



Westside Secondary School

Orangeville, Ontario, Canada



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519-938-9355

www.ugdsb.on.ca/westside

Course: SPH4U	Teacher	Phone Extension	Email
	Sara Mancini	570	Sara.Mancini@ugdsb.on.ca
Program Leader:	Mike Manser	532	mike.manser@ugdsb.on.ca

Course Description: This course enables students to develop a deeper understanding of concepts in physics, and to apply their knowledge of science in real-world situations. Students are given opportunities to further practical skills in scientific investigation. Students will plan and conduct investigations into everyday problems and issues related to the five units of study, as listed below.

Prerequisite: Grade 11 University Level Physics (SPH 3U)

Big Ideas: The curriculum in each unit targets “Big Ideas” that are laid out by Ontario’s Ministry of Education and adapted by Westside teachers. The following chart outlines the Big Ideas being explored and evaluated in each unit of this course. For more information on the overall course expectations, visit http://www.edu.gov.on.ca/eng/curriculum/secondary/2009science11_12.pdf.

Unit of Study	Big Ideas
Dynamics	<ul style="list-style-type: none"> Forces affect motion in predictable and quantifiable ways. Forces acting on an object will determine the motion of that object. Many technologies that utilize the principles of dynamics have societal and environmental implications.
Energy and Momentum	<ul style="list-style-type: none"> Energy and moment are conserved in all interactions. Interactions involving the laws of conservation of energy and conservations of momentum can be analyzed mathematically. Technological applications that involve energy and momentum can affect society and the environment in positive and negative ways.
Gravitational, Electric and Magnetic Fields	<ul style="list-style-type: none"> Gravitational, electric and magnetic forces act on matter from a distance. Gravitational, electric and magnetic fields share many similar properties. The behaviour of matter in gravitational, electric and magnetic fields can be described mathematically. Technological systems that involve gravitational, electric and magnetic fields cause an effect on society and the environment.
The Wave Nature of Light	<ul style="list-style-type: none"> Light has properties that are similar to the properties of mechanical waves. The behaviour of light as a wave can be described mathematically. Technologies that use the principles of the wave nature of light can have societal and environmental implications.
Revolutions in Modern Physics	<ul style="list-style-type: none"> Light can show particle-like and wave-like behaviour, and particles can show wave-like behaviour. The behaviour of light as a particle and the behaviour of particles as waves can be described mathematically.

Instructional Strategies: Westside teachers use a variety of instructional strategies to help students develop and improve skills in the following areas: character, citizenship, communication, critical thinking and problem solving, collaboration and teamwork, and creativity and imagination.

Achievement Categories: Student learning is assessed and evaluated in a balanced manner with respect to the following four interrelated categories of knowledge and skills.

**Knowledge and Understanding
Thinking and Inquiry
Communication
Application**

Assessment and Evaluation: Assessments for and as learning are used to improve student success by providing opportunities to demonstrate understanding of course expectations prior to the evaluation of learning. Evaluations of learning are where students demonstrate their understanding of Big Ideas and key expectations. Failure to complete an evaluation of learning may result in the credit not being granted because certain expectations of the course have not been met.

Term Work Evaluation: 70%	Final Evaluation(s): 30%
Dynamics: Test and Lab Assessment Energy and Momentum: Test and Lab Assessment Fields: Test and Inquiry Activity Wave Nature of Light: Test and Research Assignment Revolutions in Modern Physics: Inquiry Research Assignment	10% Summative Assessment 20% Exam

Late Work

- Students are expected to complete all assigned work and submit it by the teacher's established due date. Every attempt will be made to encourage students to complete all assigned work on time so their grade represent their actual achievement. For late and missed summative assessments, please see the ***Westside Students' Contract for Missing Evidence of Learning***.

Safety Agreement

- All students will receive a safety agreement and will sign and return the UGDSB Student Safety Record.

Textbook

- Nelson Physics 12 – replacement fee for a lost or damaged textbook is \$90.

Enhancement Fee

- Voluntary enrichment fees may apply to this course. If a student does not pay, they will not complete the activity but will still be able to meet the course expectations.
- \$5 for field trip to the arena

Electronic Devices

- The science department at Westside S.S. has a policy that no electronic devices (e.g. cell phones, tablets, iPods, mp3 players, etc.) are allowed during evaluations. For this reason, students are reminded to bring a scientific calculator when needed.

Classroom Rules

- Students are expected to follow the rules of conduct, as referenced on the school's web site:
<http://www.ugdsb.on.ca/westside/>.

In addition to these general rules of Westside Secondary School, the rules for the science classroom are as follows:

- no food or drink of any kind is allowed in a science classroom
- respect the people, equipment, and furnishings of the science classroom
- immediately stop any activity and give your attention to the teacher when asked to do so
- summative evaluations of learning will not leave the classroom, but are available for students to discuss with the teacher