

# Course Syllabus

The 42nd Period · Two trimesters · 11 weeks each · 60-minute classes · Mr. Iserloth

|                 |                   |               |                     |
|-----------------|-------------------|---------------|---------------------|
| AP EXAM         | TRIMESTERS        | CLASS LENGTH  | UNITS               |
| <b>May 2026</b> | <b>2 x 11 wks</b> | <b>60 min</b> | <b>8 (incl. U0)</b> |

## HOW YOUR GRADE IS BUILT

80% of your grade splits between Summative and Formative work — 72% and 8% respectively. The remaining 20% is the trimester Final Exam, scored separately on top of everything else. The Final Exam mirrors AP exam format.



### Formative — 8%

**Exit checks** and **practice sets** are formative. They are low-stakes by design — this is where you are allowed to be wrong on the way to understanding. Attempt everything, ask questions, and revise.

### Summative — 72%

**Unit tests**, **AP FRQs**, and **Progress Checks** are all summative. These are the moments where you show what you actually walked away with — graded to AP standards.

## HOW POINTS WORK

An Exit Check is the baseline point value — the smallest graded unit in the course. Everything else is set relative to it:

|                                      |                                                                                                                |           |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------|-----------|
| <b>Exit Check</b><br>[Formative]     | Short end-of-lesson check. Graded on completion and genuine effort. Unit 0 lessons don't have an Exit Check.   | <b>1x</b> |
| <b>Practice Set</b><br>[Formative]   | Problem set aligned to the deep dive. Same baseline value as an Exit Check — formative, low-stakes, revisable. | <b>1x</b> |
| <b>Unit Test</b><br>[Summative]      | AP-style multiple choice and free response for the unit. Unit 0 has no Unit Test — it isn't AP Exam content.   | <b>2x</b> |
| <b>AP FRQ</b> [Summative]            | Scored using College Board rubrics. The highest-weight assignment in the course.                               | <b>3x</b> |
| <b>Progress Check</b><br>[Summative] | AP Classroom Progress Check, completed after each CED unit. Counted summatively.                               | <b>2x</b> |

**In short:** AP FRQs carry the most weight because they are scored exactly as the College Board scores them — and because writing a coherent, calculus-justified physics argument is the highest-order skill in this course.

## COURSE STRUCTURE — 2 TRIMESTERS, 8 UNITS

The course follows the College Board AP Physics C: Mechanics CED, supplemented with a Unit 0 calculus primer for students who need a refresher on derivatives and integrals before Unit 1 needs them. Units 0–3 run in Trimester 1. Units 4–7 plus review run in Trimester 2. Each trimester ends with an AP-style comprehensive exam.

### Trimester 1

Units 0–3 + Final Exam · ~11 weeks

### Trimester 2

Units 4–7 + Final Exam · ~11 weeks

### Trimester 1 — Foundation: the calculus toolkit, then the language of motion and force

11 weeks · 5 days/wk · 60 min/class

|           |                                                                                                                                                           |                    |            |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------|
| <b>U0</b> | <b>Calculus Primer</b> [supplementary]<br>Limits, derivative/integral shortcuts, the chain rule, separable differential equations. Self-paced.            | <b>Week 1</b>      | 6 lessons  |
| <b>U1</b> | <b>Kinematics</b><br>Position, velocity, acceleration as derivatives/integrals of each other. Reference frames. 2D motion.                                | <b>Weeks 1-3</b>   | 5 lessons  |
| <b>U2</b> | <b>Force and Translational Dynamics</b><br>Newton's laws as $\Sigma F = dp/dt$ . FBDs, friction, springs, gravitation, resistive forces, circular motion. | <b>Weeks 3-7</b>   | 10 lessons |
| <b>U3</b> | <b>Work, Energy, and Power</b><br>Work as a line integral. Potential energy as $-\int F \cdot dr$ . Conservation of energy. Power.                        | <b>Weeks 7-10</b>  | 5 lessons  |
| ►         | <b>Review + Trimester 1 Final Exam</b><br>AP-style cumulative exam covering Units 0–3. Released FRQ practice. Progress Check review.                      | <b>Weeks 10-11</b> | —          |

### Trimester 2 — Momentum, rotation, and oscillation: every tool from Trimester 1, applied twice as hard

11 weeks · 5 days/wk · 60 min/class

|           |                                                                                                                                                               |                   |           |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----------|
| <b>U4</b> | <b>Linear Momentum</b><br>Impulse-momentum theorem as $J = \int F dt$ . Conservation of momentum. Collisions.                                                 | <b>Weeks 1-2</b>  | 4 lessons |
| <b>U5</b> | <b>Torque and Rotational Dynamics</b><br>Rotational kinematics, torque as a cross product, rotational inertia as $\int r^2 dm$ , rotational Newton's 2nd law. | <b>Weeks 2-5</b>  | 6 lessons |
| <b>U6</b> | <b>Energy and Momentum of Rotating Systems</b><br>Rotational KE, angular momentum conservation, rolling motion, orbiting satellites.                          | <b>Weeks 5-8</b>  | 6 lessons |
| <b>U7</b> | <b>Oscillations</b><br>SHM defined and derived with the chain rule. Springs, pendulums, energy of oscillators.                                                | <b>Weeks 8-10</b> | 5 lessons |

## AI USE AND ACADEMIC INTEGRITY

### Using AI in This Course — Read This Carefully

I use AI. I used it to build this website, generate lesson images, produce the AI podcast for each lesson, and format content consistently across 8 units. So I would be naive to think you won't use it on your own work — and I'm not going to pretend otherwise.

**But here is the line:** using AI to help you understand something is smart. Using AI to produce work that you submit as your own understanding — without actually developing that understanding — is plagiarism. That line holds whether the source is ChatGPT, a classmate, or a textbook solution manual.

The practical test is simple: **can you explain it?** If you submit something and cannot walk me through your reasoning when I ask — out loud, in your own words — that is evidence the work is not yours. It will be treated as academic dishonesty and handled according to school policy.

#### This is fine

- Using AI to explain a concept a different way
- Asking AI to check your reasoning or catch errors
- Using the AI podcast and video tools built into this course
- Asking AI to generate practice problems for you to work through
- Using AI to help you understand a worked example

#### This is plagiarism

- Submitting AI-generated solutions as your own
- Copying AI explanations verbatim into your written work
- Using AI during a Progress Check or unit test
- Having AI complete a free-response question for you
- Submitting work you cannot explain when asked

**Bottom line:** I can tell. Train the AI to teach you — not to do the work for you. Use it the way a smart student uses a tutor: to understand, not to shortcut. That's the standard I hold myself to, and it's the standard I hold you to.

## COURSE POLICIES

**Revision Policy** — Exit checks and practice sets can be revised and resubmitted before the unit closes. Unit tests and FRQs may not be retaken, but written justification of errors can recover partial credit — see Mr. Iserloth for details.

**Late Work** — Work submitted within one week of a deadline is accepted for full credit. After one week, a 10% deduction applies per additional week late. Work not submitted before the unit closes receives no credit.

**AP Classroom** — AP Classroom Progress Checks are graded summatively. They must be completed individually and without assistance — they are College Board assessments and are treated as such. Collaboration on a Progress Check is academic dishonesty.

**Lab and Safety** — Any session involving equipment, data collection, or physical materials is governed by the lab safety agreement on file. Violations result in removal from the activity and a zero for that session.

## ABOUT THE AP EXAM

The AP Physics C: Mechanics Exam is administered in May and is 3 hours long. It consists of 40 multiple-choice questions (80 minutes, 50% of the score) and 4 free-response questions (100 minutes, 50% of the score): Mathematical Routines, Translation Between Representations, Experimental Design and Analysis, and Qualitative/Quantitative Translation. A four-function scientific or graphing calculator is permitted on both sections.

A reference sheet of equations is provided on the exam — the same one linked on the course homepage. You are not expected to memorize equations. You *are* expected to understand what every variable means, when each equation applies, and how to derive relationships from it with calculus, under exam conditions.

|                                                   |                                                 |                                        |                                         |
|---------------------------------------------------|-------------------------------------------------|----------------------------------------|-----------------------------------------|
| Units 1-2<br><b>30-40%</b><br>Kinematics + Forces | Units 3-4<br><b>25-45%</b><br>Energy + Momentum | Units 5-6<br><b>20-30%</b><br>Rotation | Unit 7<br><b>10-15%</b><br>Oscillations |
|---------------------------------------------------|-------------------------------------------------|----------------------------------------|-----------------------------------------|

Unit 0 (Calculus Primer) is not assessed on the AP Exam — it exists to make sure the calculus in Units 1-7 doesn't feel like a second new subject.

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**AP Physics C: Mechanics** · the42ndperiod.com · Mr. Iserloth  
*Rated **AP** for Calculus, Physics, and Actually Understanding It*