AP Physics (C) Outline ----------

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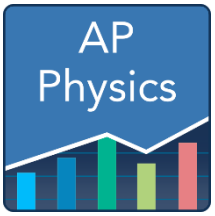

Format: *Online | 15 Sessions | 90 Minutes Each*
Focus: *Past Free-Response Questions (FRQs) & Concept Review*

Course Introduction

Welcome, everyone! This AP Physics C Review Course is designed to help you strengthen your understanding of Mechanics and Electricity & Magnetism while practicing real past exam FRQs. Each session will include a brief review of key concepts followed by guided problem-solving, ensuring that you're well-prepared for the exam.

This course is interactive and discussion-based—so ask questions, challenge ideas, and engage with the material. My goal is to help you not just solve problems but truly understand the physics behind them.

I am an experienced IBDP and AP Physics teacher with over 30 years of teaching experience, specializing in high school physics, experimental projects, and academic writing. I have authored 20+ physics books, developed problem-solving strategies, and conducted international workshops on physics education.

I believe in conceptual clarity and structured problem-solving—we'll use multiple approaches, including diagrams, mathematical reasoning, and real-world applications, to help you grasp even the trickiest topics.

Looking forward to working with you all—let's ace this exam together!

Mechanics (Sessions 1–9)

1. **Kinematics**
    - ✓ **Review**: Motion in 1D and 2D, equations of motion, projectile motion.
    - ✓ **FRQs**: Solve 2–3 problems focused on kinematics.
2. **Newton's Laws of Motion, Part 1**
    - ✓ **Review**: Forces, free-body diagrams, inclined planes.
    - ✓ **FRQs**: Practice simple force-analysis problems.

3. **Newton's Laws of Motion, Part 2**
    - ✓ **Review**: Advanced systems—tension, pulleys, and multi-body problems.
    - ✓ **FRQs**: Solve complex, multi-step force-based questions.
4. **Work, Energy, and Power**
    - ✓ **Review**: Work-energy theorem, conservation laws, and power.
    - ✓ **FRQs**: Tackle problems involving energy transformations.
5. **Momentum and Impulse**
    - ✓ **Review**: Linear momentum, impulse, and both elastic and inelastic collisions.
    - ✓ **FRQs**: Analyze momentum-based scenarios.
6. **Rotational Motion, Part 1**
    - ✓ **Review**: Angular kinematics, torque, and moment of inertia.
    - ✓ **FRQs**: Solve basic rotational motion problems.
7. **Rotational Motion, Part 2**
    - ✓ **Review**: Angular momentum and advanced rotational dynamics.
    - ✓ **FRQs**: Tackle combined rotational problems involving torque and angular momentum.
8. **Gravitation, Part 1**
    - ✓ **Review**: Newton’s law of gravitation, orbital mechanics, escape velocity.
    - ✓ **FRQs**: Solve questions on gravitational interactions and orbital motion.
9. **Comprehensive Mechanics Practice**
    - ✓ **Review**: Summary of Mechanics topics (Kinematics, Forces, Energy, Momentum, Rotation, Gravitation).

- ✓ **FRQs**: Mixed-topic Mechanics problems for reinforcement.

Electromagnetism (Sessions 10–17)

10. **Electrostatics, Part 1**
    - ✓ **Review**: Electric charge, Coulomb's law, and electric fields.
    - ✓ **FRQs**: Solve basic electrostatics problems.
11. **Electrostatics, Part 2**
    - ✓ **Review**: Electric potential and potential energy in fields.
    - ✓ **FRQs**: Tackle more conceptual electrostatics problems.
12. **Gauss's Law**
    - ✓ **Review**: Applications of Gauss's law and electric flux.
    - ✓ **FRQs**: Work on Gauss's law-related problems.
13. **Circuits, Part 1**
    - ✓ **Review**: Ohm's law, Kirchhoff's rules.
    - ✓ **FRQs**: Solve problems involving simple DC circuits.
14. **Circuits, Part 2**
    - ✓ **Review**: RC circuits and transient behavior in circuits.
    - ✓ **FRQs**: Focus on advanced circuit problems.
15. **Magnetism and Ampere's Law**
    - ✓ **Review**: Magnetic fields, forces on charges, and Ampere's law.
    - ✓ **FRQs**: Analyze challenging magnetism questions.
16. **Electromagnetic Induction**
    - ✓ **Review**: Faraday's law, Lenz's law, and induced EMF.
    - ✓ **FRQs**: Induction problems and real-world applications.
17. **Maxwell's Equations and Waves**

- ✓ **Review**: Overview of Maxwell's equations and electromagnetic waves.
- ✓ **FRQs**: Solve wave-related questions and reinforce conceptual knowledge.

------- Session 18: Full Practice Exam Simulation --------

- ✓ Work out and analysis a full past AP Physics C exam (Mechanics and E&M) under timed conditions.
- ✓ Discuss and analyze approaches to identify strengths and areas for improvement.