

Physics 3U Course Outline

The Physics 3U course is a course designed for people pursuing a university program in the sciences. While the course is heavy with content, the main emphasis will be on problem solving, laboratory skills, and data analysis. For this reason it is essential that students are self reliant in terms of seeking extra help when required, managing their time and reading the textbook for content.

Course Content :

The course consists of 5 units each designed to take about 3 weeks. The remaining week will be used for Final Assessment Tasks which will be spread throughout the semester, following each unit.

Unit Topic	Content	Time Allotment	Completion Date	Text References
Math Skills, Forces and Motion	Significant Digits, Graphing and Deriving Equations, Speed, Acceleration, Motion Graphs, Newton's Laws, Using Force Equations, Solving Force Problems, Vector Analysis	29 classes	October 15	Chapters 1 - 5
Energy, Work and Power	Work, Energy, Power, Conservation of Energy Problems, Efficiency	14 classes	November 4	Chapter 7
Waves and Sound	Wave Theory, Properties of Waves, Applications of Waves, Sound and Music, Hearing	15 classes	November 26	Chapters 13, 14
Light and Optics	Transmission of Light, Reflection and Mirror Images, Universal Wave Equation, Refraction, Snell's Law, Lenses and Images, Seeing	15 classes	December 17	Chapters 10, 11
Electricity and Magnetism	Electric Charge, Charge Transfer, Current Electricity and Circuits, Magnetism, Electromagnetism and Motors, Magnetic Fields, Electromagnetic Induction	14 classes	January 14	Chapters 15 - 18

Assessment & Evaluation : The physics program features expectations in four general areas.

Knowledge and Understanding : (30 %)The factual content you must retain for success will be evaluated using traditional tests and quizzes.

Thinking and Inquiry : (20 %)The collection of skills you must demonstrate in order to succeed will be evaluated by designing and carrying out laboratory activities and performing research activities.

Application : (18 %) Projects will be assigned and lab activities will be performed in order to evaluate your ability to apply your knowledge and skills to actual problems.

Communication : (32 %)You will be evaluated on the presentation of your assignments, projects and lab reports.

Your mark will be determined by evaluation worth 70 % of your grade for expectations completed during the term. The final 30 % of your evaluation will be based upon a final exam and a culminating task. The exam will be comprised of questions divided among the four expectation areas according to the breakdown provided above. The culminating task will be a project to be completed which will evaluate your skills in each of the four areas
The final breakdown of your evaluation will be approximately :

Unit Tests (5 of them) : 20 %

Quizzes (5 to 10) : 15 %

Lab Reports and Assignments (5 to 10) : 20%

Projects (3) : 15 %

Final Exam : 30 %

Absents : Students are responsible for making up work missed whether or not absents are verified. If you miss a lab or project day, you will be given the opportunity to complete the assignment and hand it in as an individual later.

Independent Study : Several of the lab activities, reports and one of the projects will require extensive use of graphing programs and simulation programs on our ELSS computers. As computer time at ELSS is rarely available during class periods, students will need to use their after school and lunch periods wisely. Get your student password as soon as possible and see Mr. Shipman about using the science computers after class. **The first computer generated graphs are due for grading next week.**

Student Requirements :

- ▶ 3 ring binder
- ▶ math drawing set
- ▶ scientific calculator
- ▶ floppy disks for backing up computer work
- ▶ Physics, Concepts and Connections text

Suggestions For Success :

- ▶ Complete all homework and check your answers. If you don't understand how the solution works come in for help right away.
- ▶ Correct all tests and re-write the test if your mark is lower than 70%.
- ▶ Read the text book in advance of the scheduled class lecture so that you can ask questions in class.
- ▶ Check out your mark, find answers to tests and assignments, communicate with Mr. Shipman and explore extra science resources on the internet at

<http://teacherweb.com/ON/ElliotlakeSecondarySchool/PeterShipman/>