

# PHYSICS 114 SYLLABUS 8 AM

## EXAMINATIONS:

EXAMS	DATES & TIME	TOPIC	CHAPTERS
#1	Thur. Oct. 8 6-8 pm	Matter in Motion	1, 2, 3
#2	Thur. Oct. 22 6-8 pm	Newton's Laws	4, 5
#3	Thur. Nov. 5 6-8 pm	Work, Energy, & Momentum	6, 7
#4	Tue. Nov. 24 6-8 pm	Rotational Motion	8, 9
Final	Mon. Dec 7 1- 4pm	Comprehensive	1- 9

*You may print out the file "Equation Notes for Exams.pdf" and bring them with you during the exams. (The Equation Notes pdf can be found under the Test Documents Tab")*

I suggest you use these pages while you are learning concepts and doing the homework so that you can become familiar with the form and locations of the equations you will use on the exams. You are also allowed to add notes/equations to these pages as you learn the material. The worked out solutions to problems are not considered to be acceptable notes. **Students with worked out solutions will have their exam confiscated.**

On a one-time basis only, you may be able to make arrangements with the instructor to make up a missed exam.

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## INSTRUCTOR:

Dr. Richard Vawter  
Office: 361 Communication Building  
Office Hours: 11-12 am & 1-2 pm MTWRF  
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## CLASS GRADE:

Your overall letter grade in the class is determined by the total points accumulated on FIVE out of the following SIX categories:

- Four one-hour exams.
- Homework grade.
- Comprehensive Final

Each category is worth 20% of your final grade.

You will be able to drop one of your hour-exams but not your homework/attendance score.

### LETTER GRADE SCALE

SCORE	92	90	88	82	80	78	72	70	68	62	60
GRADE	A	A-	B+	B	B-	C+	C	C-	D+	D	D-

### Final Letter Grades:

There will be no additional rounding of your final overall class grade. Just because you are .1% away from the next letter grade I will not round your score up. However, I will look at your final exam score. If you are close to say an A and you make an A on the final I will bump your grade up to an A provide you have been coming to class and doing the homework. Also observe, that if you come to class you can easily earn enough bonus points to bump your grade up to the next letter grade if you are close to a border line.

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### HOMEWORK:

You will be assigned daily homework problems, which can be found under Homework Tab on Blackboard. You will not be able to turn in late homework because the homework assignments are no longer accesiable to take after due date. You can always do the homework problems ahead of time. In case of emergency you should contact me by email. If I judge that your situation is valid, I can give you the password to complete an assignment.

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### ATTENDANCE:

Randomly, through out this quarter I will take attendance. For every day you are in class (when I do take attendance) you will earn +5 bonus points added your overall homework score. (This equivalent to about one homework question.) For every day you are not in class (when I do take attendance) you will lose -5 points. This means that you will lose points from your homework average if you come to class less than half the time and you will gain extra points if you come more than 50% of the time. If you have a reasonable excuse, I will not dock your homework 5 points because you were not in class. I request that you email me your reason because I will be keeping track of the number of times and your reasons.

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### TEXTBOOK:

**PHYSICS:** *Cutnell & Johnson*  
John Wiley - Seventh Edition, 2007

**Any good Physics Textbook could be used as a text in this class. In particular, the sixth edition is nearly identical to the seventh edition and you may find a cheep copy like from a student who took the class last year or on the Web.**

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# PHYSICS 114 OUTLINE

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## START for EXAM #1

### **Models in Science (Chapter 1 and Handouts)**

#### **1. Model Approach to Understanding**

- (A) Models, Data, Observations, and Facts
- (B) Inductive and Deductive Reasoning

#### **2. Scientific Methodology**

- (A) The Game of Physics

#### **3. The Role of Measurement**

- (A) Operational Definitions
  - a. Units
  - b. Scalars and Vectors
- (B) Derived Quantities
- (C) Uncertainty and Significant Figures

#### **4. Laws of Nature**

- (A) Laws, Theories, and Hypotheses in Science.

### **Kinematics: Matter in Motion**

#### **1. Velocity and Acceleration (Chapter 2)**

- (A) Average and instantaneous motion
- (B) Uniform acceleration
  - a. Gravity
  - b. Free Fall
- (C) Relative motion

#### **2. Motion in Two Dimensions (Chapter 3)**

- (A) Dimensional Independence
  - (B) Vectors
    - a. Addition/Subtraction of Vectors
  - (C) Projectiles
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## START for EXAM #2

### **Dynamics: Newton's law of Motion (Chapter 4)**

#### **1. Newton's First Law**

- (A) Forces
  - a. Definition
  - b. Addition

#### **2. Newton's Second Law**

- (A) Inertia
  - a. Mass
  - b. Weight

**3. Newton's Third Law**

- (A) Action and Reaction
  - a. Conservation laws

**4. Contact Forces (Chapter 5)**

- (A) Force of Friction
  - a. Normal Force
  - b. Coefficient of Friction
- (B) Tension in a Cord

**5. Static Equilibrium**

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**START for EXAM #3**

**Work and Energy (Chapter 7 & 8)**

**1. Forms of Energy**

- (A) Mechanical Energy
  - a. Energy of moving objects
- (B) Wave Energy
  - a. Quantum and Electromagnetic Energy
- (C) Internal Energy
  - a. Heat

**2. Work done by a Force**

- (A) Kinetic Energy
- (B) Potential Energy

**3. Conservation of Energy**

- (A) Mechanical
  - a. Kinetic and Potential
  - b. Mechanical Advantage of Forces
- (B) Relativity
  - a. Mass-Energy Relationship

**4. Power**

- (A) Efficiency

**Momentum (Chapter 9)**

**1. Impulse**

- (A) Newton's laws of motion.

**2. Conservation of Momentum**

- (A) Elastic and Inelastic Collisions
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**START for EXAM #4**

**Rotational Motion**

***1. Kinematics (Chapter 10)***

- (A) Angular Velocity
  - a. Radians and Degrees
  - b. Tangential Linear Velocity
- (B) Angular Acceleration
  - a. Instantaneous and Average
  - b. Tangential Linear Acceleration
- (C) Circular Motion
  - a. Centripetal Acceleration

***2. Dynamics (Chapter 11)***

- (A) Rotational Inertia
    - a. Moment of Inertia
    - b. Torque
    - c. Angular Momentum
    - d. Rotational Energy
  - (B) Newton's Laws in Rotational Form
    - a. Rigid Bodies
    - b. Equilibrium
    - c. Conservation of Angular Momentum
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