



HOW TO GET INTO MEDICAL SCHOOL

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DHS Health Careers Forum

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STATISTICS

- **129 allopathic** (M.D. granting) medical schools in the United States & **25 osteopathic** (D.O. granting) medical schools.
- For the allopathic medical schools:
 - Class size: ranges from **42** (Mayo) to **307** (UIC)
 - Average class size: **141**
 - Total med. school enrollment in 2007: **17,759**



STATISTICS

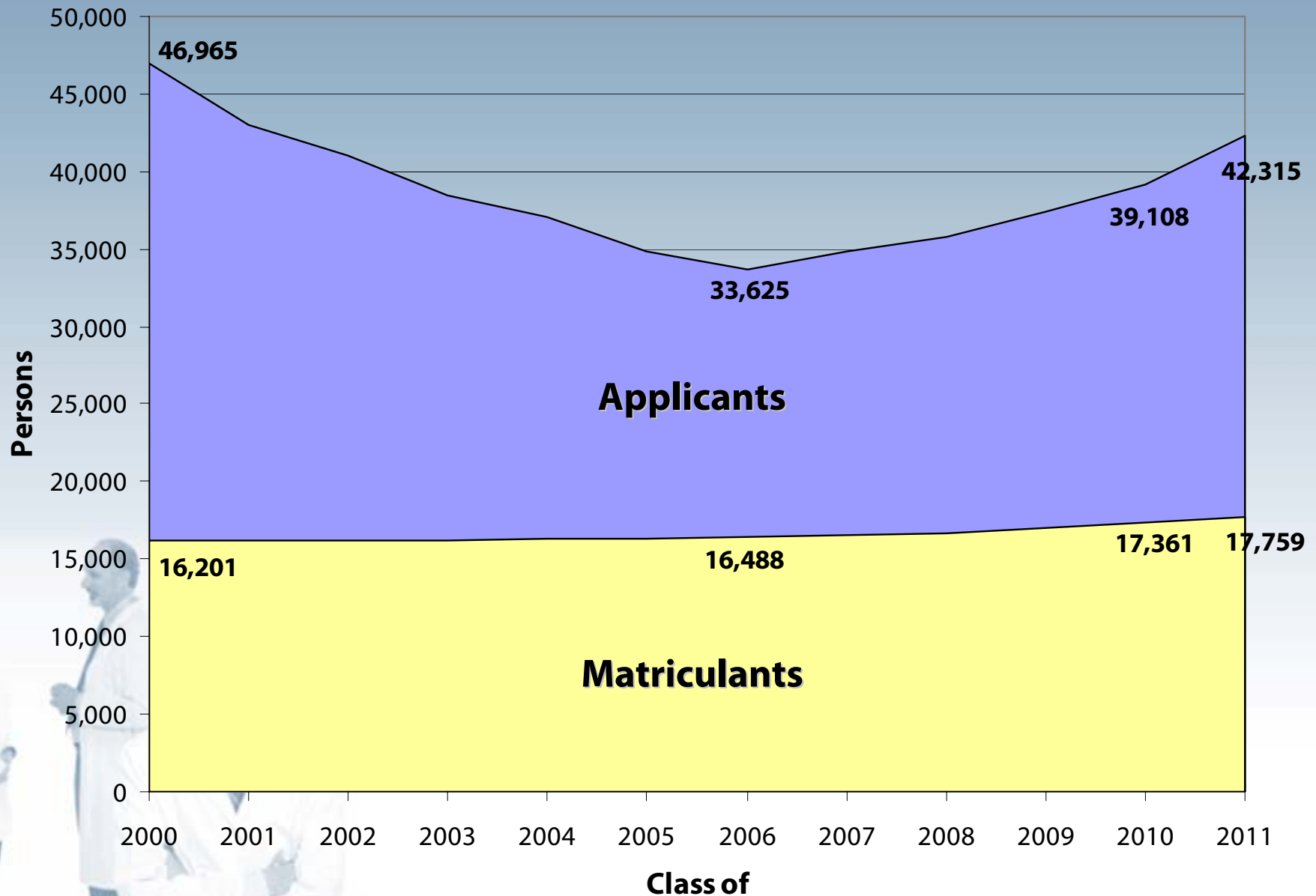


- For the entering class of 2007:
 - Number of applicants: **42,315**
 - Number of applications: **546,315**
 - Number of applications per applicant: **13**
 - Number of matriculants: **17,759**
 - Acceptance rate = **42.0%**

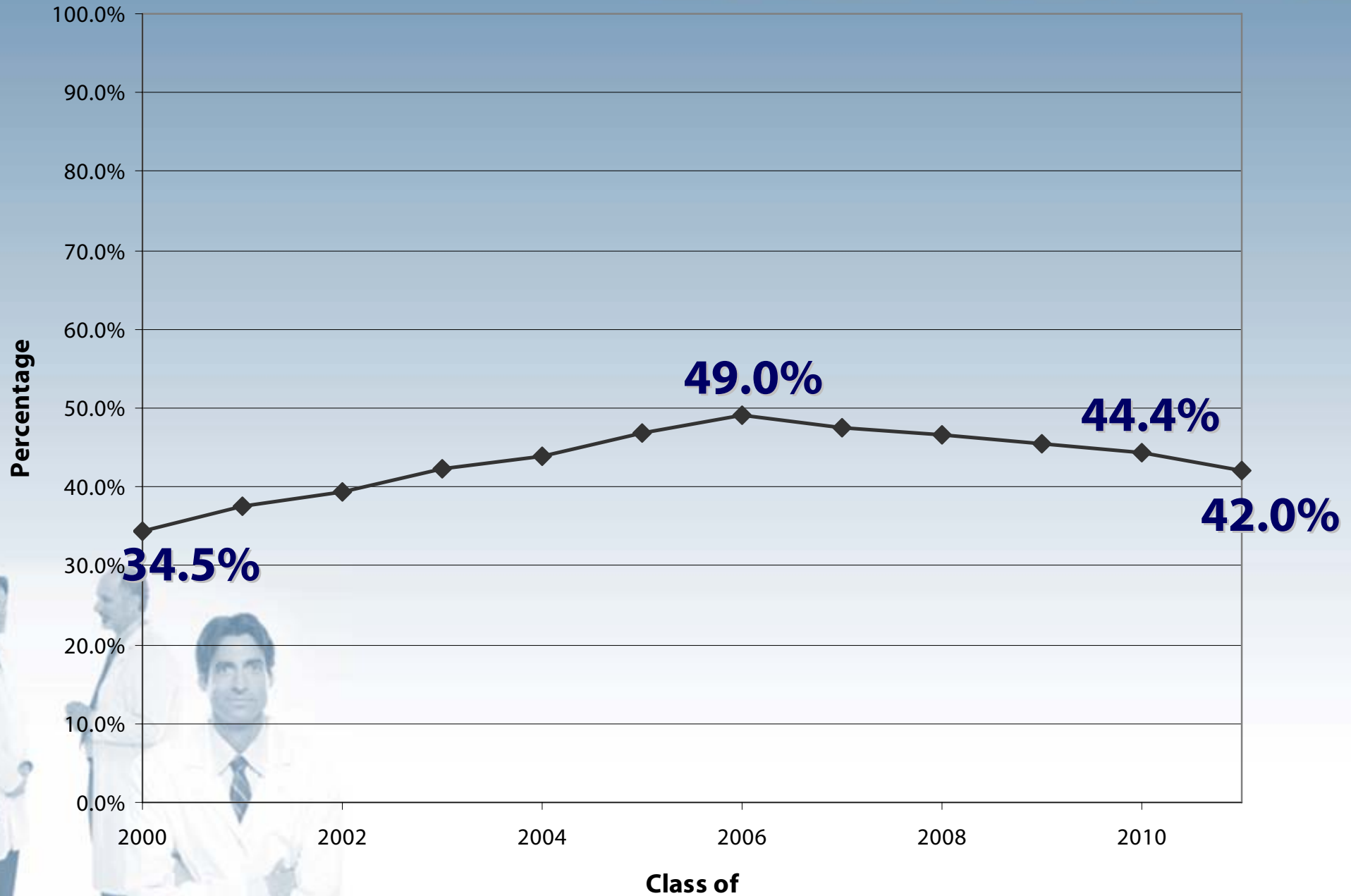
**The odds are against you
from the very beginning!**



APPLICANTS VS. MATRICULANTS, 1996-2007



ACCEPTANCE RATE, 1996-2007



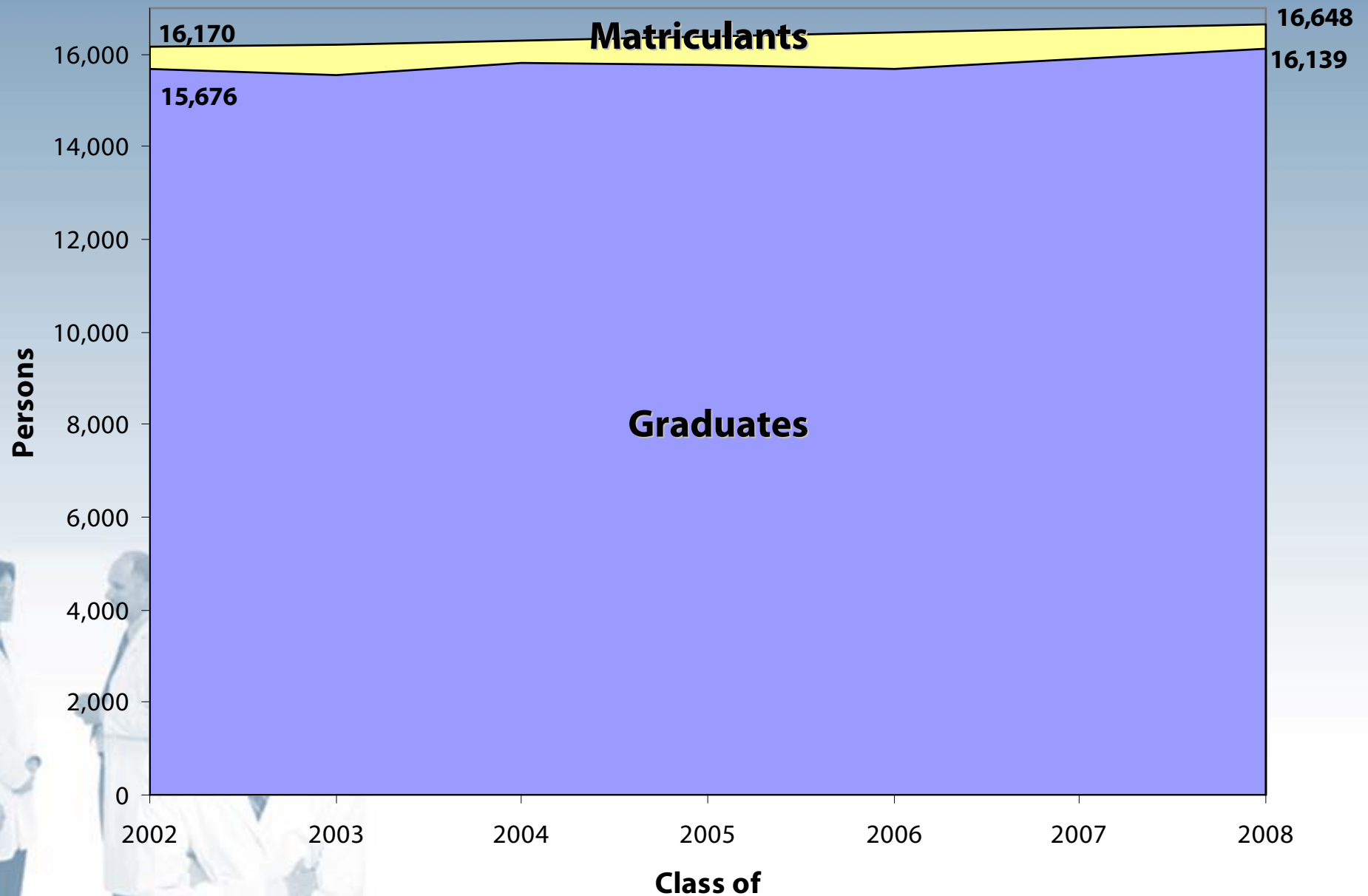
STATISTICS



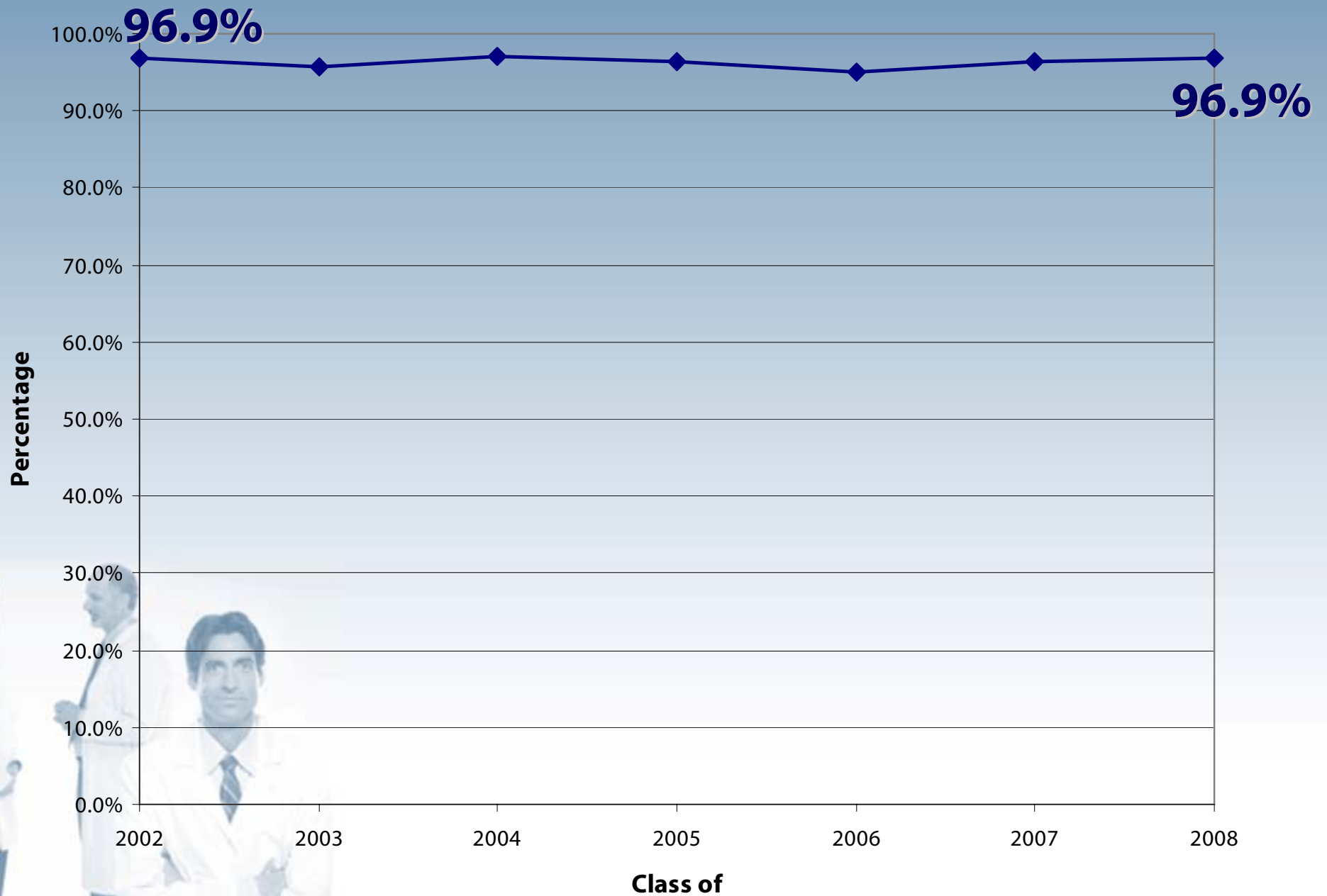
- For the *graduating* class of 2006:
 - Number of matriculants (in 2002) = **16,648**
 - Graduation rate = **96.9%**



MATRICULANTS VS. GRADUATES, 2002-2008



GRADUATION RATE, 2002-2008



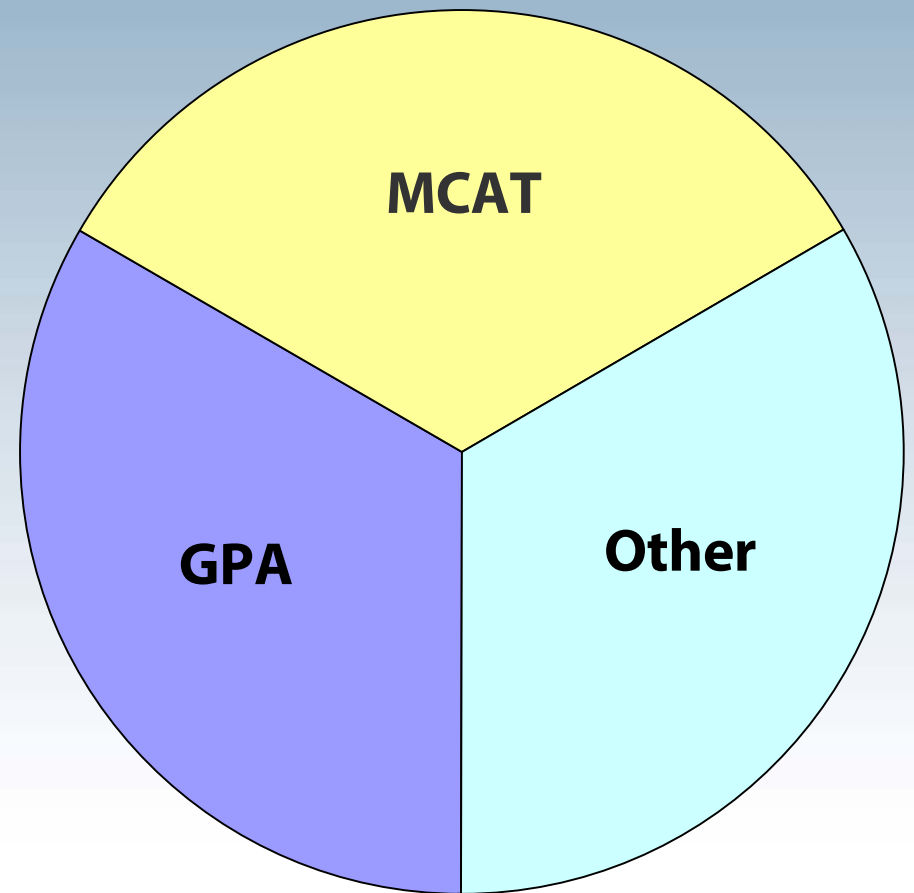
CONCLUSIONS

- The most competitive part of medical school is **getting in.**
- Once you've been accepted, the medical school will (almost) **try very hard to help you graduate.**
- Furthermore, the most conceptually difficult material you will have to study is **during your pre-medical years.**




YOUR APPLICATION

- The three big parts to your application:
 - Undergraduate GPA
 - MCAT Score
 - Everything else




UNDERGRADUATE GPA



- This is the *marathon* race of the application.
 - Reported as three scores:
 - **Overall GPA**
 - **BCPM** (Biology, Chemistry, Physics, Math)
 - **Other**
 - Your specific major *does not matter* as long as you take certain required courses.
- 


UNDERGRADUATE GPA



- Required courses:
 - **Biology** (2 semesters, with lab)
 - **Chemistry, Inorganic** (2 semesters, with lab)
 - **Chemistry, Organic** (1-2 semesters, with lab)
 - **Physics** (2 semesters, with lab)
 - **Calculus** (1 semester)
 - Recommended:
 - **Biochemistry** (1 semester)
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UNDERGRADUATE GPA




- **Goal:** aim for a B+ or above in *all* courses, especially the BCPM.
 - **Seek help** if you're struggling!
 - Tutors and professor's office hours
 - Study centers & test banks
 - Choose a major that **interests you.**
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UNDERGRADUATE GPA




Class of 2011:

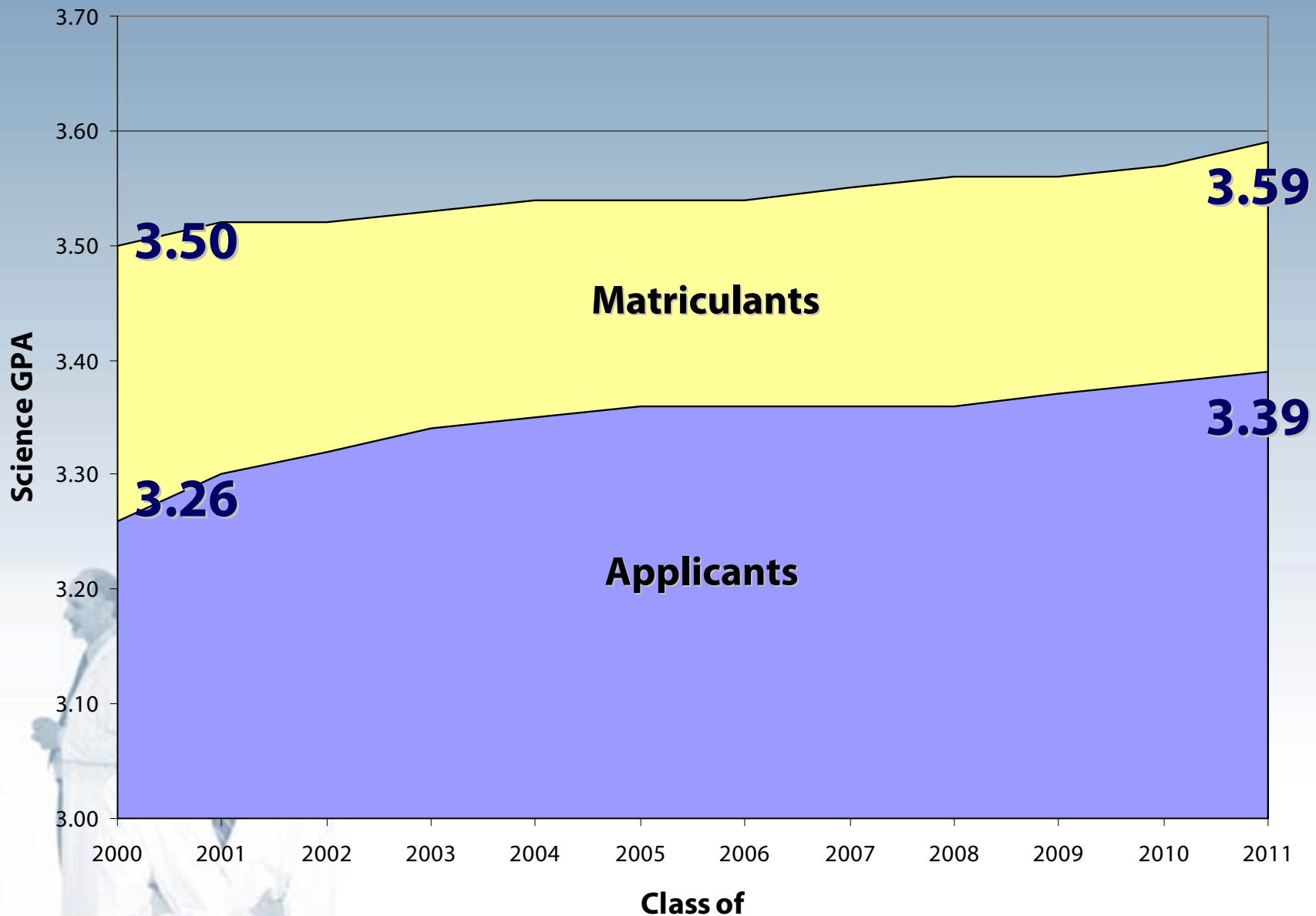
- **Biology (75)**
 - **Chemistry (38)**
 - **Psychology (21)**
 - **Biochemistry (16)**
 - **Medical Science (11)**
 - **Mathematics (4)**
 - **Physics (2)**
 - **Other science (12)**
 - **Engineering (31)**
 - **Non-science (48)**
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AVERAGE GPAs, 2007



- **Applicants:**
 - BCPM GPA: 3.39
 - Other GPA: 3.62
 - Overall GPA: 3.49
 - **Matriculants:**
 - BCPM GPA: 3.59
 - Other GPA: 3.73
 - Overall GPA: 3.65
- 

AVERAGE SCIENCE GPA, 1996-2007



THE MCAT

- **Medical College Admissions Test (MCAT)** is the *sprint* race of the admissions process.
- Computer-based examination given on 23 different dates throughout the year.
- It is “designed to assess problem solving, critical thinking, and writing skills in addition to the examinee’s knowledge of science concepts prerequisite to the study of medicine.”¹

¹American Association of Medical Colleges, <http://www.aamc.org>

THE MCAT

- **Four parts to the examination:**
 - **Physical Sciences** (52 questions, 70 minutes)
 - **Verbal Reasoning** (40 questions, 60 minutes)
 - **Writing Sample** (2 essays, 30 minutes/each)
 - **Biological Sciences** (52 questions, 70 minutes)
- Each M.C. section is scored on a scale from **1-15**.
- Your writing sample is given a letter value from **J-T**.
- The test will take you approximately **5 hours**.

THE MCAT

- **Goal:** aim for a 10+ on each section.
- **STUDY!** You only want to take the test once.
 - Give yourself about 3-4 months to study for this test.
 - Consider The Princeton Review, Kaplan, etc...
 - Practice tests! Practice tests!
- Remember the *basic concepts* you learned in your prerequisite science courses, and *don't memorize*.
- It's a *passage-based examination*.



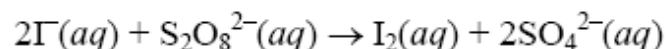
THE MCAT



Physical Sciences Example

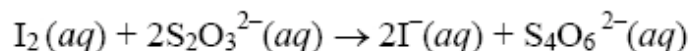
Passage III

A group of students measured the relative rate of Reaction 1 under various conditions.



Reaction 1 (slow step)

The students measured the amount of time that passed until a fraction (X moles) of the $\Gamma(aq)$ was converted into $I_2(aq)$ by adding the corresponding amount of $Na_2S_2O_3(aq)$ to react with the $I_2(aq)$, as shown in Reaction 2.



Reaction 2 (fast step)

They used starch as an indicator to detect the excess $I_2(aq)$ that accumulated when the $S_2O_3^{2-}(aq)$ was used up. The solution turned dark blue when starch and $I_2(aq)$ combined.

13. The effect of temperature on the rate of the reaction can best be determined by comparing Tube 5 with which of the following tubes?
- A) Tube 2
 - B) Tube 3
 - C) Tube 4
 - D) Tube 6
14. The results in Table 1 would most likely NOT be affected if the students had added *excess*:
- A) $KI(aq)$ to Solution A.
 - B) $Na_2S_2O_3(aq)$ to Solution A.
 - C) $(NH_4)_2S_2O_8(aq)$ to Solution B.
 - D) starch to Solution B.
15. In Tube 6, what is the most likely function of $CuSO_4(aq)$?
- A) Reactant
 - B) Indicator
 - C) Inhibitor
 - D) Catalyst

THE MCAT



Verbal Reasoning Example

Passage V

Literary historians tell two stories about the novel in America before the Civil War. First, the Puritan tradition, enhanced by Scottish common sense philosophy, created an atmosphere hostile to fiction. Second, the sparseness of American social life made conventional novels difficult, even impossible, to write. These two narrative strands led to a single conclusion. The would-be American novelist before the Civil War was drawn, or forced, toward a literary form better suited to American imaginative space: the romance, created in an ambience of isolation, alienation, defiance, and apology that left its traces in the work.

This powerful critical myth, which at least since the 1950s has controlled our understanding of the novel in America, does not hold up well under empirical investigation. For one thing, expressed hostility to fiction was no less strong in England than in America; much of what Americans wrote and said about novels was derived from sources written in the British Isles. Scottish common sense philosophy

A survey of 21 major American periodicals published during all or part of this period, including the five mentioned above, reveals more than two thousand reviews of eight hundred separate novels, about half of them American in origin. The reviews ranged in length from a single sentence in an omnibus review article to articles of many pages devoted to a single book. More often than not, American novels were received warmly by reviewers; in fact, those on magazine staffs who set themselves up as guardians of critical integrity complained about indiscriminate puffery among reviewers rather than the opposite. Of course a review does not necessarily represent the notions of anybody except its author, and even many congruent reviews may express only the opinions of a particular group of interested people. But perusing reviews from this period reveals that novel reviewing was conducted in constant awareness of what people were reading, and was directed toward trying to understand the reasons for public preferences. The reviews offer guidance and correction in a way that suggests reviewers had a fairly precise idea of what they were guiding and correcting.

The small number of American fiction writers

THE MCAT



Biological Sciences Example

Passage I

Bone consists of a hard mineral portion (mostly calcium), together with an organic, collagen-like matrix. Bone tissue contains about 99% of the body's calcium. Throughout life, bone is continuously resorbed and reformed—a process intimately related to the maintenance of an adequate level of calcium in the blood plasma. Some important agents that affect this process are:

Parathyroid hormone, which acts on bone tissue to encourage the formation and activity of osteoclasts (which break down bone cells) and to impair new bone formation.

Vitamin D, which in its activated form functions like a hormone. This nonpolar compound acts on the small intestine to stimulate absorption of calcium and also on bone tissue to enhance the effect of parathyroid hormone. It can be obtained from the diet or by the action of ultraviolet light on the skin.

Calcitonin, which decreases bone resorption.

140. Which of the following conditions could produce rickets?
- Metabolic deficiency of parathyroid hormone
 - Impairment of conversion of vitamin D to its active form
 - Inability of the active form of vitamin D to act on its target tissue
- A) I only
B) I and II only
C) I and III only
D) II and III only
141. Why do calcium supplements often include vitamin D?
- Vitamin D is needed to prevent rickets.
 - The activated form of vitamin D stimulates the absorption of calcium into the blood.
 - The activated form of vitamin D enhances the action of calcitonin.
 - The activated form of vitamin D enhances the uptake of calcium by bone tissue.

AVERAGE MCAT SCORE, 2007

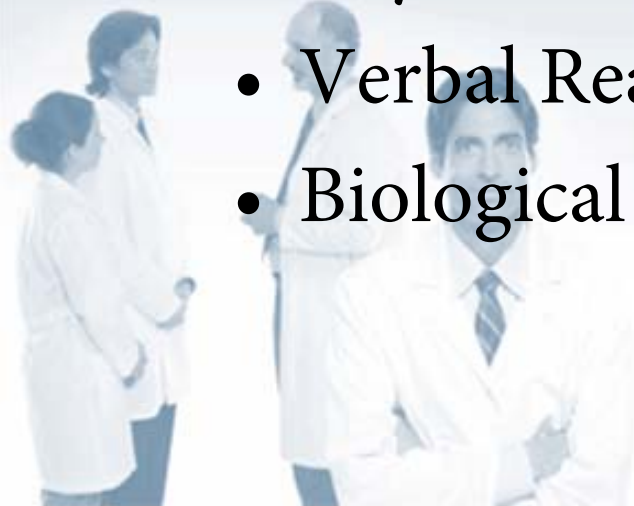


- **Applicants:**

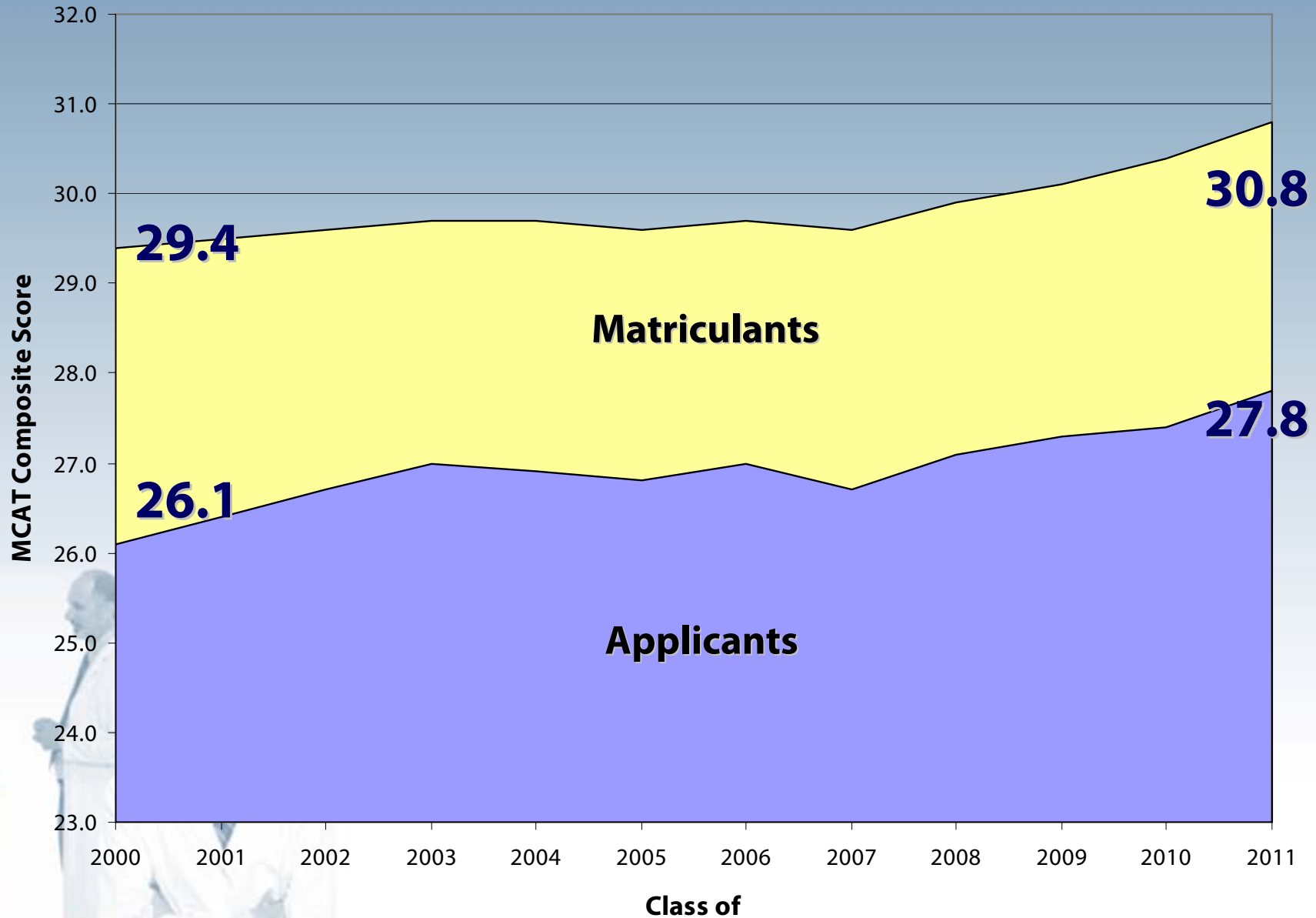
- Physical Sciences: 9.2
 - Verbal Reasoning: 9.0
 - Biological Sciences: 9.6
- } **27.8**

- **Matriculants:**

- Physical Sciences: 10.6
 - Verbal Reasoning: 9.9
 - Biological Sciences: 10.3
- } **30.8**



AVERAGE MCAT SCORE, 1996-2007




EVERYTHING ELSE



- The most overlooked, yet *very* important, part of your application.
- The admissions committee looks at this section to see if you have **personality** and a **commitment to medicine**.
- **Three** big parts: extracurricular activities, letters of recommendation & your personal statement.

EXTRACURRICULAR ACTIVITIES



- **Clubs:** volunteering organizations, religious affiliations, political groups, hobby clubs.
 - **Sports:** at any level (almost...)
 - **Jobs:** full and/or part time.
 - **Volunteering:** health or non-health related.
 - **Research:** presentations & publications
 - **Awards / Honors:** If not already mentioned above.
- 

LETTERS OF RECOMMENDATION

- Between 3-6 letters of recommendation (LoR)
 - **School specific:** science, non-science, personal
- Obtain LoRs from **professors**, *not* TAs.
 - Harder to do at a big University, but still possible.
 - Make yourself known! Go to office hours.
- Ask for LoR *immediately following* the conclusion of a course.
- Committee Letter vs. Individual Letters



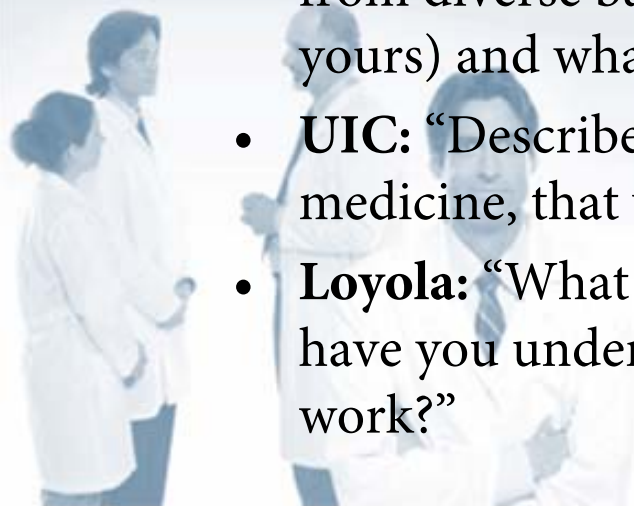
PERSONAL STATEMENT



- One essay on the *primary* application:
 - “Discuss your motivation for a career in medicine.”
 - Limit: 5,300 characters (approximately 1.5 pages, single spaced)
 - This essay crafts a person out of your numbers.
 - Approximate time spent reading the essay: 2-3 minutes. *Make a great impression.*

SECONDARY ESSAYS



- Each school's *secondary application* may contain between **zero** and **ten** individual questions/essays to answer.
 - **Case Western:** “Please describe an experience or situation which you found personally challenging and discuss how it helped to shape you as a person.”
 - **Northwestern:** “Describe the top 3 distinguishable characteristics (non-academic) you possess and tell us how you think these characteristics will enhance your success as a medical student and future physician.”
 - **Wayne State:** “Describe a noteworthy experience you have had with others from diverse backgrounds (persons from backgrounds different than yours) and what you learned from that experience.”
 - **UIC:** “Describe a hobby, interest, or activity other than something in medicine, that you are passionate about or love. Why?”
 - **Loyola:** “What self-education, research, or independent scholastic work have you undertaken and what do you feel you have accomplished in this work?”
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THE INTERVIEW



- The final hurdle to cross is the *in-person interview*.
 - ~10% of applicants are offered an interview.
 - ~50% of interviewees are accepted.
- 1-3 interviews (1-on-1, panel, group) are used to see if a candidate has motivation, personality and commitment to medicine.



TIMELINE: FRESHMAN YEAR²

- **First Semester**
 - Meet prehealth advisor & investigate prehealth program.
 - Successfully complete first-semester required premedical coursework.
- **Second Semester**
 - Identify summer paid/volunteer medically related opportunities
 - Successfully complete second-semester required premedical coursework.
- **Summer**
 - Complete summer paid/volunteer medically related experience
 - Attend summer school, if desired or necessary

TIMELINE: SOPHOMORE YEAR²

- **First Semester**
 - Investigate available volunteer/paid medically related clinical or research activities .
 - Successfully complete required premedical coursework.
- **Second Semester**
 - Participate in paid/volunteer medically related clinical or research activities
 - Identify summer paid/volunteer medically related opportunities
 - Successfully complete required premedical coursework
- **Summer**
 - Complete summer paid/volunteer medically related experience
 - Participate in a summer health careers program, if available
 - Attend summer school, if desired or necessary

TIMELINE: JUNIOR YEAR²

- **First Semester**
 - Begin preparation and register for desired MCAT administration.
 - Successfully complete required premedical coursework.
- **Second Semester**
 - Start researching specific medical schools.
 - Take the earliest MCAT administration as possible. (April/May).
 - Successfully complete required premedical coursework.
 - Finalize personal statement and prepare AMCAS application.
- **Summer**
 - Take the MCAT if not already done so.
 - Submit the AMCAS application *as soon as possible*.
 - Complete secondary applications as quickly as possible.

²Adapted from Application & Admission Timeline, AAMC, <http://www.aamc.org/students/considering/timeline.htm>

TIMELINE: SENIOR YEAR²



- **First Semester**

- Continue academic studies.
- Interview at desired medical schools.

- **Second Semester**

- Continue interviewing at desired medical schools.
- Take the earliest MCAT administration as possible. (April/May).
- Decide on a medical school to attend.
- Graduate. 😊

- **Summer**

- Relax – you deserve it!
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²Adapted from Application & Admission Timeline, AAMC, <http://www.aamc.org/students/considering/timeline.htm>

ONLINE RESOURCES



- American Association of Medical Colleges (<http://www.aamc.org>)
 - American Association of Colleges of Osteopathic Medicine (<http://www.aacom.org>)
 - The Princeton Review (<http://www.princetonreview.com>)
 - Kaplan Test Preparation (<http://www.kaplan.com>)
 - The Student-Doctor Network (<http://www.studentdoctor.net>)
 - MDApplicants (<http://www.mdapplicants.com>)
 - MDPotential (<http://mdpotential.com/>)
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