

Early College at Irondale High School

Anoka-Ramsey Community College

**College Physics - ARCC A & B
(3614S & 3615S)**

PHYS1317: General Physics I

College Semester Credits: 5

Time: Periods 3, 4, 5

Room: 338

Year: 2019-2020

Instructor: Dave Parent

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Prerequisites

Students must meet the following criteria:

1. *Students must either be a junior in the top ⅓ of their class, senior in the top ½ of their class, or by dean/teacher recommendation (juniors/seniors only)*
2. *ARCC College Algebra (MATH 1200) or higher concurrent enrollment.*

Text: College Physics, Etkina, Gentile, Van Heuvelen, 2014.

ARCC Course Description

This course fulfills the MTC Goal 3 – Natural Sciences. This course is designed for students with a strong interest in science and a desire to pursue further studies in science. Algebra-based mathematical representations are utilized throughout the course. Topics studied will include kinematics, Newton's laws of motion, energy, thermodynamics, momentum, rotational motion, fluids, gravitation, oscillations, waves, sound, light, electricity and magnetism.

Throughout the course, students will be engaged in lab activities that reveal and illustrate the concepts being studied. Data will be collected, analyzed, and interpreted by lab groups. Laboratory findings will be presented orally and in writing.

Course Objectives

1. Demonstrate the ability to solve computational and conceptual problems in the following areas:
 - A. Kinematics
 - B. Forces and Newton's laws
 - C. Conservation principles
 - D. Rotational motion
 - E. Oscillations
 - F. Waves
 - G. Thermodynamics

2. Demonstrate the following skills as they relate to labs in the major areas of course content:
 - A. Collect data using equipment- especially computer interfaced probes
 - B. Record and organize data
 - C. Estimate and propagate uncertainties in calculations
 - D. Analyze data
 - E. Interpret results of experiments
 - F. Individually and/or collaboratively prepare laboratory results with proper English
 - G. Work effectively and cooperatively in a group setting

Schedule

Sequence and approximate duration:

Semester 1

- One Dimensional Kinematics
 - Constant Velocity Particle (CVP, 8 days)
 - Constant Accel. Particle (CAP, 11 days)
- Forces & Newton's Laws
 - Gravity/Zero Total Force/Statics (ZTF, 11 d)
 - Non-Zero Total Force/Dynamics (NZTF, 10 d)
- Two-Dimensional Kinematics / Projectile Motion (2D, 6 days)
- Conservation Principles
 - Energy (E, 12 days)
 - Impulse & Momentum (JP, 10 days)
- Rotational Motion
 - Uniform Circular Motion (UCM, 7 days)

Semester 2

- Rotational Motion (cont'd)
 - Torque, Rotational Dynamics (10 days)
- Thermodynamics (19 days, two units)
- Oscillating Particle (OP, 10 days)
- Mechanical Waves (9 days)
- Sound Waves (10 days)
- Light Waves (10 days)
- Electricity & Magnetism (EM, 10 days)

Physics Fair

Physics Fair is a long-term group project that will begin at the start of second semester. Physics Fair 2020 will be the evening of **Tuesday, March 10**. Put the date on your calendar now! Also, please communicate to the person in your family that coordinates everyone's schedule that ***all Physics students will be at Irondale for the Physics Fair*** that evening.

Dropping/Withdrawing

- A **drop** can occur during the first five days of the semester without impacting your Anoka-Ramsey transcript. The deadline to drop an ARCC class without a "W" on your transcript is **Tuesday 9/10/2019**.
- The last day to **withdraw** from a year-long ARCC class and receive a "W" on your Anoka-Ramsey transcript is **Thursday, April 16th, 2020**.
- Withdrawal after April 16th will result in an "F" on your Anoka-Ramsey transcript.
- Anoka-Ramsey grants whole letter grades ("A", "B", "C", "D", "F"). Therefore, any "+" or "-" associated with your Irondale grade will not be included on your Anoka-Ramsey transcript.

Grading

The details of all assignments will be handed out, posted on the course web page, and covered thoroughly in class.

First semester grades will be divided among:

- | | |
|-----------------------------------|-----|
| ● Homework/Quizzes (several/unit) | 5% |
| ● Labs (1-2/unit) | 25% |
| ● Tests (1/unit) | 55% |
| ● Final Exam (1) | 15% |

Second semester grades will be divided among:

- | | |
|-----------------------------------|-----|
| ● Homework/Quizzes (several/unit) | 5% |
| ● Labs (1-2/unit) | 15% |
| ● Physics Fair (1) | 20% |
| ● Tests (1/unit) | 45% |
| ● Final Exam (1) | 15% |

Class Calendar and Assignments

A current schedule of this course and additional resources are available on the teacher's website: ihspysics.weebly.com

Retesting

Retesting for unit tests is offered, up to a grade of "C". All unit assignments, labs, and additional practice, as well as meeting with the teacher to discuss and review the original test, must be completed before a retest can occur. A retest must take place prior to the next unit test.

Grading Scale

- In this course, we use equal interval grading to assess student progress.
- The purpose of the equal interval scale is to encourage proficiency rather than the accumulation of points and to support student growth over the course of the semester.
- Students and parents are encouraged to communicate with teachers if current progress does not seem adequate; we can then work together to find strategies to improve proficiency.

Irondale Grading Scale

Final Grade Configuration		
A	3.40	4.00
A-	3.20	3.39
B+	3.01	3.19
B	2.59	3.00
B-	2.40	2.58
C+	2.21	2.39
C	1.79	2.20
C-	1.60	1.78
D+	1.41	1.59
D	0.99	1.40
D-	0.80	0.98
I	No Value Assigned	

Assignment Grade Configuration

Individual Assignment Grade Configuration		
Gradebook Entry	Description	Point Value
A	Went beyond the basic requirements for proficiency	4
B	Met all the basic requirements for proficiency.	3
C	Met some basic requirements for proficiency	2
D	Met very few basic requirements for proficiency.	1
I	Didn't show enough work to demonstrate proficiency	0
M	Missing Evidence of Proficiency	0

Assessment Grade Configuration

Assessments are structured to have the percentage ranges below correlate with the corresponding letter grades and proficiency levels.

Gradebook Entry	Proficiency Level	% Range
A	Beyond basic requirements	90-100
B	Basic requirements	70-89
C	Most basic requirements	60-69
D	Very few basic requirements	50-59
I/F	Proficiency not demonstrated	<50

Absences

- **The best thing that you can do to promote your success in this class is to be in class every day.**

If you were absent...

- view the class calendar where most assignments will be posted.
- for a test review day you are still responsible for **taking the test on the day of the test**.
- the day of a test, you will take the test on the **day you return** during the class period.
- the day that previously assigned homework was due, you are responsible to have the assignment finished and turned in the **day you return** to class.
- for lab data collection, you must arrange a time with the teacher to collect data as soon as possible.

Late Assignments/Labs

Late assignments, including labs, will receive a reduced score. Any late work for a unit is due at the beginning of the hour on the day before the test for that unit. Late work after this deadline **will not be accepted** and will be marked in the gradebook as missing.

Distracting Items

Cell phones are the most common distraction, for you and the class, that interferes with concentration and learning. It is expected that cell phones, any any other distracting device, be kept in a distraction-free location.

Academic Honesty

Mounds View School Board Policy EG-3109 Student Rights and Responsibilities:

Academic honesty is required to ensure an accurate measurement of a student's academic knowledge. The Mounds View School Board expects that students will achieve success with integrity. Academic dishonesty impairs a true showing of academic achievement. Substantiated reports of academic dishonesty will result in appropriate consequences as defined in accompanying regulations and in student handbooks. Examples of academic dishonesty include, but are not limited to: theft and use of tests; use of crib sheets or other cheating devices on an exam; plagiarism or representation of a substantial piece of work as one's own without proper attribution. This policy applies to all manner, including the most current technological advances, systems, or equipment, that may be utilized for the purposes of academic dishonesty.

Academic dishonesty will be considered a behavioral infraction. The following guidelines will be utilized when a violation of academic honesty occurs:

- Consequences will be commensurate with the severity of the incident
- Consequences cannot prevent growth and development or an accurate measurement of student achievement
- Measures will be sought to determine why the academic dishonesty occurred
- Students will be required to provide a written explanation of behavior
- Students in violation of this policy will not escape the performance indicator; student knowledge will still be measured within an agreed timeframe set by teacher, dean, and student
- Additional consequences may include:
 - Re-examination of content; repeat of project, paper, or activity
 - Possible reduced score/grade not to prevent achieving a level of proficiency
 - Other measures identified in Mounds View School Board Policy EG-3109: Student Rights and Responsibilities
 - Multiple offenses may result in loss of credit, to be determined by the building principal

(Irondale Student Handbook p. 8)

Classroom Norms

Thank you for being: **Responsible, Respectful, and Ready to Learn**

**** If necessary, the instructor will announce any necessary changes to this syllabus. ****