

Scientific Inquiries - Physics 2006-2007

I. What is Scientific Inquiries - Physics?

Scientific Inquiries - Physics is a one-semester course that is required of all IMSA sophomores who have not taken a high school level physics course or who have not passed the IMSA physics placement exam. The course addresses four broad conceptual areas: kinematics and the equations of motion, Newton's first and second laws, the conservation of energy, and Newton's law of gravitation.

Each of the four big ideas in this course will be graphically and mathematically modeled by the students in interactive lab activities. Students will then deploy these graphical and mathematical tools in a variety of complex situations both by themselves in homework assignments or in groups in the classroom environment.

The students will 1) acquire an understanding of some of the fundamental concepts and principles of physics, 2) learn how to integrate the physical sciences with the space sciences, 3) acquire an ability to use problem-solving techniques and critical thinking skills to solve physics-based and integrative problems, 4) develop the habits of mind and skills identified as IMSA Standards of Significant Learning (SSLs), 5) develop an understanding of the importance of physics and its impact on society.

Student performance and learning in this course will be assessed using a variety of methods, which may include, but are not limited to, the following: homework and in-class problems, in-class quizzes and exams, and lab reports. Assessments will focus on gauging student learning with respect to both content standards and the IMSA Standards for Significant Learning (SSLs).

II. Academic Responsibility

- A. Attendance: Be in class **ON TIME**. Unexcused tardies in excess of 10 minutes will be treated as unexcused absences. Please refer to the Attendance and Tardiness Procedures section of the handbook, which begins on page 11.
WORK CANNOT BE MADE UP FOR UNEXCUSED ABSENCES.
- B. Bring proper materials to class with you.
 - 1. Pencil/Pen and calculator
 - 2. Notebook/Paper
 - 3. Lab Journal
 - 4. Proper Reference Material
 - 5. Binder
 - 6. Ruler
 - 7. Textbook (Conceptual Physics by Paul G. Hewitt)
- C. Homework assignments: All assigned work should be handed in the **beginning** of the period on the day it is due. Late work will receive penalties as determined by each instructor.
- D. Attentiveness: **HEADS UP!!!** When in class, students are expected to be alert, to listen intently, and to actively participate in class activities scheduled for the day.
- E. Note taking: Students are expected to leave class with notes from the lesson of the day.
- F. Out of class assistance: **GET HELP EARLY**. Options include:
 - 1. Office Hours
 - 2. Peer Tutor
 - 3. Appointment with Instructor

III. Laboratory Policies

- A. Discussion of Safety Rules: Violating safety rules may result in penalties or students may not receive credit for that activity/experiment.
- B. Maintain Lab Notes in Journal
- C. Laboratory Partner: We encourage collaboration between partners. However, each partner is expected to do his/her own work.

IV. Ethics in Scientific Inquiries

Honesty is a key component of scientific work, whether on the forefront of scientific research or in an IMSA laboratory. The practices (both good and bad) that are learned in an IMSA lab greatly influence your education. Consequently any violation of the honesty policy is considered a serious offense.

Examples of Violations:

- 1. Falsification of data; fabricating or changing data in your notebook or formal reports.
- 2. Plagiarism: representing another's work as your own; submitting written reports with sections directly or indirectly quoted from another source without referencing that source.

Working Together: Where to draw the line:

In experiments done with partners, it is expected that you will share data and observations. It is expected that you will always discuss the experiment and exchange ideas with your partner(s), other students, your instructors, etc. However, unless specifically told otherwise, each report is an **individual report**. By signing your name to it, you testify that the ideas, calculations, results, discussions and conclusions are yours alone, except as referenced. Copying, borrowing, lending or sharing of the words and work of or with another, (directly or by paraphrasing) is plagiarism. Simply put, all intellectual exchanges **before** writing the report are acceptable. Unreferenced use of another's written material or joint production of a written report is not acceptable, unless you are specifically told to write a group report. Consequences of violating these rules are explained in the student/parent handbook.

V. Assessment Policy

- A. The following will be assessed:
 - 1. Assessment Tasks (AT's) 25%
 - 2. Quizzes 30%
 - 3. Homework 10%
 - 4. Lab reports 20%
 - 5. Ownership of Learning 5%
 - 6. Final Exam 10%
- B. Assessment Scale:
 - A Work that exceeds expectations
 - B Work that meets expectations
 - C Work that is below expectations but above passing
 - D Does not meet expectations