# Welcome to PHYS 2212

SPRING 2026

*LEARNING HOW ELECTRICITY, MAGNETISM, AND LIGHT ALL FIT TOGETHER.*

# What Kind of Class Is This?

This is a learning-focused course based in collaboration.

- Practice > performance
- Thinking > memorization
- Growth > point accumulation

# What Will We Learn?

This semester, we will learn how:

- Charges interact
- Fields describe forces
- Changing fields create other fields
- Light emerges from electromagnetism

# Principles of Physics II Section DB Spring 2026 CO

**Zoom Links and Booking a Meeting**

**Oral Quiz**: Zoom Link | Book your Appointment

**Virtual Office Hours**: Zoom Link | Book your Appointment

**Final Presentation**: Zoom Link | Book your Appointment

**Learning Modules**

1: Electric Charges and Fields

2: Gauss's Law

3: Electric Potential

**Course Learning Resources**

Course Details

PHYS 2212 Course Learning Objectives

Problem-Solving Checklist

Activities to Demonstrate Your Learning

**Self-Assessment Practice Quizzes**

Module 1 Self-Assessment Practice Problems

Module 2 Self-Assessment Practice Problems

# Why This Course Is Ungraded

Traditional grading often:

- Encourages short-term thinking
- Discourages risk-taking
- Hides misunderstanding

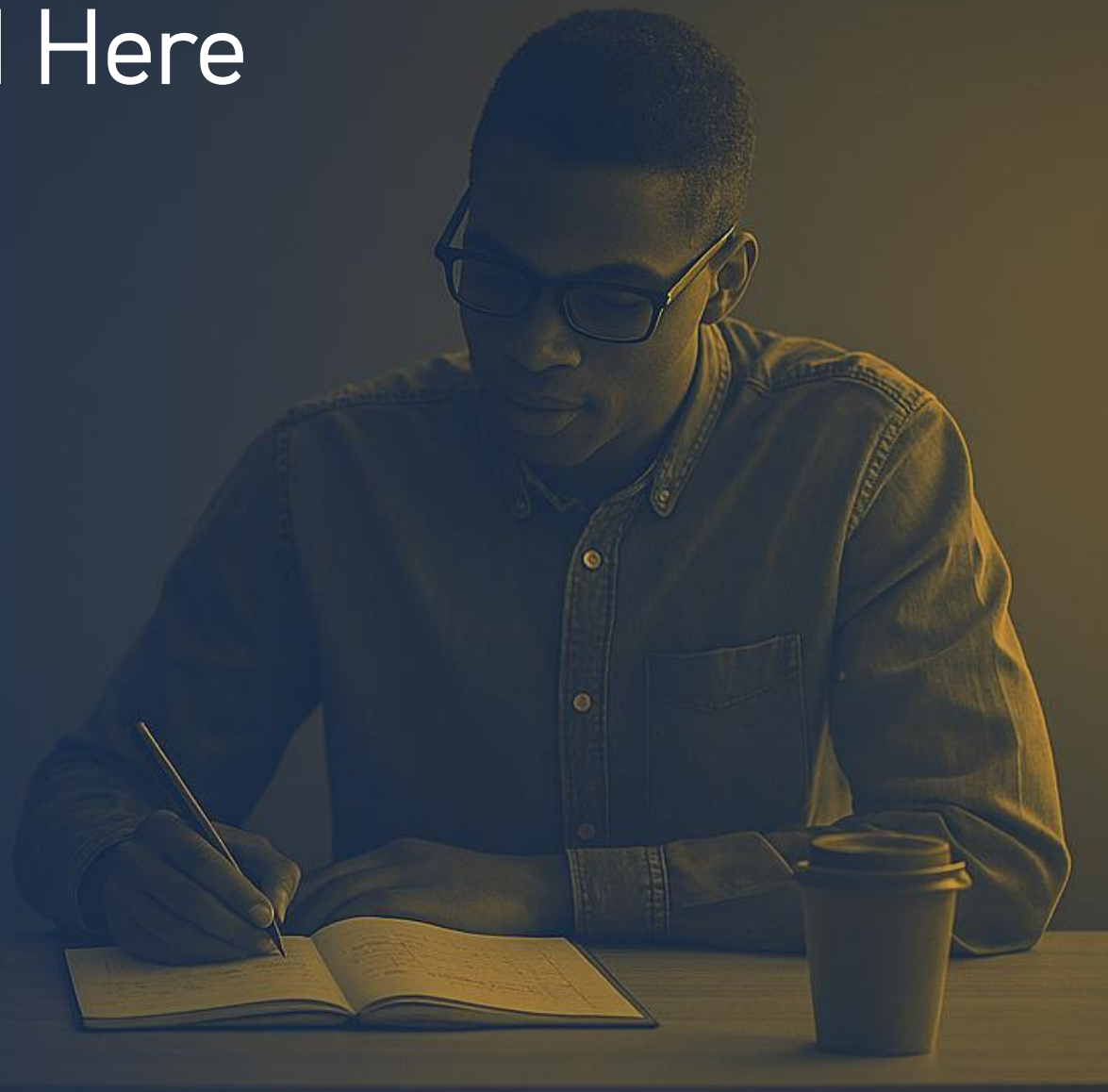
This course prioritizes:

- Practice
- Feedback
- Reflection

# How Learning Is Assessed Here

You will:

- Practice regularly
- Reflect honestly
- Revise your thinking
- Demonstrate learning over time



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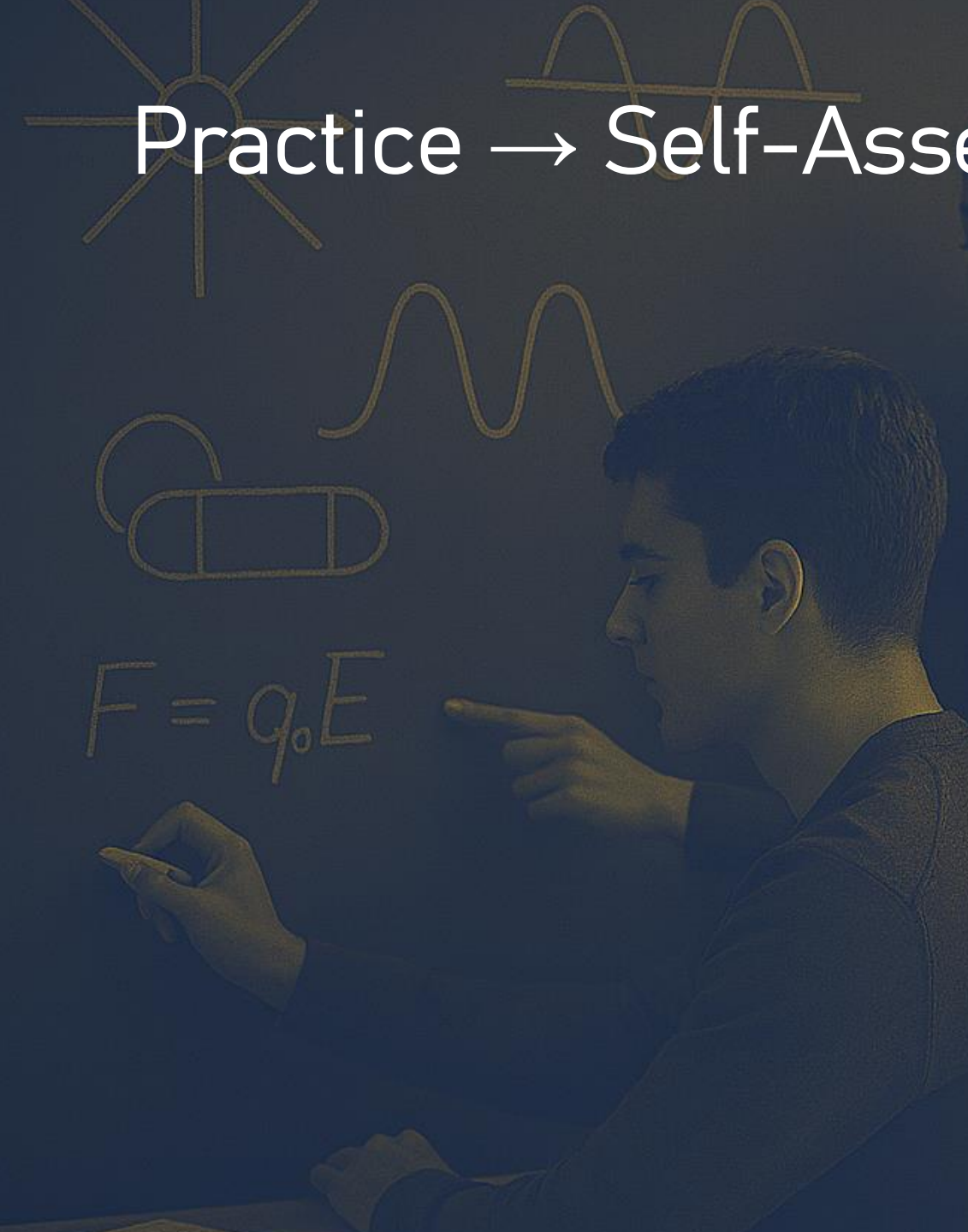
1. **Understand the Problem**
    - What is the problem asking you to do?
    - What principles or concepts do you think apply here? Why?
    - What information do you have, and what do you need to find?
2. **Plan Your Approach**
    - Outline your strategy for solving the problem.
    - Choose the best method or formula and justify why it's appropriate. Why did you choose this approach over others?
    - Consider any assumptions or simplifications needed.
3. **Execute the Solution**
    - Solve the problem step by step, showing all your work clearly.
    - Pay attention to units, significant figures, and logical flow.
    - Double-check calculations and intermediate steps as you go.
4. **Reflect on Initial Results**
    - Does your solution seem reasonable? Why or why not?
    - Compare your answer with expectations or known results (e.g., units, order of magnitude).
5. **Identify and Address Errors**
    - Look for mistakes or gaps in your reasoning or calculations. How did you identify and correct these errors?
    - Revise your approach as needed to correct these errors.
    - Ask yourself: How can I improve this solution?
6. **Iterate and Improve**
    - Update your solution based on insights from your reflection.
    - Test your revised approach and verify if it works better.
    - Document what you learned from the iteration process.
7. **Connect and Reflect**
    - What did you learn from solving this problem?
    - How does this problem relate to broader concepts or other problems?
    - What would you do differently next time when solving a similar problem?
    - Are there areas where you need more practice or clarification?

**Remember:**

- **Mistakes are essential**: They help you understand where and how to improve.
- **Reflection is key**: Taking the time to analyze your process builds deeper understanding.
- **Be patient and persistent**: Iteration is part of mastering problem-solving!

# Practice → Self-Assessment → Quiz




The quiz system works like this:

- Practice problems
- Self-assessment & reflection
- One problem selected as your quiz

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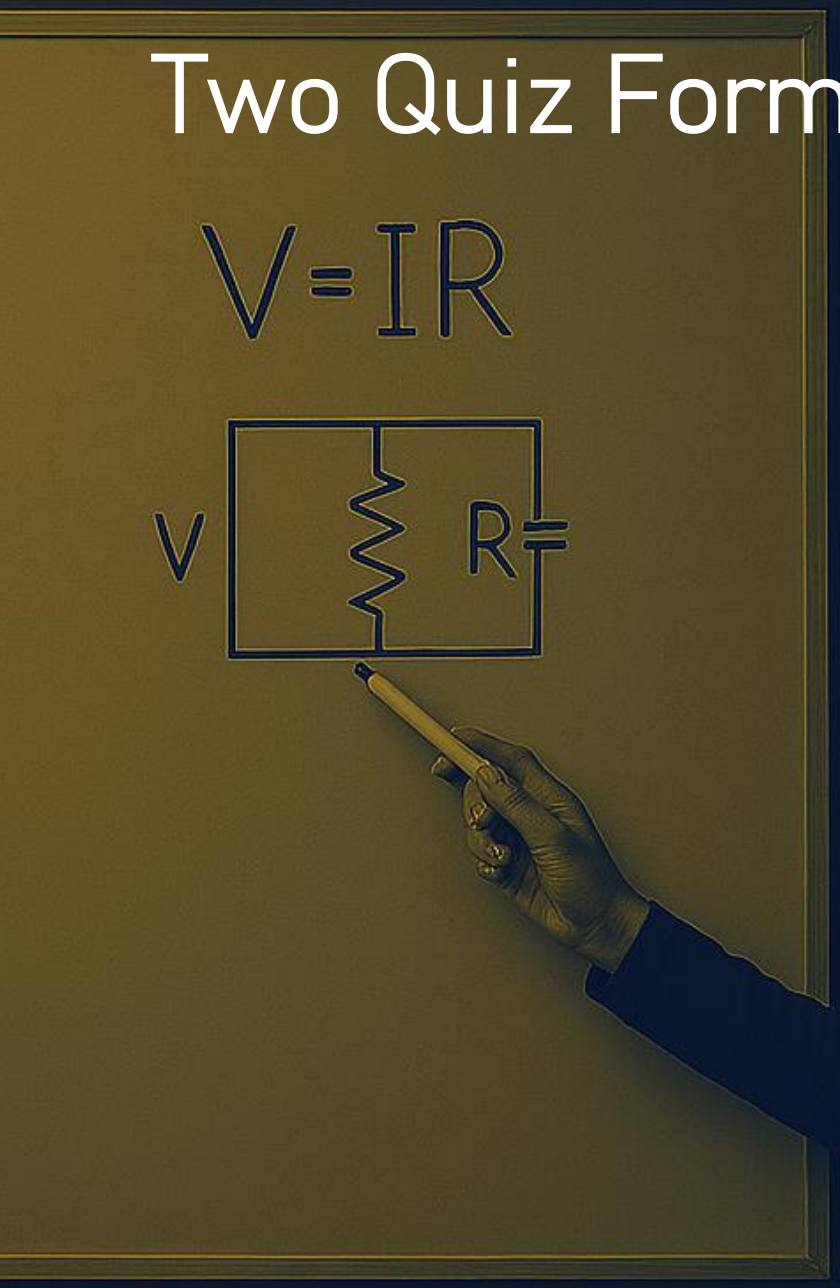
# Two Quiz Formats




## Written Quizzes (Fridays, in class)

- One problem
- Clear reasoning matters

## Oral Quizzes (Zoom)

- One-on-one
- Scheduled via D2L
- Conversational, supportive

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# Final Grade Proposal


At the end of the semester:

- You will propose your final grade
- Your proposal must include evidence
- Evidence is tied to course learning objectives

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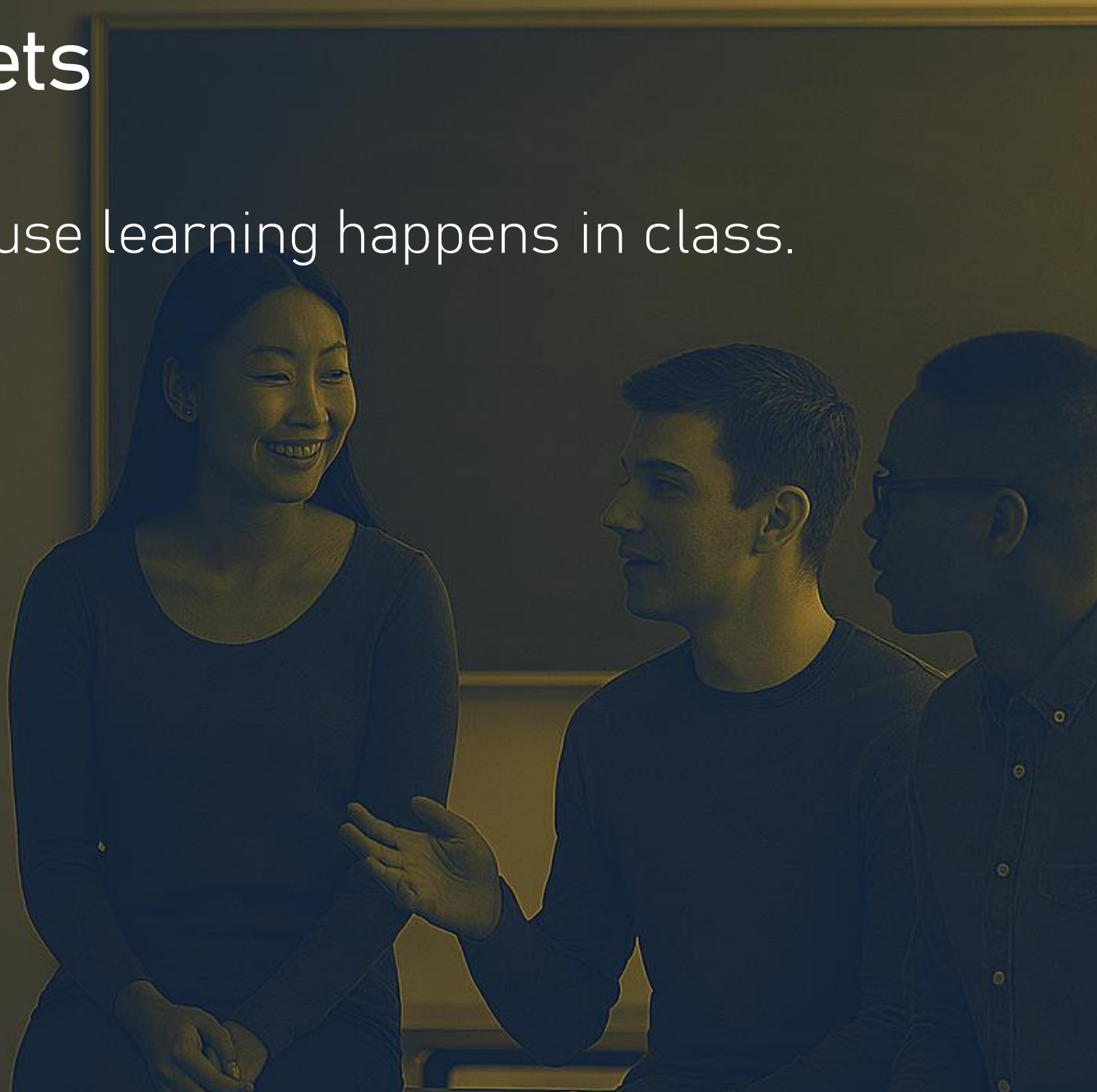
# Attendance & Exit Tickets

Attendance matters because learning happens in class.

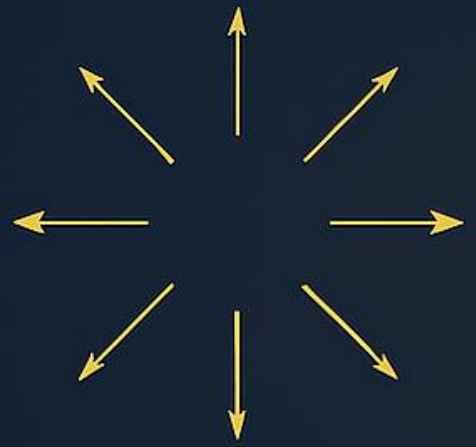
Exit Tickets:

- Completed at the end of class
- Password given in class
- Due by midnight



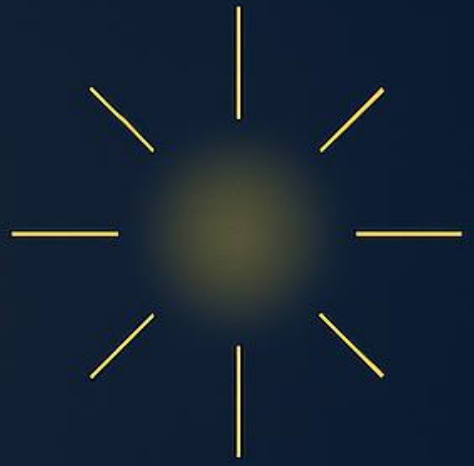
# Where We're Headed

Electric charge ….



Fields ….

EM Waves …



Light

$$\vec{F} = q\vec{E} + q\vec{v} \times \vec{B}$$

$$\oint \vec{E} \cdot d\vec{A} = \frac{q_{enc}}{\epsilon_0}$$

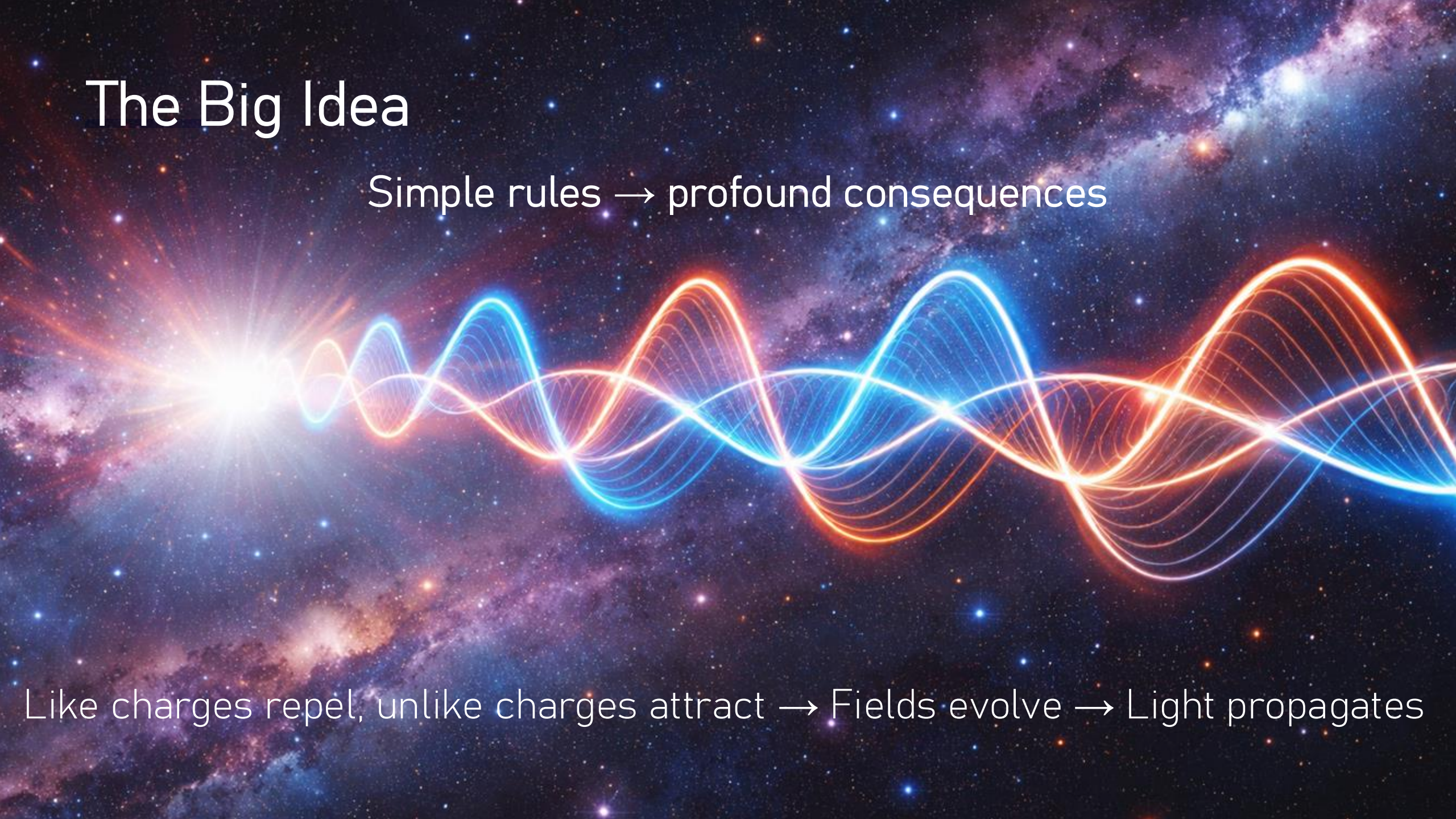
$$\oint \vec{B} \cdot d\vec{A} = 0$$

$$\oint \vec{E} \cdot d\vec{s} = -\frac{d\Phi_B}{dt}$$

$$\oint \vec{B} \cdot d\vec{s} = \mu_0 I_{enc} + \mu_0 \epsilon_0 \frac{d\Phi_E}{dt}$$

# The Big Idea

Simple rules → profound consequences



Like charges repel, unlike charges attract → Fields evolve → Light propagates

# Wednesday, January 14

Print

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Expand All | Collapse All

0 % 0 of 9 topics complete

## Before Class

1.1 Electric Charge
Link

1.2 Conductors, Insulators, and Charging by Induction
Link

1.3 Coulomb's Law
Link

## During Class

# Exit Ticket

Before you leave:

- One thing you're unsure/curious about
- One thing that feels new or unexpected

Search Topics

Overview

Bookmarks

Course Schedule 4

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Learning Objectives and Self Assessment 2

1: Electric Charges and Fields 32

Monday, January 12 6

Before Class

During Class 4

# During Class

Print

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20 % 1 of 5 topics complete

PHYS 2212 in 5 lines
Link

Charging an insulator
Web Page

Charging a Grounded Conducting Rod
Web Page

Balloons and Static Electricity
Web Page

Exit Ticket (Module 1, Monday)
Quiz
Due January 12 at 11:59 PM

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