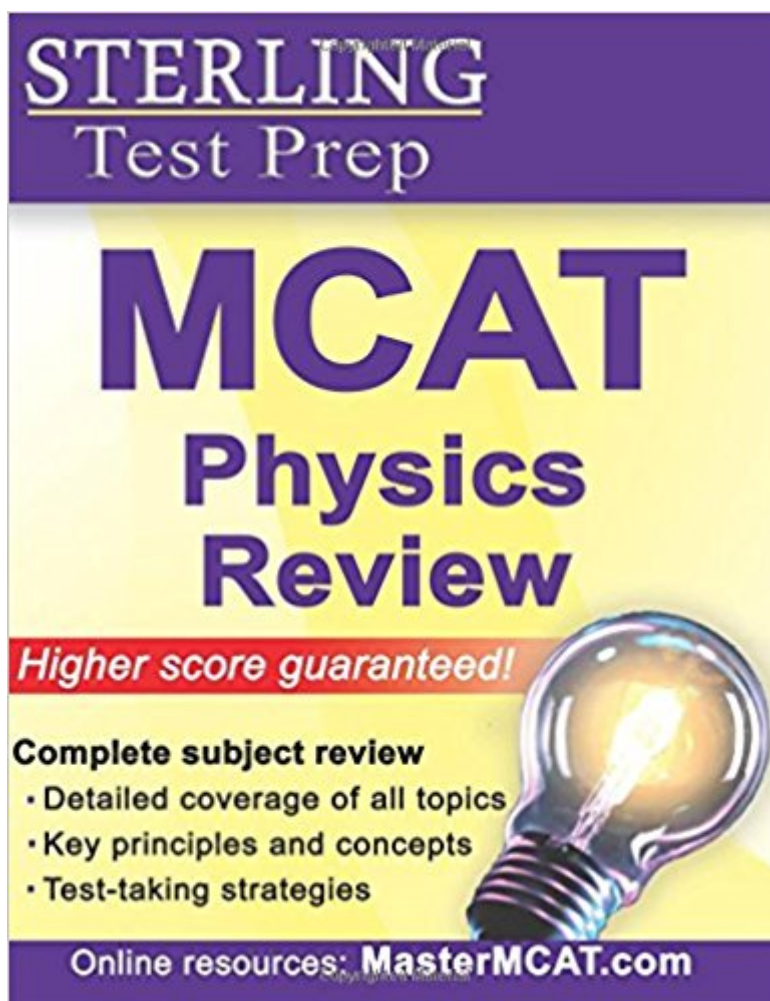




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Sterling Test Prep MCAT Physics Review: Complete Subject Review



Synopsis

MCAT Physics Complete Subject Review provides a detailed and thorough review of Physics topics tested on the MCAT. The content covers foundational principles and theories necessary to answer related questions on the test.

- Translational motion
- Force
- Work and energy of point object systems
- Periodic motion
- Fluid statics and dynamics
- Electrostatics
- Circuit elements
- Magnetism
- Sound
- Light and geometrical optics
- Atomic nucleus and electronic structure
- Thermodynamics

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Customer Reviews

This book provides a detailed and thorough review of Physics topics tested on the MCAT. The content covers foundational principles and theories necessary to answer related questions on the test. The information is presented clearly and organized in a systematic way to provide students with targeted MCAT Physics review tool. You can focus on one knowledge area at a time to learn and fully comprehend important concepts and theories, or to simply refresh your memory. By reading these review chapters thoroughly, you will learn important physics concepts and the relationships between them, so you can answer related questions on the test. This will prepare you for the MCAT physics and you will significantly increase your score. To achieve a high MCAT score, you need to develop skills to properly apply the knowledge you have and quickly choose the correct answer. Understanding key concepts, having the ability to extract

information from the passages and distinguishing between similar answer choices is more valuable than simply memorizing terms. All the material in this book is prepared by physics instructors with years of experience in applied physics, as well as in academic settings. It was reviewed and organized by our MCAT editors to ensure strict adherence to the topics and skills outlined by the AAMC for the current MCAT. Our MCAT editors possess extensive credentials, were educated in top colleges and universities and have been admitted to medical school with stellar MCAT scores. They are experts on teaching, preparing students for the MCAT and have coached thousands of premeds on admission strategies. Used books may have outdated content. We make content updates regularly based on customers' comments, editorial input and latest test changes. The most current version is only available directly from (sold & shipped by), Barnes & Noble and Sterling Test Prep web store.

MCAT Test-Taking Strategies

Translational Motion

Units and dimensions

Vectors, components

Vector addition

Speed, velocity (average and instantaneous)

Acceleration

Force

Newton's First Law, inertia

Newton's Second Law ($F = ma$)

Newton's Third Law, forces equal and opposite

Friction, static and kinetic

Center of mass

Vector analysis of forces acting on a point object

Torques, lever arms

Work and Energy of Point Object Systems

Work done by a constant force

Mechanical advantage

Work

Kinetic Energy Theorem

Conservative forces

Kinetic Energy

Potential Energy: $PE = mgh$ (gravitational, local); $PE = \frac{1}{2} kx^2$ (spring)

Conservation of energy

Power, units

Periodic Motion

Amplitude, frequency, phase

Transverse and longitudinal waves: wave length and propagation speed

Fluid Statics and Dynamics

Density, specific gravity

Buoyancy, Archimedes' Principle

Hydrostatic pressure: Pascal's Law; $P = \rho \cdot g \cdot h$ (pressure vs. depth)

Viscosity: Poiseuille Flow

Continuity equation ($A_1 v_1 = A_2 v_2$)

Concept of turbulence at high velocities

Surface tension

Bernoulli's equation

Venturi effect, pitot tube

Absolute temperature, (K) Kelvin Scale

Pressure, simple mercury barometer

Molar volume

Ideal gas: definition; Ideal Gas Law ($PV = nRT$)

Boyle's Law ($PV = \text{constant}$); Charles's Law ($V/T =$

constant);
 Avogadro's Law ($V/n = \text{constant}$)
 Kinetic Molecular Theory of Gases: heat capacity;
 Boltzmann's Constant
 Deviation of real gas behavior from Ideal Gas Law: qualitative; quantitative
 Partial pressure, mole fraction
 Dalton's Law relating partial pressure to composition
 Electrostatics
 Charges, electrons/protons, conservation of charge
 Conductors, insulators
 Coulomb's Law
 Electric field E
 Potential difference, electric potential at point in space
 Equipotential lines
 Electric dipole
 Electrostatic induction
 Gauss's Law
 Circuit Elements
 Current $I = \frac{Q}{t}$, sign conventions, units
 Electromotive force, voltage
 Resistance: Ohm's Law ($I = V/R$); resistors in series; resistors in parallel; resistivity ($R = \rho L/A$)
 Capacitance: parallel plate capacitor; energy of charged capacitor
 Capacitors in series; capacitors in parallel; dielectrics
 Conductivity: metallic, electrolytic
 Meters
 Magnetism
 Magnetic fields and poles
 Magnetic field force
 Faraday's Law
 Torque on current carrying wire
 Sound
 Production of sound
 Intensity of sound, decibel units, log scale
 Attenuation (damping)
 Doppler effect: moving source or observer, reflection of sound from a moving object
 Pitch
 Resonance in pipes and strings
 Ultrasound
 Shock waves
 Light and Geometrical Optics
 Reflection from plane surface: angle of incidence = angle of reflection
 Refraction, refractive index n ; Snell's law
 Dispersion, change of index of refraction with wavelength
 Conditions for total internal reflection
 Spherical mirrors: center of curvature; focal length; real and virtual images
 Atomic Nucleus and Electronic Structure
 Atomic number, atomic weight, neutrons, protons, isotopes
 Nuclear forces, binding energy
 Radioactive decay (α , β , γ): half-life, exponential decay, semi-log plots
 Mass spectrometer
 Ground state, excited states, principal quantum number n
 Absorption and emission line spectra
 Pauli Exclusion Principle
 Paramagnetism and diamagnetism
 Heisenberg Uncertainty Principle
 Photoelectric effect
 Thermodynamics
 PV diagram: work done = area under or enclosed by curve
 Calorimetry, heat capacity, specific heat
 Heat transfer - conduction,

convection, radiation
Coefficient of expansion

Physics was not my strongest premed class. I think my teacher was not able to explain many concepts. This book is clear in its presentation of the material. It covers the topics tests on the MCAT and does it nicely. I did not get frustrated when I read this book and actually found the presentation easy to follow with great examples and content. Comprehensive coverage of physics where I was able to apply what I learned to solving actual problems. My confidence and understanding increased while my frustration level remained low throughout this experience. Great prep book for physics.

Very clear and detailed review of physics topics. I like that it is structured to match the topic outline by the AAMC. It goes through each topic and concept with clear explanations and examples. I really like this book since I lacked confidence in the topic before I had this systematic review. I am testing better and have a much better understanding of how to approach questions in an effective manner to solve the problems. Now I have a clear and solid foundation of physics for the MCAT. I told several of my friends about this book.

Easy to follow guide on all physics concepts needed for the MCAT. A great refresher on topics I was familiar with, as well as study aid for things I didn't understand much about. I got this one in conjunction with their practice questions book and they are both very helpful in my preparation. This review book, while boiled down to essentials, is much more complete and detailed than some other review books from other publishers - a lot of solid content.

I am using this physics review book in conjunction with Sterling MCAT physics questions. The two books compliment each other. The review material is comprehensive and the questions reinforce the concepts I learned from the review book. Great combination to prepare the physics component on the new MCAT. My understanding and test scores have really increased.

I recently took the MCAT. I am a master student in biology preparing to enter medical school. I wanted a prep book for a complete review of physics concepts for the MCAT. Even though I have a very strong background in the natural sciences, this book taught me physics concepts needed for the MCAT. I was prepared when I took the exam. Although I did not expect to see the same questions as I studied, I know a broad and solid foundation was very important. I used this physics

review book along with the physics practice questions book to apply the concepts. Great results from being prepared.

I am a post-bac at the Harvard Extension School. I graduated a few years ago as a biochemistry major and have been working in research for 2 years. I consider myself a strong student with a great foundation in the sciences needed for the MCAT. A few classmates of mine took the MCAT last year and recommended the Sterling Prep books. I used several of their products (along with some donated book from other publishers). The Sterling products are very comprehensive and covered the AMCAS listed topics for the MCAT. I just got my scores and I am very pleased with my preparation and the results that I was able to achieve. I recommend the books for proper preparation for this important exam.

Great content review for physics. This material is much better than some other books I compared it to. Clear and meaningful coverage of physics material for the MCAT. Comprehensive and easy to follow, which made retention of essential physics topics easy.

Good companion to the physics review book by Sterling. Detailed, yet easy to understand and process the concepts. Highly recommend this series for MCAT physics.

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