignments, test, quizzes, presentations, projects and journals

Application
- Connecting science, technology and the environment
- May be assessed using assignments, tests, quizzes

Culminating Activities
- Usually towards the end of a unit a large assignment/lab will be given which summarizes many key ideas of the unit

Exams
- All categories of assessment may be reflected on the examinations

Learning Skills
In addition students will be assessed on their *learning skills* as listed below. They are NOT included in determining the final percentage grade.

Responsibility	Organization	Independent Work	Collaboration	Initiative	Self-Regulation
•Complete work with care • Submit assignments on time • ;Manage my behaviour • Prepare for test & quizzes	• Come to class prepared • Notebooks tidy & ordered •Plan ahead & manage time to meet deadlines • Use an organizer to achieve goals	•Use time effectively during class •Follow instructions with minimum supervision •Make use of notes to complete tasks •Seek assistance after serious effort	•Complete my share of work •Contribute ideas • Cooperate & participate with others • Listen attentively without interrupting	•Make up missed work •Get work before an absence • Complete work without prompting Demonstrate interest • Participate in discussions • Seek assistance	• Attend class on time • Set goals • Consistent effort to complete work • Correct homework • Persist and do not give up easily on class work

Assessment & Evaluation
You and your teacher will have many opportunities to review your understanding throughout the course before *summative evaluations*occur to determine your mark. At the start of a topic you may get a *diagnostic* questionnaire in order to determine your readiness to learn new material. Throughout a topic you will have many instances of *formative* feedback in order to help guide you. This feedback may be formal (written comments on your rough draft, practice quizzes, peer & self evaluations) or informal (verbal feedback& coaching). Finally at the end of a topic you may have a *summative evaluation* (quiz, test, assignment) that will be used to help form your mark.

Instructional Strategies
A variety of instructional strategies may be used in this course. They may include but are not limited to Socratic notes, laboratory investigations, demonstrations, question & answer, cooperative learning (i.e., Placemats, Jigsaws, Debate, Oral Presentations), simulations, role-playing, technological literacy (internet research, power point presentations), as well as small & large group discussion.

Extra Help
Extra help is available from a variety of resources. Some of these resources include fellow students, textbook & handouts, peer mentors and your teacher. Each teacher has his/her own time(s) at which extra help will be available. Your teacher will let you know these times early in the semester. It is essential that you prepare for extra help by reviewing course material regularly. Identify specific items that you do not understand or that need clarification. An entire lesson/unit will not be re-taught during extra help. (Period 4, 5 or after school)

Assignment Due Dates
You are responsible for providing evidence of your learning within established timelines. You will receive consequences for cheating, plagiarizing, not completing work and submitting work late. These consequences can escalate and result in mark deduction for late assignments up to the full value of the assignment.The due date for each assignment will reflect the complexity of the assignment and allow an appropriate timeframe for its completion.

Extenuating circumstances may warrant an alternative arrangement. In such a case, it is **your responsibility** to discuss this with your teacher **in advance** of the deadline. Where there are extenuating circumstances, the decision regarding an extended deadline or an alternative arrangement with the teacher will depend upon course programming.It is expected that most evaluations will be written within two school days upon return to class at a time established by the teacher.

Any late or missed assessment, test or quiz due to truancy will not be accepted for evaluation and a zero assigned.

Classroom Safety
Safety procedures must be followed at all times in the science classroom to ensure the well being of students and staff. Failure to follow teacher instructions (during laboratory work OR class time) will result in the removal of the student.**A mark of zero may be assigned.**

School Contact Information
Students may speak directly to the teacher in class (at an appropriate time) or at a time established by the teacher. Parents may contact the teacher by phoning the school at **(905) 727-3131** and leaving a message on the teacher's voicemail. The voicemail extensionfor your teacher is;

C. Dennie x408

Course Webpage:http://moodle2.yrdsb.ca

Additional Information:

- The Ontario Curriculum Grade 11&12 Science, 2008 available at http://www.edu.gov.on.ca/eng/curriculum/secondary/science.html
- Course Outline: http://www.drgwwilliams.ss.yrdsb.edu.on.ca/ select departments/select science

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Grade 12 University Physics:

I hereby acknowledge that I have read, understand, and will follow the policies stated on the "Course Outline", and the "Student Responsibly for Science Laboratory Safety Sheet".

_____ _____
Student Name (Please Print) Parent Name (Please Print)

_____ _____
Student Signature Parent Signature

In order for us to communicate with parents we request that you provide us a current e-mail address:

Parent/Guardian E-mail: