

Physics 30

Mr. Mikula, 2015

Materials

Students will be expected to bring the following materials to class daily, unless otherwise instructed:

- Pencils, eraser, pen
- Lined loose-leaf paper
- A scientific or graphing calculator

Expectations

In order to succeed in this course, students must attend class regularly and be active participants – ask questions, contribute to discussions, and work on exercises. It is the student's responsibility to make up for any missed work due to absences. Students who make the decision to put in extra time working on exercises outside of class time will be rewarded with a deeper understanding of the material and (as a result) a higher grade in the course.

The secret to physics, like most things in life, is daily practice. A recommended **30 minutes of working problems and reading, five out of seven nights a week** is essential for continued success in this course and is representative of the workload in future courses.

Attitude and Behaviour

Racism, Sexism, Homophobia and Swearing:

There is **zero tolerance** for negative attitudes, and disgusting language will **not** be tolerated. If you choose to compromise the respectful classroom environment, you will be removed.

Homework and Exams:

Three (short) homework assignments and at least one quiz will be given for each unit. These assignments **must** be completed in order to write the unit exams as scheduled. Exams missed for any reason will be assigned a mark of 0 until they are completed, and must be made up outside of regular class time.

Course Timeline

UNIT A: MOMENTUM AND IMPULSE

February 3 - 23

February 2: Physics 20 Review

February 3: Momentum

February 4: Momentum

February 5: Impulse

February 6: Collisions in 1D

February 9: Collisions in 1D Lab

February 10: Collisions in 2D

February 11: Collisions in 2D

February 17: Conservation of 1D Momentum

February 18: Conservation of 2D Momentum

February 19: Conservation of 2D Momentum

February 20: Review

February 23: Unit Exam

UNIT B: FORCES AND FIELDS

February 24 - March 27

February 24: Exam Corrections

February 25: Introduction to Electricity

February 26: Electroscopes Investigation

February 27: Coulomb's Law Assignment

March 2: Coulomb's Law in 2D / Coulomb's Law Pith Ball Lab

March 3: Curve Straightening

March 4: Electric Field Theory

March 5: Electric Field Theory

March 6: Uniform Electric Fields

March 9: Charged Particles in Electric Fields

March 10: Charged Particles in Electric Fields

March 11: Introduction to Magnetism

March 12: Magnetic Force and the Third Left Hand Rule

March 13: Magnetic Force and the Third Left Hand Rule

March 17: Left Hand Rule Worksheet

March 18: Applications of Particle Deflection

March 19: Current

March 20: Current

March 23: Induction and Lenz's Law

March 24: Induction and Lenz's Law

March 25: Review

March 26: Review

March 27: Unit Exam

UNIT C: ELECTROMAGNETIC RADIATION

April 7 - May 7

April 7: Exam Corrections

April 8: Introduction to Electromagnetic Radiation

April 9: Reflection and Refraction

April 10: Concave and Convex Mirrors

April 13: Thin Lenses

April 14: Thin Lenses

April 15: Diffraction and Polarization

April 16: Diffraction and Polarization

April 17: Introduction to Quantum Physics

April 20: The Compton Effect

April 21: The Photoelectric Effect

April 22: The Photoelectric Effect

April 23: The Compton Effect

April 27: The Compton Effect

April 28: De Broglie Matter Waves

April 29: De Broglie Matter Waves

April 30: Unit C Lab Investigations

May 1: Unit C Lab Investigations

May 4: Unit C Lab Investigations

May 5: Review

May 6: Review

May 7: Unit Exam

UNIT D: ATOMIC PHYSICS

May 8 - June 3

May 8: Exam Corrections
May 11: The Discovery of the Electron
May 12: Bohr's Atom and Emission Spectra
May 13: The Millikan Experiment
May 14: Nuclear Physics - Radiation
May 19: Nuclear Physics - Radiation
May 20: Half-Lives
May 21: Nuclear Fission and Fusion
May 22: Nuclear Fission and Fusion
May 25: Sub-atomic Particles
May 26: Sub-atomic Particles
May 27: Mass Defect and Binding Energy Revisited
May 28: Unit D Lab Investigations
May 29: Unit D Lab Investigations
June 1: Unit D Lab Investigations
June 2: Review
June 3: Review
June 4: Unit Exam

REVIEW

June 8 - June 18

Evaluation

Assessment of general and specific outcomes will be based on the mastery and/or development of key learner outcomes in the form of a percentage-graded report card. These grades provide a summative statement of student achievement based on assessment evidence at the time of the report card, characterizing a level of understanding of subject-area content and making evident a level of knowledge and skills.

Final school-reported grades will be a reflection of the following distribution:

Unit A: Momentum and Impulse:	15%
Unit B: Forces and Fields:	30%
Unit C: Electromagnetic Radiation:	30%
Unit D: Atomic Physics:	25%
Total:	100%

The Math 30 Diploma Exam is scheduled for *June 25th, 2015*.

Your final grade in this course will be based on the school-awarded grade (50%) and your diploma exam grade (50%).