

Preparing to do well on the MCAT

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Homework for this session.....

- Download & read MCAT info from Web
 - at least *MCAT Essentials* !
- Examine data & determine desired state of residence
- Identify potential letter writers
- Begin to identify times and places in your schedule
- What do you need to study?

To schedule an appointment:

Email or call:

Ms. Katherine Foisie in OITE

foisiek@mail.nih.gov

At this session,

- Answer questions about process & the MCAT
- How to prepare!
- Review of specific types of questions
- Strategies for attacking different types of questions
- Using those practice tests
- Leave time for individual consultation



AMBITION

THE JOURNEY OF A THOUSAND MILES SOMETIMES ENDS VERY, VERY BADLY.

Your MCAT Day

TEST SECTIONS	TIME
Non-Disclosure Agreement	10 minutes
Tutorial <i>(Optional)</i>	
Physical Sciences	70 minutes
52 Questions	
Break <i>(Optional)</i>	10 minutes
Verbal Reasoning	60 minutes
40 Questions	
Break <i>(Optional)</i>	10 minutes
Writing Sample	60 minutes
2 Essays	
Break <i>(Optional)</i>	10 minutes
Biological Sciences	70 minutes
52 Questions	
Survey <i>(Optional)</i>	10 minutes
Total Content Time	4 hours, 20 minutes
Total "Seat" Time*	5 hours, 10 minutes

Question:

**How many questions
(out of 52 total)
separate a score of 10
from a 9 or an 11 ?**

The Message:



<http://go.to/funpic>

On the horizon.....

Communication Skills section!!!

The MCAT content:

www.aamc.org/mcat

Things to remember about MCAT Preparation

1. You are studying to get a score, not learn tons of material.
2. You do not need to know the enzymes of the Krebs Cycle.
3. You only need to know a relatively small number of facts.
4. Content study yields diminishing returns. Practice pays larger dividends.

Be determined in achieving your goals...



Physical & Biological Sciences

What is on the MCAT?

How much must I know?

Panel asked to rate potential topics on three criteria:

- **Level of coverage received in basic undergraduate course sequences**
- **Importance to mastering the medical school curriculum; and**
- **Usefulness in the actions and decisions of medical practice.**

Required Courses:

- Biology 1 & 2 (labs)
- General Chemistry 1 & 2 (labs)
- Organic Chemistry 1 & 2 (labs)
- Physics 1 & 2 (labs)
- English Composition & Literature
- Calculus 1 & 2

With the exception of Calculus and some “medical school related Biology”*, this tells you what to study at what level.

* Medical school related = physiology

MCAT Home

About the MCAT Exam

Registration

Examinees with
Disabilities

Practice Tests

MCAT Scores

Examinee Data

Research

Contact MCAT

**Taking the
MCAT exam?**
Take charge of
your prep!

MCAT Practice Online

Preparing for the MCAT Exam

[Preparing for the MCAT FAQ](#)

[Schedule FAQ](#)

The Testing Experience

[Testing Experience FAQ](#)

[Testing Center Regulations and Procedures](#)

[Transition to the Computerized MCAT Exam FAQ](#)

[Miscellaneous FAQ](#)

Test Sections

[How do I prepare for the Science sections?](#)

[What is in the Biological Sciences section?](#)

[Topics for Biological Sciences Sections of the MCAT Exam \(PDF, 25 pages\)](#)

[What can I expect in the Physical Sciences section?](#)

[Physical Sciences—General Chemistry Topics \(PDF, 10 pages\)](#)

[How should I prepare for the Writing Sample?](#)

[Examples of MCAT Writing Sample Prompts](#)

[How is the Writing Sample scored?](#)

[How do I get ready for the Verbal Reasoning Skills section?](#)

[Verbal Reasoning Skills Topics \(PDF, 1 page\)](#)



Topics for Biological Sciences Section of the MCAT

Biology

Molecular Biology: Enzymes and Metabolism

A. ENZYME STRUCTURE AND FUNCTION

1. Function of enzymes in catalyzing biological reactions
2. Reduction of activation energy
3. Substrates and enzyme specificity

B. CONTROL OF ENZYME ACTIVITY

1. Feedback inhibition
2. Competitive inhibition
3. Non-competitive inhibition

C. BASIC METABOLISM

1. Glycolysis, anaerobic and aerobic, substrates and products
2. Krebs cycle, substrates and products, general features of the pathway
3. Electron transport chain and oxidative phosphorylation, substrates and products, general features of the pathway
4. Metabolism of fats and proteins

Oxygen Containing Compounds

A. ALCOHOLS

1. Description
 - a. nomenclature
 - b. physical properties
 - c. infrared absorption of OH group
2. Important reactions
 - a. substitution reactions: S_N1 or S_N2 , depending on alcohol and derived alkyl halide
 - b. oxidation
 - c. pinacol rearrangement in polyhydroxyalcohols; synthetic uses
 - d. protection of alcohols
 - e. reactions with $SOCl_2$ and PBr_3
 - f. preparation of mesylates and tosylates
 - g. esterification
 - h. inorganic esters
3. General principles
 - a. hydrogen bonding
 - b. acidity of alcohols compared to other classes of oxygen-containing compounds
 - c. effect of chain branching on physical properties

Physics

Translational Motion

1. Units and dimensions
2. Vectors, components
3. Vector addition
4. Speed, velocity (average and instantaneous)
5. Acceleration
6. Freely falling bodies

Force and Motion, Gravitation

1. Center of mass
2. Newton's first law, inertia
3. Newton's second law ($F = ma$)
4. Newton's third law, forces equal and opposite
5. Concept of a field
6. Law of gravitation ($F = K_G m_1 m_2 / r^2$)
7. Uniform circular motion
8. Centripetal acceleration ($F = mv^2/r$)
9. Weight
10. Friction, static and kinetic
11. Motion on an inclined plane
12. Analysis of pulley systems
13. Force

Examining the Questions: Content Required

- Have you completed required courses?
- Review the downloaded content and compare to the content of at least two practice tests you completed.
 - You will know what to study
 - Do not rely on a miracle, but you must prioritize

MCAT Writing Sample Prompts

The AAMC provides the following examples of MCAT Writing Sample prompts for your information. These prompts are taken from past MCAT administrations, and will not be included in future administrations.

You will be given two Writing Sample prompts during the MCAT examination. Each consists of a topic statement (printed in bold) followed by instructions for three writing tasks. Your first task is to explain or interpret the topic statement. This does not vary across prompts. Instructions for the second and third writing tasks vary according to prompt. Be sure to follow the instructions for **all three tasks** when using this list for practice.

Examples

Politicians should vote according to their beliefs, without worrying about whether their constituents agree with those beliefs.

Write a unified essay in which you perform the following tasks. Explain what you think the above statement means. Describe a specific situation in which a politician should take into account the beliefs of constituents when voting. Discuss what you think determines whether politicians should vote according to their beliefs or those of their constituents.

Creative inspiration, rather than careful planning, often results in the best solution to a problem.

Write a unified essay in which you perform the following tasks. Explain what you think the above statement means. Describe a specific situation in which careful planning might result in the best solution to a problem. Discuss what you think determines whether creative inspiration or careful planning can best solve a problem.

Writing sample

You are given a statement expressing an opinion.

First, explain what you think this means.

Second, explore the meaning by considering a circumstance in which the statement might not apply or be true.

Third, discuss ways in which the conflict might be resolved.

Writing sample

1. Developing a central idea
2. Synthesizing concepts and ideas
3. Presenting ideas cohesively and logically
4. Writing clearly using good grammar, syntax and punctuation consistent with a timed, first draft

Writing Sample

- Two scores for each of two sections
 - Each evaluator awards a score of 1 to 6
- Sum of scores on two questions is converted to J to T scale (11 units on scores from 4 - 24)
- For example:
 - 3 & 3 on Part 1 and 5 & 6 on Part 2
 - Raw score of 17 converted to alphabetic to give distribution

Higgins's Recipe for MCAT Study

So how do I begin to study?

1. **Download Content!**
2. **Set up study schedule**
3. **Analyze Practice Tests**
4. **Textbooks !!!**
5. **Sample problems !!!**

**The most beneficial, helpful,
and useful thing you can do
to prepare.....**

Take practice tests under game conditions!

Practice MCATs at

- www.e-mcat.com

- Online

- www.aamc.org

- Online and paper for sale

- Sample questions in PDF manual

- Helpful site:

- <http://silenttimer.com/handbook/standardizedtest/mcat/index.php>*

Do I need a review course ?

**What is the value of review
course material?**

Study groups or solo?

When do you finally learn and understand something ?

When are you sure ?

Can you cover all of the content?

- What % of what you study will be on YOUR version of the exam?
- So you do the best you can with the study time you have left before test day
- Is your situation any different than that of other test takers?
- **Remember:** Our mission is to.....

**Don't let the
situation
confuse you...**



Study Schedule

Months before MCAT	% Time Content Study	% Time Practice Test
3 - 4	60 – 70	30 – 40
2 - 3	50	50
1 - 2	20	80
0 - 1	10	90*

** 50% of this time is Verbal Reasoning*

Weekly Schedule

Mon	Tues	Wed	Thurs	Fri	Sat - Sun
Rest	Take Biology Section	Analyze & Review	Take Physical Sciences Section	Analyze & Review	VR Sections & Review

Avoid bad habits...



Now we will

- Review of specific types of questions
- Strategies for attacking different types of questions in the different sections
- Leave time for individual consultation

Time / Question

Section	# of Questions	Time Allowed	Time/ Question
Physical Sciences	77	100 min	1.3 min or 78 sec
Verbal Reasoning	60	85	1.4 min or 86 sec
Writing	2	60	30 min
Biological Sciences	77	100	1.3 min or 78 sec

What to do with this information?

Make a table of questions completed by certain time points for each section!

Example:

Question #	Time elapsed
15	19.5 minutes
30	39 minutes
45	58.5 minutes
60	78 minutes
77	100 minutes

Attacking the Biological Sciences & Physical Sciences sections

- Questions associated with passages (62) and 15 stand alone questions
- Step One: There are FOUR (4) types of questions !

The Four Types of Questions:

- The answer:
 - is in the passage
 - is in the graph or table
 - must be recalled from your knowledge
 - must be arrived at by deductive or inductive reasoning

Always look at where you're going...



So now our strategy will be...

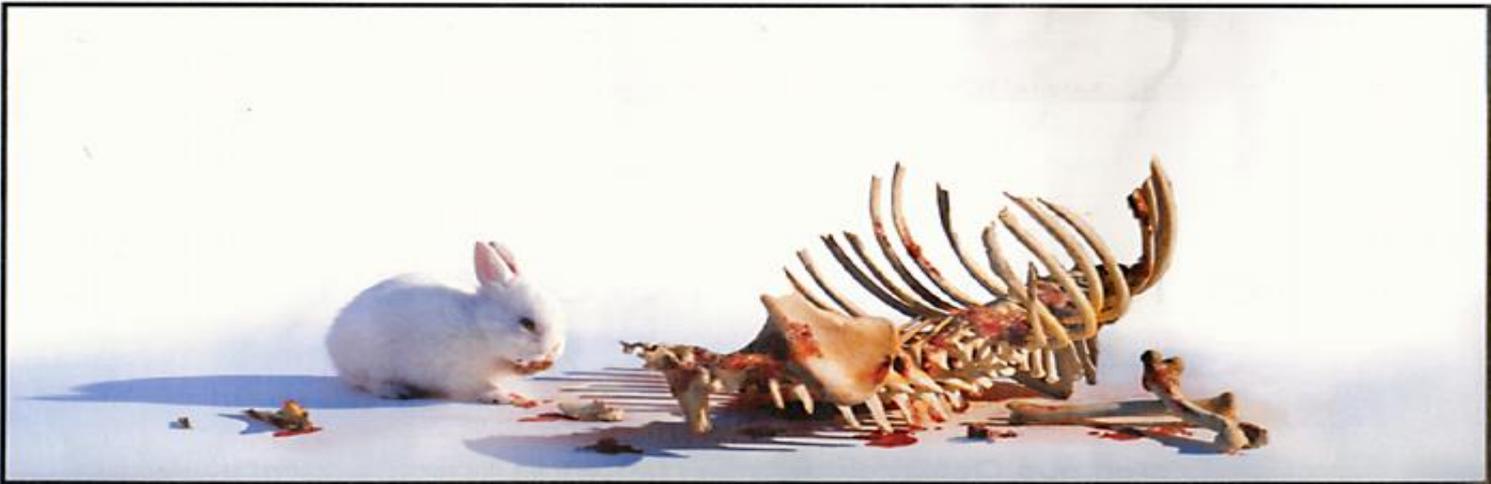
- For passages,
 - Skim / read the questions first
 - Label them as to type
 - Read the passage and data, looking for answers
 - Go back to questions and

**Do not look at the answers
until you have answered the
question if the answer isn't
in the passage or data!**

Other thoughts...

- Process of elimination when required
- Guessing is not penalized
 - Especially if the answer is not in the passage or data
- Keep up the pace
- Keep up the emotional energy
 - Example from 2000

**Always be ready for any
surprises in life...**



Verbal Reasoning

- Practice, practice, practice.....
- Keep up the pace or plod along?
 - Your personal strategy must be applied
- Remember when you can find the answer in the passage and when inference is required
- You must stay with it in practice and on the test!

Four possible strategies:

- Read passage, read & answer Q's going back to passages as necessary
- Skim & then read passage, then do Q's
- Skim, read Q's, read passage, do Q's
- Read Q's, read passage, do Q's

Writing Sample

Is it important?

Writing Sample Scores

Year	Applicants	Matriculants
1999	P	P
2000	P	P
2001	P	P
2002	P	P
2003	P	P
2004 - 2008	O	P

To get a score of P?

≥ 59.5 percentile

So what do you do now?

- Strunk & White, *The Elements of Style*
- Examine and analyze sample essays on web site
- Practice writing timed essays with your study group, each analyzing the work of the group after understanding the scoring and letting them lay dormant for a few days.

So what do you do now?

- Get a logic or rhetoric book and formally examine some structures for arguments.

Your Questions?

M.D. - Ph.D. Programs ?

M.D. - Ph.D. Programs

- **Everyone is different**
 - GRE ??
 - Admission to med school first or both simultaneously
 - Evidence of research aptitude is a real **MUST**
- **Personal contact with potential research advisers!!!!**
- **Options for clinical research**

What about post-bac programs?

- When are they recommended or required?
- Which ones are most beneficial?
- What are the outcomes?

Do they address the weaknesses in your appli