- What does the MCAC do?
- Do I need the MCAC?
- How do I get to medical (dental, optometry, etc.) school?
- How do I become pre-med?
- Where do I get reliable information?
- What do I need to apply?
- Am I a good candidate for medical school?
- What courses do I need?
- Do I have to be a biology major?
- Do minors help?
- Do I need to shadow more than one doctor?
- Do I need research?
- When should I get started?
- What are my chances of getting in?
- How important is the MCAT?
- Is the GPA more important than the MCAT?
- Does my major matter at all?
- Is my C in Orgo going to keep me out of medical school?
- What is the minimum GPA to apply? Is there a minimum MCAT to apply?
- MD vs DO?
- Can you start at the beginning?
- What is medical school exactly?
- What can I do support my child?
- **Can you talk to my parents?***
- How long should I study for the MCAT?
- Should I take an MCAT prep course?
- When should I take the MCAT?
- I want to stay (or leave) NJ?
- Which schools? How many?
- Does it help to be in state?
- When should I apply? Early decision?
- Is it better to apply early?
- How many letters of recommendation?
- Who gets a composite letter?
- What happens if I don't get a composite letter?
- What are my chances of getting in?
- Should I take the MCAT again?
- Should I apply to MD, MD and DO, or DO only?
- What happens if I apply later in the cycle?
- When should I think about a gap year(s)?
- When will I know if/when I get in?
- If I'm on the waitlist does it mean I'll get in?
- What happens if I don't get in?
- Are post-bac programs worth it?
- Are there scholarships for medical school?
- What is your opinion on Caribbean medical schools?
- Should I just plan for a gap year or two?
- Could you explain application and matriculation requirements?

Advising for Parents, Students, and Family

Supporting students interested in medical careers

Can I get this presentation?

- PDF will be available on the MCAC website
  - **https://mcac.tcnj.edu/**
  - Google “TCNJ MCAC”
- MCAC home
  - Events and Workshops
  - Scroll down to the link for PDF
  - All links active

Medical Careers Advisory Committee (MCAC)

MCAC Chair

- Sudhir Nayak, PhD
- Professor of Biology
- ≅20 years at TCNJ

Allied Health Advisor

- Mitch Sitnick, PhD
- Clinical Lecturer
- >5 years Allied Health advising

MCAC Administrative Support

- Ms. Helen Kull
- General Advisor, Program Assistant, and Knower of Things
- Department of Biology
- ≅20 years at TCNJ

MCAC vs Allied Health at TCNJ

- **MCAC aka “med careers” (Dr. Nayak)**
  - Allopathic, osteopathic, podiatry, dental, optometry
    - **MD**, **DO**, DPM. DMD/DDS, OD
      - Typically take MCAT, DAT, or OAT exams
    - Genetic counseling
      - Typically take GRE
    - DVM/VMD (vet)
      - Typically take GRE
- **Allied Health (Dr. Sitnick)**
  - Physicians assistant, physical therapist, occupational therapist, nursing / accelerated nursing, speech-language pathologist, and several others.
    - PA, PT, OT, RN/NP/DNP
      - Typically take GRE or PA-CAT exams

Outline (time permitting)

- Introduction
  - Why am I doing this?
- Part I - What is medical school?
- Part II - Medical school requirements
- Part III - Common mistakes
- Part IV - Who gets in?
- Part V - The MCAT and timeline
- Part VI - Medical school is expensive
- **Don’t feel like you have to stay for the entire thing!**

Why this presentation?

- To get the best outcomes, **the family has to be part of the process**
  - Parents/guardians need to be aware of the expectations, process, stress, and time commitment
  - Share a common language for discussion
  - Shared validated resources
- **Students asked me to do it**
  - Explain what medical school involves, the overall process, misconceptions, misunderstandings, and misinformation

Part I - What is medical school?

- **Start -> board certification**
  - Types of medical school
  - Curriculum
- What happens during each year?
  - Important exams
  - When do I become a doctor?
- Why the MCAT matters
- Residency match


The short white coat length indicates completion of medical school.
30”
Residents and non-attending Fellows wear a mid-length white coat.
34”
Fake
Attendings & Fellows hit just above or at the knee.
40”
Longer length for licensed physicians.
44”

Types of medical school

- **Allopathic** -> Doctor of Medicine (**MD**)
  - US: 147* schools
  - International (Caribbean): 4-5 major schools
- **Osteopathic** -> Doctor of Osteopathic Medicine (**DO**)
  - US: 41* schools
- **Both paths lead to licenced doctors**
  - Pass a series of licencing exams
  - Recognized internationally

MD (Allopathic) vs DO (Osteopathic)

- MD is a Doctor of Medicine
  - ≅75% of medical degrees
  - 24 months in the classroom* + remainder in clinical training
- DO is a Doctor of Osteopathic Medicine
  - ≅25% of medical degrees
  - 24 months in the classroom* + remainder in clinical training
  - 81% increase in 10 years
- **As of 2020 they apply to the same residency programs**

International medical schools?

- AKA Caribbean medical programs
- US MD residency match: **93.5% (92-95%)**
  - NJMS: 100%, RWJMS: 97%, HMSOM: 90%
- US DO residency match: **92.3% (89-93%)**
  - Rowan SOM: 99.5%
- International MD programs **80% (58-99%)**
  - **St. George's University: 95%**
    - Higher attrition rates but solid match rates
    - Residency match profile similar to DO

MD (Allopathic) -vs- DO (Osteopathic)

- Differences
- Philosophy
  - >60% of DO graduates are in primary care
    - Pediatrics, family medicine, internal medicine, etc.
  - <30% of MD graduates are in primary care
- Criteria for acceptance
  - MD: More selective for MCAT, GPA, and advanced coursework
  - DO: Select for students with interest in primary care
    - Less emphasis on GPA, MCAT, more tolerant of early low grades

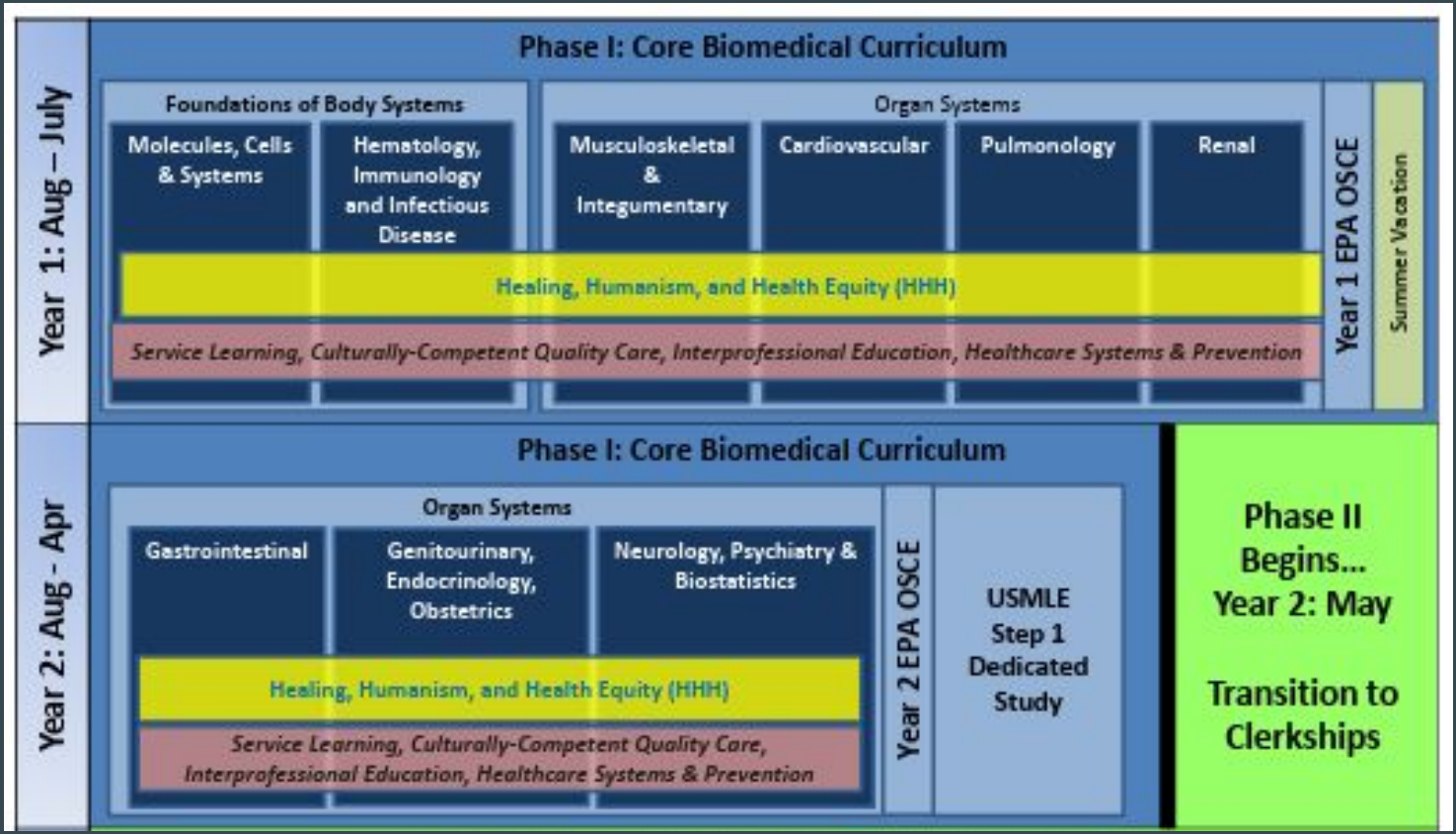
What is medical school?

- Medical school: 4 years* post college
  - **Preclinical / theory**
    - Two years of science, basic medical concepts, structure / function, diseases, diagnoses, and treatment concepts
  - **Clinical / practical**
    - Two years of practicing being a doctor, clinical rotations, hands-on experience with patients

The medical school curriculum

- Common structures years 1 and 2
  - Blocks / units of information
  - Cross cutting themes
    - Humanism, empathy, service, health disparities, advocacy, scholarship, science based medicine, etc.
    - Introductory clinical experiences
- Rotations / clerkships years 3 and 4
  - Required and elective
- Lots and lots of exams

NJMS


Year 1: Aug – July
Phase I: Core Biomedical Curriculum
Foundations of Body Systems
Molecules, Cells & Systems
Hematology, Immunology and Infectious Disease
Organ Systems
Musculoskeletal & Integumentary
Cardiovascular
Pulmonology
Renal
Healing, Humanism, and Health Equity (HHH)
Service Learning, Culturally-Competent Quality Care, Interprofessional Education, Healthcare Systems & Prevention
Year 1 EPA OSCE
Summer Vacation
Year 2: Aug - Apr
Phase I: Core Biomedical Curriculum
Organ Systems
Gastrointestinal
Genitourinary, Endocrinology, Obstetrics
Neurology, Psychiatry & Biostatistics
Healing, Humanism, and Health Equity (HHH)
Service Learning, Culturally-Competent Quality Care, Interprofessional Education, Healthcare Systems & Prevention
Year 2 EPA OSCE
USMLE Step 1 Dedicated Study
Phase II Begins… Year 2: May
Transition to Clerkships

Rowan SOM

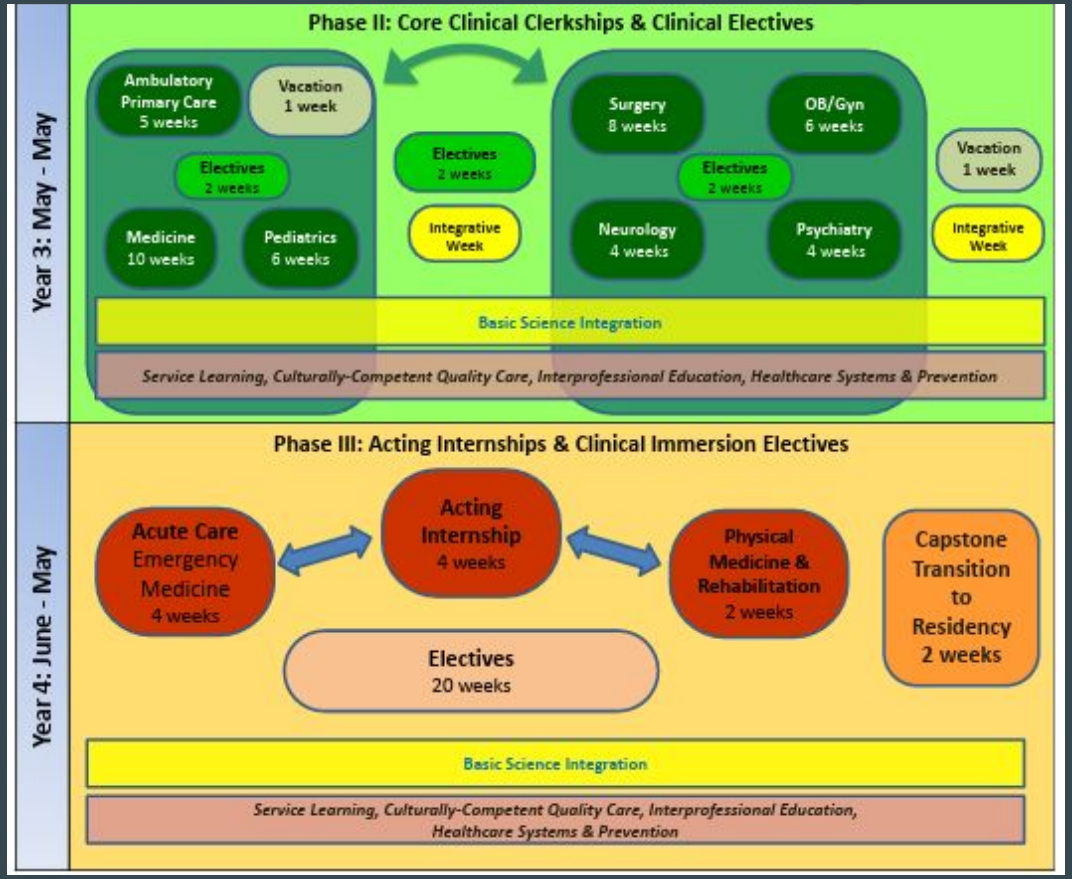
Year One — Fall 2024

Weeks	Dates	Curriculum			
0	*7/15 - 7/19*	Orientation			
1 - 5	*7/22 - 8/23*	SGL Osteopathic Clinical Skills 1A	Integrated Musculoskeletal Anatomy		
6 - 9	*8/26 - 9/20*	SGL Osteopathic Clinical Skills 1A	Biomedical Foundations		
10	*9/23 - 9/27*	Community Service Learning Leadership & Stewardship/ Medical Scholarship			
11 - 15	*9/30 - 11/1*	SGL Osteopathic Clinical Skills 1A	Biomedical Foundations	Community Service Learning/Leadership 1A	Medical Scholarship
16 - 18	*11/4 - 11/22*	SGL Osteopathic Clinical Skills 1A	Rheumatology & Dermatology	Community Service Learning/Leadership 1A	Medical Scholarship
19 - 21	*11/25 - 12/13*	SGL Osteopathic Clinical Skills 1A	Brain & Behavior A	Community Service Learning/Leadership 1A	Medical Scholarship
22	*12/16 - 12/20*	BRIDGE 1A			
23 - 24	*12/23 - 1/3*	Vacation			

Year Two — Fall 2024

Weeks	Dates	Curriculum			
1 - 11	*7/15 - 9/27*	SGL Osteopathic Clinical Skills 2A	Hematology, Pulmonology & Nephrology	Community Service Learning/Leadership 2	Medical Scholarship 2
12 - 18	*9/30 - 11/15*	SGL Osteopathic Clinical Skills 2A	Endocrinology & Reproduction	Community Service Learning/Leadership 2	Medical Scholarship 2
19 - 23	*11/18 - 12/20*	SGL Osteopathic Clinical Skills 2A	Gastroenterology & Nutrition A	Community Service Learning/Leadership 2	Medical Scholarship 2
24 - 25	*12/23 - 1/3*	Vacation			

NJMS


Year 3: May - May
Phase II: Core Clinical Clerkships & Clinical Electives
Ambulatory Primary Care 5 weeks
Vacation 1 week
Electives 2 weeks
Medicine 10 weeks
Pediatrics 6 weeks
Electives 2 weeks
Integrative Week
Surgery 8 weeks
OB/Gyn 6 weeks
Electives 2 weeks
Neurology 4 weeks
Psychiatry 4 weeks
Vacation 1 week
Integrative Week
Basic Science Integration
Service Learning, Culturally-Competent Quality Care, Interprofessional Education, Healthcare Systems & Prevention
Year 4: June - May
Phase III: Acting Internships & Clinical Immersion Electives
Acute Care Emergency Medicine 4 weeks
Acting Internship 4 weeks
Physical Medicine & Rehabilitation 2 weeks
Capstone Transition to Residency 2 weeks
Electives 20 weeks
Basic Science Integration
Service Learning, Culturally-Competent Quality Care, Interprofessional Education, Healthcare Systems & Prevention

Rowan SOM

Clinical Year 2023-2024 (OMS-III)		
Weeks	Dates	Clerkship
1 - 8	5/1/23 - 5/28/23	Internal Medicine
	5/29/23 - 6/25/23	Internal Medicine
9	6/26/23 - 7/2/23	HSS 2
10 - 13	7/3/23 - 7/30/23	Pediatrics
14 - 17	7/31/23 - 8/27/23	Obstetrics/Gynecology
18 - 21	8/28/23 - 9/24/23	Geriatrics
22-25	9/25/23 - 10/22/23	Psychiatry
26 - 29	10/23/23 - 11/19/23	NeuroMuscular Pain Management/ Osteopathic Manipulative Medicine
30 - 33	11/20/23 - 12/17/23	IM Selective
34 - 35	12/18/23 - 1/1/24	Vacation
36 - 43	1/2/24 - 1/28/24	Surgery
	1/29/24 - 2/25/24	Surgery/Community Service Learning & Leadership
44 - 51	2/26/24 - 3/24/24	Family Medicine
	3/25/24 - 4/21/24	Family Medicine
52 - 53	4/22/24 - 5/5/24	Bridge Weeks
*Schedules subject to change		

Made with VISME

Clinical Year 2023-2024 (OMS-IV)		
Weeks	Dates	Clerkship
1 - 8	5/8/23 - 7/2/23	COMLEX II
9 - 12	7/3/23 - 7/30/23	Emergency Medicine
13 - 16	7/31/23 - 8/13/23	ICU/PICU/NICU
17 - 20	8/14/23 - 9/10/23	Elective
21 - 24	9/11/23 - 10/8/23	Elective
25 - 26	10/9/23 - 10/22/23	Flex
27 - 30	10/23/23 - 11/19/23	Elective
31 - 34	11/20/23 - 12/17/23	Elective
35 - 36	12/18/23 - 12/31/23	Flex
37 - 40	1/1/24 - 1/28/24	Sub-Specialty
41 - 42	1/29/24 - 2/11/24	Flex
43 - 46	2/12/24 - 3/10/24	Elective
47 - 48	3/11/24 - 3/24/24	Flex
49 - 50	3/25/24 - 4/7/24	Transition to Residency
51 - 52	4/8/24 - 4/21/24	Flex
53	5/6/24 - 5/10/24	Commencement
*Schedules subject to change		

Made with VISME

What happens in medical school?

- First year (M1 or MS1)
  - You have to learn everything from basic science to disease
    - Learning = **“Drinking out of a fire hydrant”**
- **Development of soft skills BEFORE entry is critical**
  - Time management, working with others, mental health
- Pass/fail at most schools
  - **5-10% fail to progress M1 to M2 or drop out**
    - The M1 repeat is not free and looks really bad
    - Higher at Caribbean schools

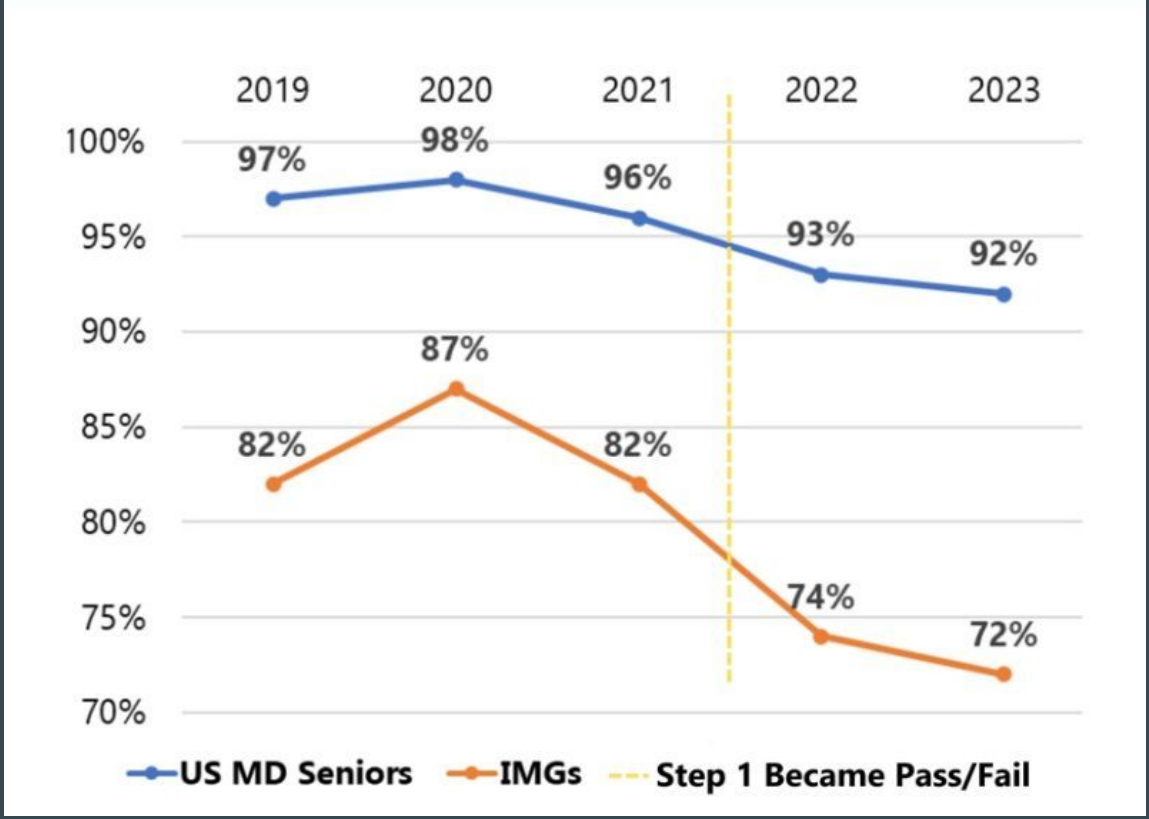
What happens in medical school?

- Second year (M2 or MS2)
  - Major exams (timing varies)
    - MD: United States Medical Licensing Examination (**USMLE**) Step 1
    - DO: Comprehensive Osteopathic Medical Licensing Examination of the United States (**COMLEX-USA**) Level 1
  - **“Makes the MCAT look like middle school work”**
- You can't move on unless you pass the Step 1 or Level 1 exams
  - **Nationally 5-10% fail Step 1/Level 1**
  - Generally higher fail rates at international schools

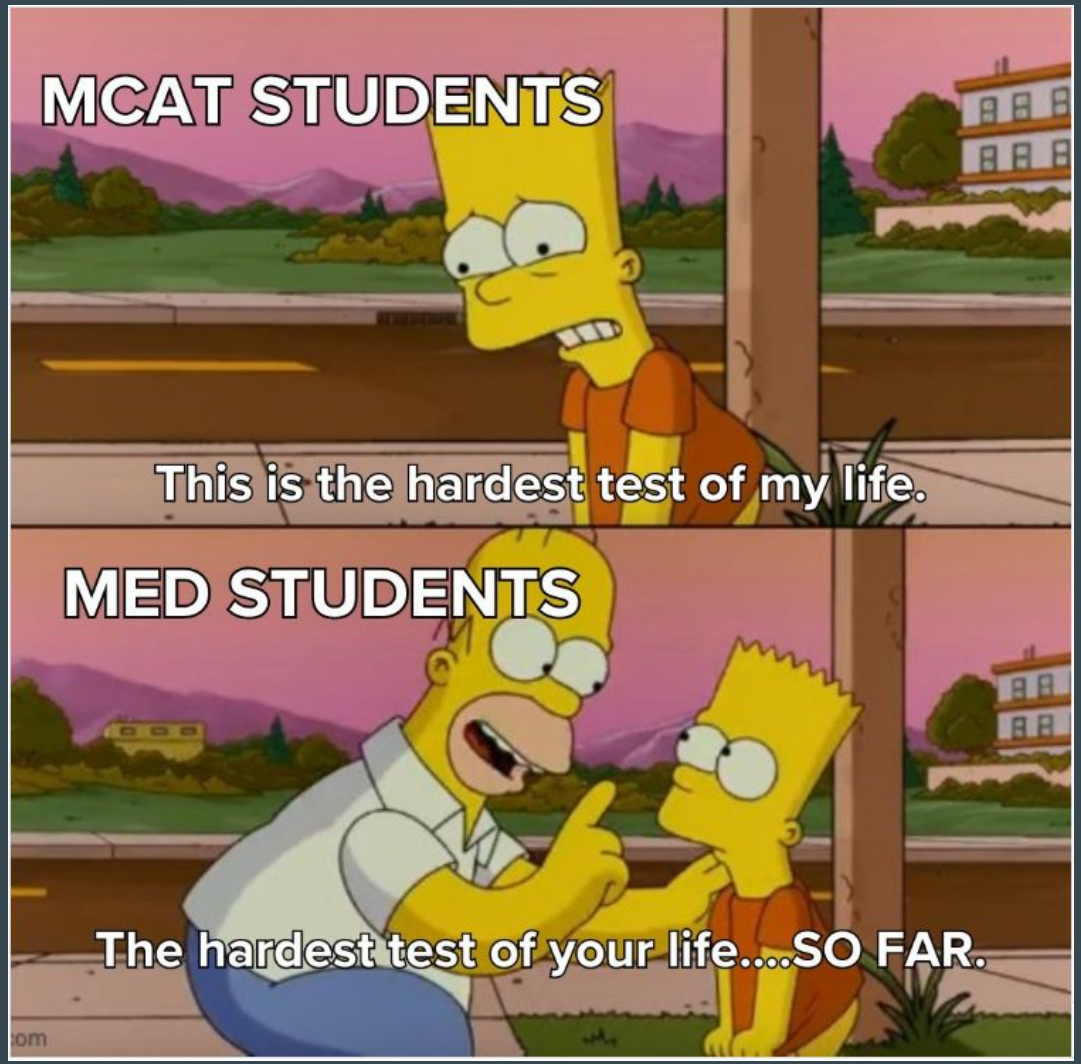
Why the MCAT matters

- Higher MCAT scores are associated with multiple positive predictors of performance
  - **Higher pass rates on the USMLE Step 1 exam**
  - Lower repeat rates for M1 and M2
  - Lower rates of remedial work between M1 and M2
  - Matching to competitive residencies BUT not performance in residency
- **The correlation is not perfect but it is significant**
  - MCAT and USMLE Step 1 scores ($r = 0.35\text{-}0.45$, $P < 0.01$)

USMLE Step 1 pass rates



USMLE Step 1


MCAT STUDENTS
This is the hardest test of my life.
MED STUDENTS
The hardest test of your life....SO FAR.

What happens in medical school?

- Third year (M3 or MS3)
  - Learn to care for patients
    - Spend A LOT of time in the hospital / clinic
      - Assist physicians, interact with faculty and staff, observation
- **Start rotations** : Internal medicine, family medicine, general surgery, psychiatry, neurology, pediatrics, ob/gyn, and emergency medicine

What happens in medical school?

- **Shelf exams (rotation exams)**
  - Core rotations vs optional rotations (aka clerkships)
- Major third year exams
  - **USMLE Step 2** and **COMLEX-USA Level 2**
    - Clinical knowledge, diagnosis, patient care, etc.
  - **5-10% do not pass Step 2 / Level 2**
    - Looks really bad to residency programs

The shelf exams matter

- Grading varies greatly
  - Pass / fail (UCSF, Hopkins)
  - High pass / pass / fail (WashU, Mt. Sinai)
  - Honors / high pass / pass / fail (Rutgers, SKMC)
  - Honors, high pass, pass, low pass, fail (Tufts, Einstein)
  - A, B, C, D, F (Florida)
- **Important for residency to excel in that area**
  - Has been criticized for bias, variability, “black box”, etc.
  - Low grades on shelf exams look bad to that residency

What happens in medical school?

- Fourth year (M4 or MS4)
  - **Internships and residency applications**
  - Rotations (internal and external, aka audition rotations)
- Electronic Residency Application Service (**ERAS**)
  - Rank order based matching (automated)
    - Candidates ranks residency programs
    - **Residency programs** rank candidates
    - The ERAS algorithm automatically matches

Which residency?

Extremely Competitive

- Neurological Surgery
- Dermatology
- Orthopedic Surgery
- Plastic Surgery
- Otolaryngology
- General Surgery
- Interventional Radiology
- **Highly specialized**

Competitive

- Physical medicine and rehabilitation
- Anesthesiology
- Obstetrics and Gynecology
- Internal medicine/pediatrics
- Diagnostic radiology
- Vascular Surgery
- Psychiatry

Less Competitive

- Pathology
- Neurology
- Child neurology
- Radiation oncology
- Internal Medicine
- Emergency Medicine
- Family Medicine
- Pediatrics
- **Mostly primary care**

What happens in medical school?

- **Match Day (4th year)**
  - Determines residency
  - Late March (third Friday)
- Major exams
  - **USMLE Step 3** and **COMLEX-USA Level 3** are taken during the **first year of residency**
    - Required for the unsupervised practice of medicine
  - **3-10% do not pass Step 3**
- Officially a doctor now!
  - What specialty or subspecialty?

Final steps - Specialty

- **Primary care:** Pediatrics, family medicine, internal medicine, OB-GYNs (obstetrics and gynecology), geriatrics, preventive medicine
- **Specialists:** **Surgery,** allergy and immunology, anesthesiology, dermatology, radiology, emergency medicine, neurology, ophthalmology, psychiatry, radiation oncology, urology
    - **Surgeon:** General surgery, cardiothoracic, colon and rectal, gynecology and obstetrics, gynecologic oncology, neurological, ophthalmic, oral and maxillofacial, orthopaedic, otorhinolaryngology, pediatric, plastic and maxillofacial, urology, and vascular

General timeline starting from college

- TCNJ: **4 years**
- Medical school (MD/DO): **4 years**
- Residency: **3-7 years** (varies)
  - 3-4 years: Emergency Medicine, Family Practice, Internal Medicine, Pathology, Pediatrics, Psychiatry, Obstetrics/Gynecology, Oncology
  - 5 years: General Surgery, Orthopedic Surgery, Urology
  - 6 years: Plastic Surgery
  - 7 years: Neurosurgery
  - Does not include fellowship year(s) in subspecialty

Final steps

- **Board certification** in a specialty or subspecialty
  - MD: American Board of Medical Specialties (ABMS)
  - DO: American Osteopathic Association's (AOA) Department of Certifying Board Services
- Licencing is required but board certification is technically voluntary

The Hidden Curriculum

- **Summer breaks, breaks, and vacation**
  - Year 1 to year 2 - Approximately 8-10 weeks
    - Research (this is the research that matters), clinical experiences, remediation
      - Necessary for competitive residencies
  - Year 2 to year 3 - Short break but not really
    - Study for board exams
  - Year 3 to 4 - Variable
    - Research, clinical experience, rotations, **networking**

Summary - Part I

- There are different types of medical school
  - MD, International MD, and DO
- Starting medical school to practicing physician takes a long time
  - 8-12 years is not uncommon based on specialty
- There are a lot of major exams on the way
  - Medical school exams, licencing exams, and board certification exams
- **The goal should never be to just get in medical school**

Part II - Medical school requirements

- Short break

Is pre med a real major?

- **Pre med is not a real major (anywhere)**
  - Pre med is a track that can be selected by any student in any major
  - All Biology (BS) and Chemistry majors are “pre med” for their first 2 years by default
    - Some majors make completing requirements easier
- Any student that takes a **series of courses** required by all medical schools*****

Medical School required courses

- 2 semesters of biology with lab
  - BIO 201, BIO 211
- 2 semesters of inorganic chemistry with lab
  - CHE 201, CHE 202
- 2 semesters of organic chemistry with lab
  - CHE 331, CHE 332
- 2 semesters of physics with lab
  - PHY 121 and PHY 122 or PHY 201 and PHY 202

Medical school required courses (cont.)

- 2 semesters of English (or equivalent)
  - All majors at TCNJ have 3 automatically*
- 2 semesters of math
  - MAT 127, STA 215 or MAT 128*
- Other (psychology and sociology)
  - PSY 101 and SOC 101

Medical school “recommended” courses

- Microbiology
- Genetics*
- Physiology
- Immunology
- Statistics / biostatistics
- Second course in biochemistry* or advanced cell biology
- Computer science*

18 months (The Hidden Curriculum)

- All requirements must be completed by the **end of the junior year!**
- **AND** study for the MCAT
  - 300-1000 hours or study and you don't get you score for 30 days and it's expensive!
- **AND** medically relevant experience
  - About 50-500 hours
- **AND** volunteering
  - About 50-500 hours
- **AND** get 3-6 letters of recommendation
  - STEM, non-STEM, medical professional
- **AND** complete MCAC letter request application and meeting
  - Composite or committee letter

How to get all the medical school requirements in?

- Academic advising
  - Work out a plan, backups, alternatives
  - Pathway examples
- Summer coursework at TCNJ
  - +: Rigorous coursework, counts toward your TCNJ GPA
  - -: Costs money
- Summer coursework at community college
  - +: Significantly cheaper, lots of courses, most count if you go through NJtransfer
  - -: Course rigor varies, performance on MCAT, may “look bad”, does not count toward TCNJ GPA

How do I get all the medical school requirements in?

- Winter course work
  - Great for meeting College Core requirements
- Gap year(s)
  - **Addressed later in the presentation**
- 5th year at TCNJ to complete medical school requirements
  - +: Spread out requirements, allows for double major/minor
  - -: Costs money but cheaper than a post-bac or masters program
- Post-bac program (E.g. Rutgers)
  - +: Allows completion of requirements over 1-2 years
  - -: Costs money, may or may not help, repeating courses

Summary - Part II

- There is a Hidden Curriculum of requirements and a timeline
- There are a lot of course requirements that must be sequenced property
  - Getting all the requirements completed will require flexibility
- Required courses and recommended courses can vary
  - Critical to identify target schools early
- **There is more than one path**

Part III - Common mistakes

Common mistakes: Not using resources

- **MCAC**
  - Page
  - Emails
  - Canvas modules
  - MCAC presentations
    - Several per year
  - Group and individual advising
- **Health Professions Group**
  - Newsletter with opportunities, resources, etc.
- **Interest groups**
  - AMSA, MAPS, DEM

Common mistakes: Faster = disaster

- **Trying to complete the medical school requirements as fast as possible**
  - Example
    - CHE 331, BIO 231, PHY 201 at the same time
- **Not sequencing the courses properly** and taking course before you are ready
  - Examples
    - Taking CHE 201 before math skills are addressed
    - Taking MAT 127 before precalculus skills are remediated

Common mistakes: Following the crowd

- Following what someone else is doing
  - Preparation, aptitude, work ethic, and **personal circumstances matter!**
  - Example
    - Student athlete?
    - Job?
    - Taking CHE 331 because everyone else is when you struggled in CHE 201 and 202
- Not developing time management and study skills for STEM courses
  - **Medical school courses run 4 times faster**

Summary - Part III

- Not using resources
  - Have this conversation with your student
  - Common reason for having to take multiple gap years
- Rushing through requirements
  - Performance in required courses matters
  - Don’t take courses you have remediated any issues
- Following the crowd
  - What someone else does may not apply to you
  - Reflect on what you need to do

Part IV - Who gets in?

- Short break

Chances of getting in - primary factors

- **MCAT - Medical College Admission Test**
  - Most important factor
- **GPA - Grade Point Average**
  - Less important than the MCAT
    - Science GPA (more important)
    - Non-science GPA (less important)
  - Preparatory courses vs advanced courses
    - **The transcript matters**

GPA and MCAT for US MD programs

- GPA: 3.7 average
- MCAT is the single best predictor of who gets in
  - High: 528 (100th percentile)
  - Excellent score: 515 (>90%)
  - **Competitive score: 512 (≅85%)**
  - Good score: 510 (≅80%)
  - Borderline score: 508 (≅75%)

GPA and MCAT for DO programs

- GPA: 3.6 average
- MCAT is the single best predictor of who gets in
  - High: 528 100th percentile
  - Excellent score: 510 (≅80%)
  - **Competitive score: 507 (≅75%)**
  - Good score: 505 (≅65%)
  - Borderline score: 503 (≅60%)
- **Assumes letter of support from DO**

GPA and MCAT for International MD

- **GPA: 3.3 average**
  - Emphasis on STEM GPA
  - Generally no grades below C
- **MCAT is competitive at ≅500 (50% percentile)**
  - May require summer program
- **Too good to be true?**

International MD

- Have a high GPA and strong work ethic but lower MCAT
- Students with underperforming semesters who don't want gap year(s)
- Want to start a career over gap year(s)
- Prefer MD over DO
- MD reapplicants with solid GPA (3.5) and MCAT (505)
- **You must be focused and be OK on your own in a foreign country**

Other medical careers

- **Optometry** ($100-160,000/year)
  - GPA: ≅3.5
  - OAT (Optometry Admission Test) score: ≅330 (≅75%)
- **Dentistry** ($150-250,000/year)
  - GPA: ≅3.5
  - DAT (Dental Admission Test) score: ≅20 (≅75%)
- **Podiatry** ($175-350,000*/year)
  - GPA: ≅3.4
  - **MCAT score: ≅500* (≅50%)**
- Physicians Assistant, Physical Therapist, Pharmacy (PharmD), Occupational Therapist, Accelerated Nursing, etc.

Chances of getting in - other factors

- **Composite letter from MCAC***
  - Letters of recommendation are critical
    - Choose wisely
  - Required at some, recommended at others
- **Patient care experience**
  - **Direct patient contact** (EMT, CNA, MA, etc.) more important
  - Shadowing - less important but valid

How to get experience?

- Formal, certification, direct patient contact
  - EMT, CNA, medical technician, phlebotomist, etc. can be done at community college in the summer
- Medical scribe
  - Example: RWJMS - paid training!
- Network
  - Reach out to your family doctor / pediatrician
  - Have you ever seen an orthopedic doctor or other specialist?
  - Formal programs
    - Example: University of Pennsylvania
    - **We do not recommend paying for programs**

Volunteering - hospital, clinical, general?

- Capital Health
- Hackensack Meridian Health
- Pascack Valley Medical Center
- Children's Hospital of Philadelphia (CHOP)
- RWJ Barnabas (many links)
- Valley Health System
- Summer Health Professions Education Program (SHPEP)
- St. Barnabas Medical Center programs
- Georgetown's ARCHES program

Types of clinical experience

- **Hands-on experience (more important)**
  - EMT - Emergency Medical Technician
  - CNA - Certified Nurse Assistant
  - CMA - Certified Medical Assistant
  - PTA - Physical Therapist Assistant
  - OTA - Occupational Therapist Assistant
- **Hospital / medical environment (important)**
  - Medical scribe, ER, clinic, underserved communities, medical translation
- **Shadowing (less important)**
  - Passive, limited in scope
    - Primary care, specialist, private, hospital, etc.

Volunteering and other activities

- Volunteering
  - Physicians serve the public
  - Long-term commitment to the greater good
  - **Emphasis varies by medical school**
- “Other”
  - NCAA athlete, national competitor in robotics, orchestra, student government, Spanish minor, etc.
  - Job*
  - **Involvement in some activity to make the applicant three dimensional**

Do I need research?

- **No.**
  - There is no difference between the admission rates
- Positive
  - **Strong letter if you do a good job**
  - Problem solving skills
  - Can help for highly competitive residency programs
- Negative
  - Takes time away from medically relevant opportunities
    - EMT, volunteering, shadowing, MCAT prep
- Exceptions
  - MD / PhD

Do I need research?

- American Medical Association (AMA) Position
  - Research isn't required to secure a residency position
  - Research isn't required for admission to medical school
  - Survey of program directors conducted by the National Resident Matching Program
    - **12 other factors were seen as more important** over "involvement and interest in research"
- Really, the answer is **NO**

Should I do a minor?

- Possibly
  - +: More preparation in an important field (e.g. Chemistry)
  - -: Takes time (MCAT), scheduling, risk poor grades
- **Some minors can help**
  - Math, Applied Math, Statistics, Physics, Computer Science, Spanish (to fluency, medical Spanish)
  - Chemistry -> medicinal chemistry
  - Psychology -> neuroscience
  - Public Health -> addressing underserved communities or health care disparities

My official recommendation

- **In general - NO**
  - Unless the student was going to take the classes anyway
    - Interest in chemistry, public health, psychology
    - Just wants a challenge
  - Wants additional preparation
    - E.g. Chemistry

Chances of getting in - other factors

- **Volunteering toward the greater good**
  - **Sustained experiences** - more important
  - Multiple short term experiences - less important
- **Involvement (clubs, sports, etc.) / engagement**
  - Leader and contributor
- **Lived experience (military medic, nurse, PhD, etc.)**
  - First generation college, PELL eligible

Gap year(s)

- The majority of medical students have taken a gap year(s)
  - Nationally: **>60% take gap year(s)**
  - Med school start age: 24-26
  - Overwhelming majority go this route

Gap year(s)

- Improve patient contact and/or shadowing
- Get a job in the medical field
  - Medical scribe, EMT, CNA, etc.
- Improve letters of recommendation
  - Masters faculty, medical professionals
- Complete / repeat / improve coursework
- **Present a more compelling case for admission**

Summary - Part IV

- **You get in medical school by doing these obvious things well**
  - MCAT - Medical College Admission Test
  - GPA - Grade Point Average (**courses matter**)
  - Letters of recommendation (**composite letter**)
  - Clinical experience (**direct patient contact** > shadowing)
  - Volunteering (sustained experiences)
  - Other experiences (lived experience)*
- If you need a gap year, make it productive

Part V - The MCAT and timeline

- Short break

MCAT - Medical College Admission Test

- Time: 7 hours and 30 minutes exam
- Sections
  - Biological and Biochemical Foundations of Living Systems
  - Chemical and Physical Foundations of Biological Systems
  - Psychological, Social, and Biological Foundations of Behavior
  - Critical Analysis and Reasoning Skills
- Medical schools want well rounded students so the **MCAT is more than just science classes**

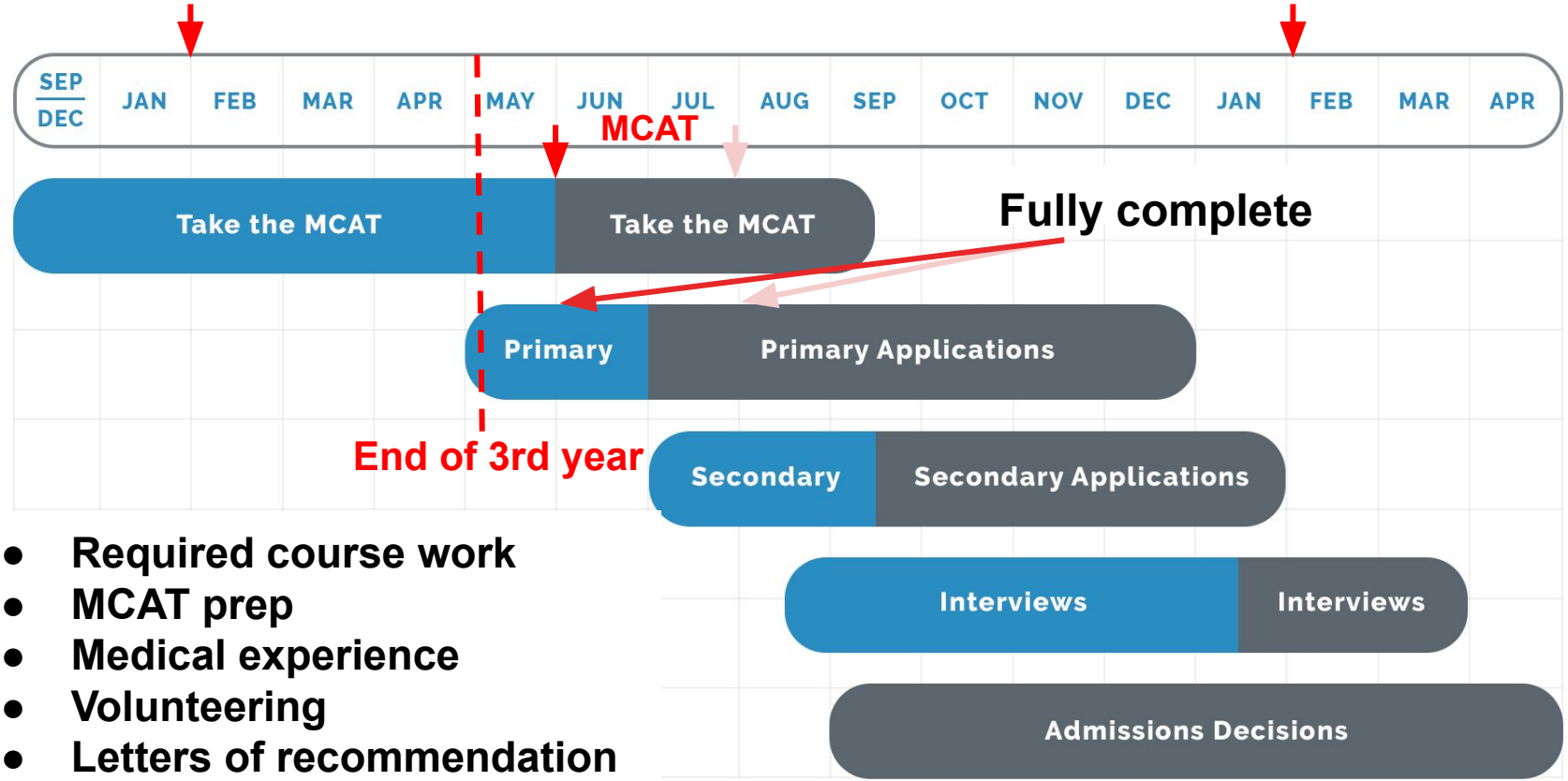
MCAT prep

- Changed dramatically in 2015
  - Content, scoring, focus, types of questions, etc.
- Preparation
  - Pre-medical course work
  - **Requires 300-1000 hours of study outside of class, lab, job, other duties**
- This is the single biggest source of stress
- **It is the most important factor in admission**

Timeline - In cycle (no gap year)

- MCAT
  - Ideal: Taken by the end of **May junior (3rd) year**
  - Latest: Taken by the end of July
- Open a file with the MCAC
  - Mid-February of junior year
  - **≅18 months prior to intended start of med school**

Medical School Admissions Timeline



- Required course work
- MCAT prep
- Medical experience
- Volunteering
- Letters of recommendation
- MCAC file

MCAT prep - A real example #1

- **Diagnostic test (full length): 496 (≅39%)**
  - This is actually high for a no-study diagnostic
- Month 1: 503 (≅65 hours)
- Month 2: 507 (≅50 hours)
- Month 3: 510 (≅38 hours)
- Month 4: 512 (≅40 hours)
- Month 5: 518 (≅60 hours)
- Month 6: 516 (≅60 hours, with reduced time)
- **Official MCAT score: 515 (≅91%) taken in month 6**
  - 506 hours logged *not including some basic content review*
    - Approximately ≅50-100 hours

MCAT prep - A real example #2

- **Diagnostic test (full length): 480 (≅3%)**
  - No previous prep
- End summer: 512 practice (≅400 hours)
  - **No job** , volunteering 5 hrs / week, shadowing 10 hrs / week DO (peds)
  - Did not take practice test with reduced time (under stress)
  - Limited number of practice tests (2)
- **Official MCAT score: 505 (≅62%)**

MCAT prep - A real example #2

- End Summer 2: 509 (≅200 additional hours)
  - All 4 practice tests reduced time
  - Job 20 hrs / week, volunteering 5 hrs / week, shadowing 5 hrs / week MD (peds)
  - **Gap year** RWJMS medical scribe
- **Official MCAT score: 510 (≅78%)**

MCAT prep - A real example #3

- **Diagnostic test (full length): 490 (≅17%)**
  - End 2nd year - no prep
  - **Student athlete**
- 2nd year summer: 10-20 hours / week
  - Job, shadowing, and volunteering
- 3rd year Fall / Spring: ≅5-10 hours / week (sometimes none)
  - Much more over breaks
    - “An insane amount. It made me a little crazy.”
- **Official MCAT score: 516 (≅92%)**
  - Final 3 practice average 517
  - > 500 hrs total

MCAT prep - A real example #4

- **Diagnostic test (full length): 490 (≅17%)**
- 3rd year Fall / Spring
  - Poorly planned study, unfocused, context issues
  - 3 untimed practice test average 512
- **Official MCAT score: 505 (≅62%)**
  - Gap year - study, log more EMT hours, volunteer at clinic
- **Official MCAT score: 518 (≅95%)**
  - Logged study (close to 1000 hours)
    - 6 practice tests with reduced time
  - **“I should have listed to you last time.”**

- Major: Biology
  - Minor: Anthropology
- MCAT: Competitive
  - 508*, 513
- GPA: Good (B/B+)
  - Science: 3.5, non-science: 3.5
- Transcript: Good/Excellent
  - Multiple 400-levels courses in major and minor
  - Lowest grade: C in CHE 331
- Letters: Excellent
  - Science x2, non-science x1, physician x1, clergy x1
- Experience: Excellent
  - 100+ hours EMT, shadowing GP >100 hours
- Volunteering: Excellent
  - 200+ hours, Girl Scouts (10+?), senior center (7), Teen Crisis Hotline (3)
- Involvement: Excellent
  - AMSA administration, Club Fencing, Anthropology Society administration

Accepted!

Is one bad grade the end?

- **NO**, however, it does matter
  - Was it really the only bad grade?
- Can it be explained?
  - Why did you stay in the course if you found you were not prepared?
  - What have you done to resolve the issue?
  - What did you learn from the experience?
- Was it in an introductory, intermediate, or advanced course?
  - How were grades subsequent courses?
- What do you consider bad?
  - **C** = it's not that bad, **D** = it's bad, **F** = it's really bad
- **The trend / progress, MCAT, letters of recommendation, and activities become critical**

Is one bad grade the end?

- Example (real, same student)
  - BIO 201 (B), BIO 211 (B), BIO 221 (A), BIO 231 **(A)**, BIO 312 **(A)** BIO 341 **(A)**, BIO 411 **(A)**, BIO 445 **(A-)**, BIO 451 **(A)**
  - CHE 201 **(C+)**, CHE 202 (B+), CHE 331 **(A-)**, CHE 332 **(A-)**
  - MAT 127 **(D)**, STA 215 (B)
    - MAT 127 repeated* summer (B)
  - PHY 201 (B), PHY 202 (B)
  - Spanish minor (**All As**)
    - Medical Spanish
- EMT, shadowing, volunteering, **exceptional** letters of recommendation
- **MCAT 508** (≅700 hours, 6 practice exams) -> **admitted to DO school**
  - One gap year, medical scribe

Summary - Part V

- The application timeline is extremely strict
  - Get used to thinking 18 months ahead
- Preparing for the MCAT takes a significant amount of time
  - It is the most important factor in admissions decisions
- There is more than one way to prepare
  - Use practice tests wisely
- One bad grade is not the end
  - Don’t lose perspective
- **You will need support from everyone around you**

Things you can do to support students

- **DO**
  - Make sure that your student has enough time to study
  - Make sure that they are taking full-length practice tests
    - Ideally with time constraints as recommended by the MCAC
  - Understand they may have to take it more than once
  - Help them set realistic goals
- **DO NOT**
  - Make them take it on a predetermined schedule
  - Have them take it to see how they do
  - Have them take it because other students are doing it
  - Apply anyway with a low MCAT score

Part VI - Medical school is expensive

Medical school is expensive

SIDNEY KIMMEL MEDICAL COLLEGE
22-23 ESTIMATED COST OF ATTENDANCE

OFF-CAMPUS OR ON-CAMPUS				
	FIRST	SECOND	THIRD	FOURTH
SINGLE STUDENT	(11 MONTH)	(12 MONTH)	(12 MONTH)	(11 MONTH)
Tuition	$61,520	$61,520	$61,520	$61,520
Library and Tech Fees	$994	$994	$994	$994
Books and Supplies	$1,060	$725	$925	$625
Instruments*	$249	$20	-	-
Room and Board	$19,349	$21,108	$21,108	$19,349
Transportation	$500	$1,205	$3,500	$3,236
USMLE - Step 1	-	$645	-	-
USMLE - Step 2 Clinical Knowledge (CK)	-	-	$645	-
USMLE - Step 2 Clinical Skills (CS)	-	-	-	-
Criminal Background Check	-	$106	-	-
Medical-Dental (out of pocket)	$450	$485	$485	$450
Major Medical Insurance**	$0	$0	$0	$0
Residency Application/Travel	-	-	-	$3,000
Miscellaneous ***	$1,650	$1,800	$1,800	$1,650
Estimated Loan Fees	$476	$499	$499	$476
TOTAL	**$86,248**	**$89,107**	**$91,476**	**$91,300**

Medical school is expensive

		In-State			Out-of-State		
State	Medical School	Total Cost of Attendance	Tuition and Fees	Health Insurance	Total Cost of Attendance	Tuition and Fees	Health Insurance
NJ	Cooper Medical School of Rowan University	$73,049	$46,998	$0	$99,247	$73,196	$0
NJ	Hackensack Meridian School of Medicine	$121,085	$73,336	$6,867	$121,085	$73,336	$6,867
NJ	Rutgers New Jersey Medical School	$86,502	$47,505	$2,741	$113,346	$74,349	$2,741
NJ	Rutgers, Robert Wood Johnson Medical School	$87,657	$46,749	$2,741	$114,501	$73,593	$2,741
NY	Albany Medical College	$86,869	$57,723	$5,646	$85,069	$57,723	$5,646
NY	Albert Einstein College of Medicine	$95,123	$63,437	$6,236	$95,123	$63,437	$6,236
NY	Columbia University Vagelos College of Physicians and Surgeons	$108,499	$73,501	$4,551	$108,499	$73,501	$4,551
NY	CUNY School of Medicine	$65,855	$41,912	$0	$93,515	$69,572	$0
NY	Donald and Barbara Zucker School of Medicine at Hofstra/Northwell	$97,337	$58,325	$5,890	$97,337	$58,325	$5,890
NY	Icahn School of Medicine at Mount Sinai	$94,659	$66,446	$6,168	$94,659	$66,446	$6,168

Data taken from AAMC 2024.

Medical school is expensive

		In-State			Out-of-State		
State	Medical School	Total Cost of Attendance	Tuition and Fees	Health Insurance	Total Cost of Attendance	Tuition and Fees	Health Insurance
NY	Jacobs School of Medicine and Biomedical Sciences at the University at Buffalo	$78,283	$48,238	$2,903	$100,413	$70,368	$2,903
NY	New York Medical College	$96,204	$63,824	$6,630	$96,204	$63,824	$6,630
NY	NYU Grossman Long Island School of Medicine	$28,496	$4,350	$0	$28,496	$4,350	$0
NY	NYU Grossman School of Medicine	$28,152	$4,150	$0	$28,152	$4,150	$0
NY	Renaissance School of Medicine at Stony Brook University	$86,190	$49,464	$5,280	$108,320	$71,594	$5,280
NY	State University of New York Upstate Medical University Alan and Marlene Norton College of Medicine	$81,379	$45,213	$4,901	$102,869	$66,703	$4,901
NY	SUNY Downstate Health Sciences University College of Medicine	$79,304	$45,713	$4,392	$101,434	$67,843	$4,392
NY	University of Rochester School of Medicine and Dentistry	$93,889	$71,677	$3,612	$93,889	$71,677	$3,612
NY	Weill Cornell Medicine	$100,969	$71,900	$6,809	$100,969	$71,900	$6,809

Medical school is expensive

		In-State			Out-of-State		
State	Medical School	Total Cost of Attendance	Tuition and Fees	Health Insurance	Total Cost of Attendance	Tuition and Fees	Health Insurance
PA	Drexel University College of Medicine	$100,883	$67,790	$3,005	$100,883	$67,790	$3,005
PA	Geisinger Commonwealth School of Medicine	$97,678	$62,946	$6,196	$104,362	$69,630	$6,196
PA	Lewis Katz School of Medicine at Temple University	$87,051	$57,299	$5,900	$91,933	$60,681	$5,900
PA	Pennsylvania State University College of Medicine	$84,876	$57,844	$4,006	$84,876	$57,844	$4,006
PA	Perelman School of Medicine at the University of Pennsylvania	$109,497	$71,935	$4,100	$109,497	$71,935	$4,100
PA	Sidney Kimmel Medical College at Thomas Jefferson University	$95,103	$64,389	$5,792	$95,103	$64,389	$5,792
PA	University of Pittsburgh School of Medicine	$90,934	$64,606	$4,728	$93,400	$67,072	$4,728

Scholarships are rare and extremely competitive

- Range from <$500, application fees, to >$250,000 over 4 years
- TCNJ example
  - SKMC Scholars Program at Sidney Kimmel Medical College - Thomas Jefferson University
    - Early assurance program for admission to medical school
    - Focused on economically disadvantaged and first generation college students
    - Highly competitive
  - Eligibility criteria, additional information, and the application are announced

Focused scholarship examples

- **African American:** Empire State Medical Association Scholarship Award (NY)
- **Armenian descent:** Armenian Students Association (ASA) Scholarships
- **Greek descent:** Hellenic Medical Society of New York
- **Hispanic:** Hispanic Scholarship Fund
- **Iranian descent:** Iranian-American Scholarship Fund
- **Italian descent:** The National Italian American Foundation Scholarship
- **Jewish:** Jewish Federation of Metropolitan Chicago Vocational Service Scholarship (IL); Albert Strickler Memorial, Samuel F. and Sara G. Feinman, and Dr. Hirsch Herman Funds
- **Korean descent:** Ryu Family Foundation Seol Bong Scholarship
- **LGBTQ+:** Women in Medicine Scholarships (WIM). See also Point Foundation Scholarships above.
- **Methodist Church members:** World Communion Program
- **Native American:** Indian Health Service Health Professions Scholarship (additional opportunities can be found here and here)
- **Polish descent:** Dr. Marie E. Zakrzewski Medical Scholarship
- **South Asian Indian descent:** Endowment for South Asian Students of Indian Descent Scholarship Fund

Armed forces scholarship

- Health professions scholarship program
- Full tuition and most fees at the accredited U.S. medical school
  - Continental U.S., Hawaii, Alaska or Puerto Rico
  - International MD programs are not supported
- An annual salary of ~$35,000
  - $20,000 signing bonus*
- Second Lieutenant

Armed forces scholarship

- **You have to be admitted to a US medical school (MD/DO)**
  - Apply after admission
- Usually 1:1 service required
  - 4 years of service for 4 years of support
    - Clock starts after residency
  - You are stationed where they put you
- Residency selection is restricted
- 45 days ADT (active duty training) per year
  - Must continually pass fitness test

General timeline by age and money

- TCNJ at 22 (**$10-80,000**)
- MD/DO at 26 (**$300-600,000 or more in debt**)
  - **Interest on loans start at disbursement**
    - Need to start repaying loans within 6 months of graduation
  - Loan terms vary from 10-30 years
    - Special lower rates for primary care
    - Loan forgiveness and consolidation programs*
  - Average payments are $2,500-3,500/month
- Residency 29-33 (**≅$70,000/year**)
- **Job! ($225-334,000/year)**

Summary - Part VI

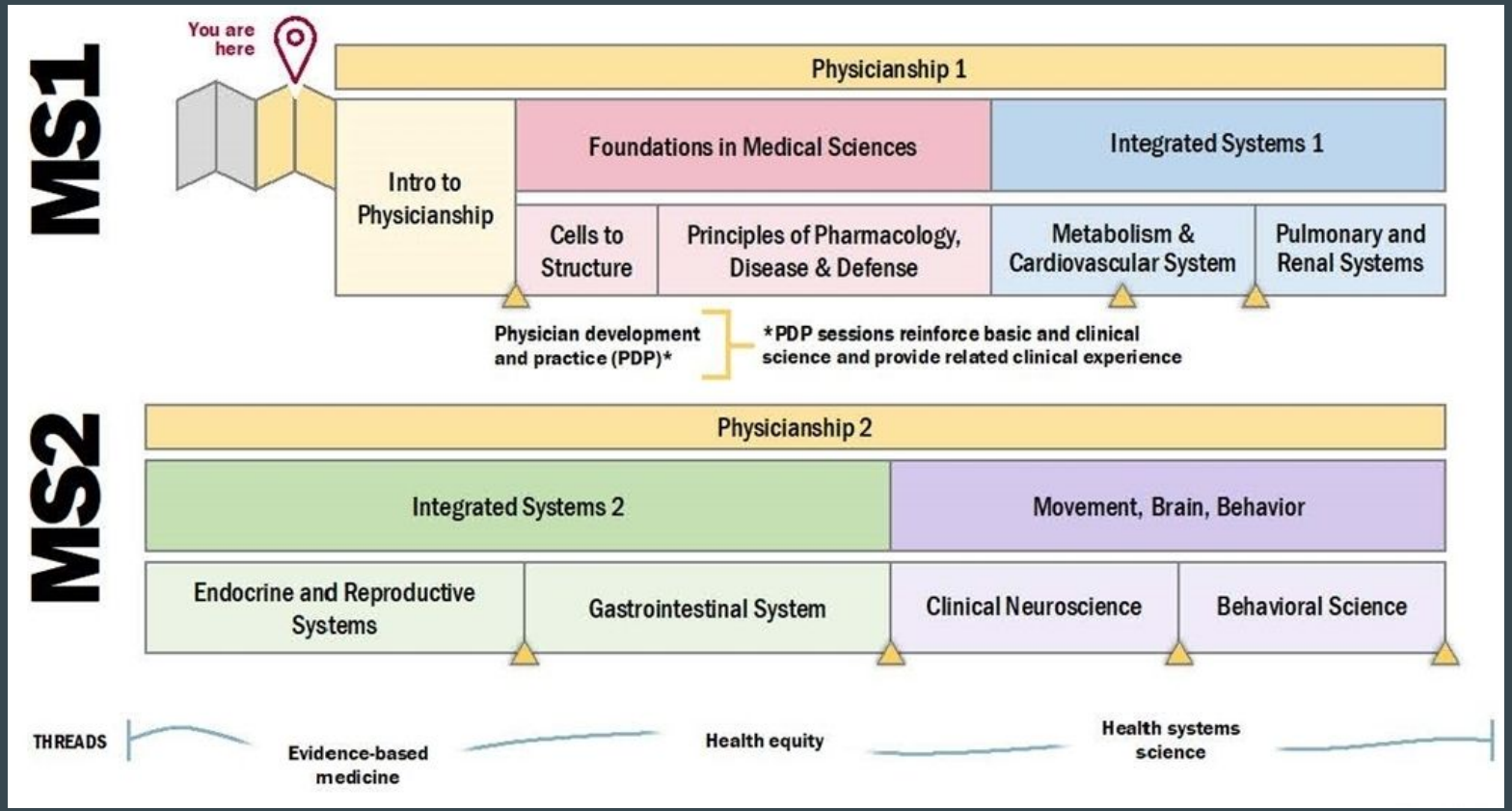
- **Medical school is a significant financial commitment**
  - Scholarships exist but are very difficult to get
  - Armed forces scholarships
    - String attached
  - Loan forgiveness programs
  - Special rates may be available
- **Talk to a financial planner**
  - Live as cheaply as you can
    - Live at home, roommates, consider cost of living
  - Strict budgeting -vs- overspending too early
  - Get your loan debt paid off ASAP!

Questions?

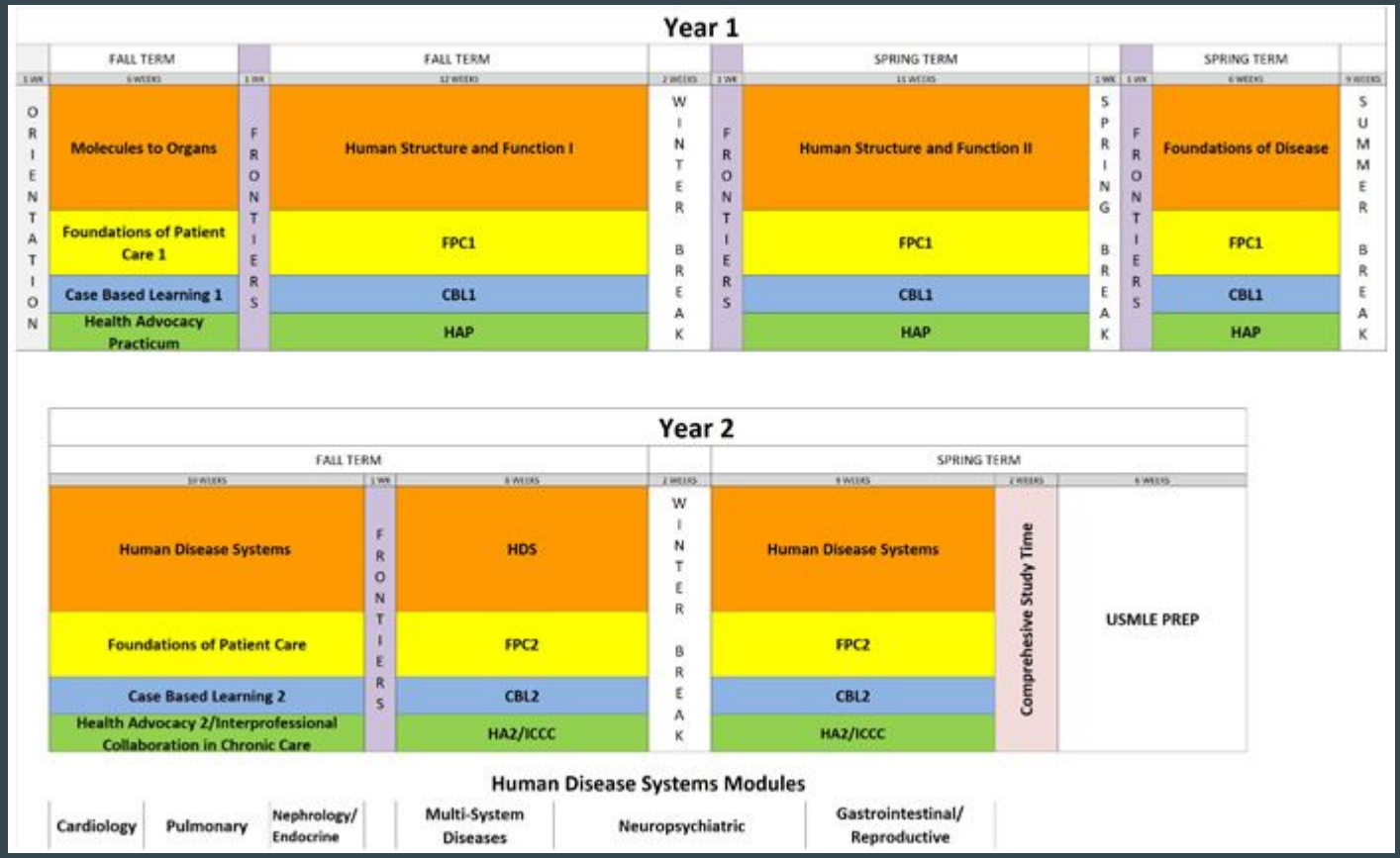
Resources for students and parents

- Medical Careers Advisory Committee (MCAC)
  - Presentations, data driven advising, mentoring
- American Association of Medical Colleges (AAMC)
- Student associations at TCNJ
  - TCNJ American Medical Student Association (AMSA)
  - Delta Epsilon Mu
  - Minority Association of Pre-Health Students (MAPS)

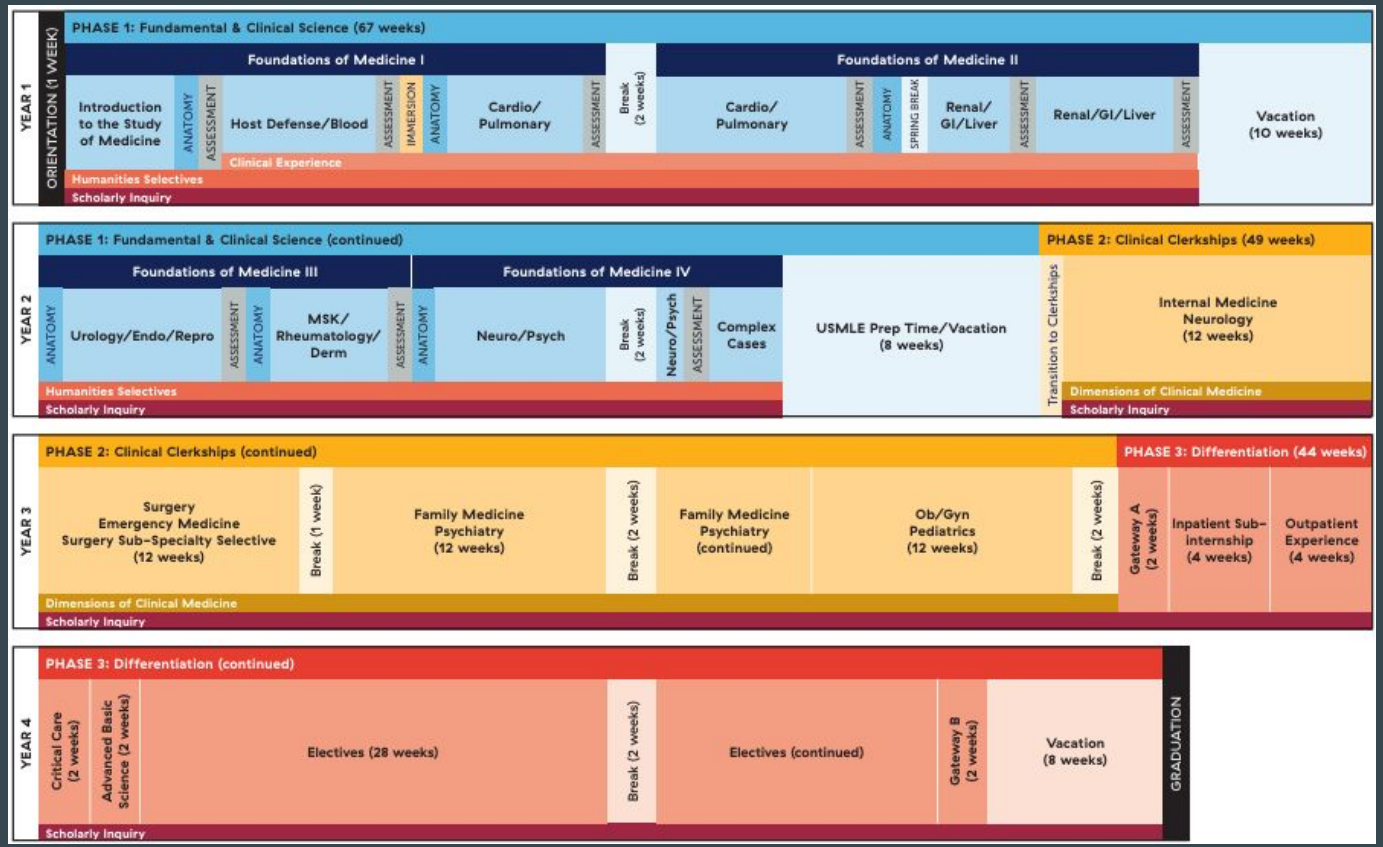
Robert Wood Johnson



Drexel


Year 1
FALL TERM
FALL TERM
SPRING TERM
SPRING TERM
ORIENTATION
Molecules to Organs
FRONTIERS
Human Structure and Function I
WINTER BREAK
FRONTIERS
Human Structure and Function II
SPRING BREAK
FRONTIERS
Foundations of Disease
SUMMER BREAK
Foundations of Patient Care 1
FPC1
FPC1
FPC1
Case Based Learning 1
CBL1
CBL1
CBL1
Health Advocacy Practicum
HAP
HAP
HAP
Year 2
FALL TERM
SPRING TERM
Human Disease Systems
FRONTIERS
HDS
WINTER BREAK
Human Disease Systems
Comprehesive Study Time
USMLE PREP
Foundations of Patient Care
FPC2
FPC2
Case Based Learning 2
CBL2
CBL2
Health Advocacy 2/Interprofessional Collaboration in Chronic Care
HA2/ICCC
HA2/ICCC
Human Disease Systems Modules
Cardiology
Pulmonary
Nephrology/ Endocrine
Multi-System Diseases
Neuropsychiatric
Gastrointestinal/ Reproductive

SKMC (Jefferson)



SGU

Academic Year One: Basic Sciences		
Term 1	BPM 500	Basic Principles of Medicine I • Foundation to Medicine (6 weeks) • Musculoskeletal System (4 weeks) • Cardiovascular, Pulmonary and Renal Systems (7 weeks)
Term 2	BPM 501	Basic Principles of Medicine II • Endocrinology and Reproduction (3 weeks) • Digestion and Metabolism (5 weeks) • Nervous System and Behavioral Sciences (10 weeks)
Academic Year Two: Basic Sciences		
Term 3	BPM 502	Basic Principles of Medicine III • Basics of Immunology and Microbiology • Public Health Assessment Tools • Culture and Societal Issues/Physician-Patient Relationship • Ethics, Professionalism and Medical Jurisprudence
Term 4	PCM 500	Principles of Clinical Medicine 1 • Foundations to Clinical Medicine • Cardiovascular and Renal Systems • Respiratory and Hematopoietic Systems • Digestive, Endocrine, and Reproductive Systems
Term 5	PCM 501	Principles of Clinical Medicine 2

PCOM

Term 1	
Fall	
DO 100	Cellular and Biochemical Foundations of Medicine
DO 101	Infection and Immunity
DO 114A	Medical Humanities and Wellness I
DO 139A	Osteopathic Principles and Practice I
DO 140A	Primary Care Skills I
DO 144A	Clinical Reasoning in Basic Science IA
INDP 100A	Inter Professional Education
DO 106	Foundations of Research

Term 2	
Winter	
DO 104	Foundations of Cardiovascular and Pulmonary Medicine
DO 105	Foundations of Renal, Endocrine, and Gastrointestinal Medicine
DO 112	Foundations of Physiology and the Musculoskeletal System
DO 114B	Medical Humanities and Wellness II
DO 139B	Osteopathic Principles and Practice II
DO 140B	Primary Care Skills II
DO 144B	Clinical Reasoning in Basic Science IB
INDP 100B	Inter Professional Education

Term 3	
Spring	
DO 107	Foundations of Reproductive and Genitourinary Medicine
DO 108	Head, Eyes, Ears, Nose, and Throat and Neuroscience
DO 109	Introduction to Human Disease and Therapeutics
DO 114C	Medical Humanities and Wellness III
DO 139C	Osteopathic Principles and Practice III
DO 140C	Primary Care Skills III
DO 144C	Clinical Reasoning in Basic Science IC
INDP 100C	Inter Professional Education
Total Hours 49.5	