

Pre-Med/Pre-Health Guide

Introduction

When AOs evaluate applications, the strongest pre-health students don't reflect a "one size fits all" kind of profile. They all have different reasons for wanting to be doctors: some because of their passion for science, others because they care to give back to society *in that specific way*, and many who have personally dealt with illness inspiring them to explore health careers across the spectrum from medicine to nursing to public health to nutrition. Whatever their reasons, students who aspire to become medical doctors often demonstrate a strong discipline to study long hours and apply their learnings. As early as their senior year in high school, it is often the case that these students show a unique level of preparation through EMS programs, cutting-edge research, and consistent service (qualities that serve them well in college and graduate school).

Please note that at the vast majority of colleges and universities, there is no such thing as a premed major. Many undergraduate students who go on to medical school major in fields such as Biology, Chemistry, Psychology, Neuroscience, Cognitive Science, and Exercise Science. However, the medical school application process is similar to the highly selective undergraduate application process. Your academic performance, MCAT scores, narrative, and interview ultimately matter most.

Academics

Science

Minimum Progression: Honors Biology to Honors Chemistry to Honors Physics (or AP/IB equivalents)

- If available at your high school, consider: AP Biology, AP Chemistry, AP Physics 1/2 (*AP Physics C is not required for pre-med, but nice to see, if available at your high school.*)
- IB students: IB Biology HL, IB Chemistry HL, IB Physics HL

Math

- Strong progression through AP Precalculus and ideally AP Calculus AB/BC

English

- AP English Language/Literature or IB English HL

Why it matters: healthcare requires clear communication with patients, constant reflection and problem-solving, and strong writing abilities to communicate with other members of the patient's team. "Most rigorous available" does not mean take every AP at your high school. It means take a challenging, sensible load you can make As in, especially during junior and senior years.

Extracurriculars

Pre-health students stand out when they show real exposure to care settings and consistent service throughout four years of high school.

Volunteering:

- Hospital teen volunteer programs (patient support, family waiting areas, emergency room help desks)
- Volunteering consistently (weekly) at clinics, nursing homes, hospice organizations, rehabilitation centers, or nonprofits such as the Ronald McDonald House
- EMT/First Responder pathways (where students under the age of 16 are permitted): EMT courses, junior firefighter/EMS Cadet Programs
- Public health exposure: food banks, health equity nonprofits in your city, community health initiatives, vaccination outreach post-COVID-19 pandemic

Clubs/Teams: HOSA, American Red Cross Club, Biology Club, Science NHS, Chemistry Club, Key Club, NHS, *local* Mental Health Advocacy nonprofits, Rotary Interact, Walk with a Doc

Competitions: Biology Olympiad, Genius Olympiad, Regeneron ISEF, Chemistry Olympiad

Research (including pay-to-play options such as Indigo and Lumiere):

- Nice-to-have, not required for pre-med; many strong applicants have no high school research. Cancer research is the most common in the highly selective applicant pools.
- Most meaningful when it's sustained over time (semester-long or multi-year), not a one-off experience. What matters is your role, what you did day to day, and what you learned (not lab name-dropping).
- Most impactful when a mentor/supervisor can vouch for your contributions—a credible, detailed recommendation letter adds substance.
- Publication in a peer-reviewed journal (not student-run) is a bonus for a university like JHU.
- Pay-to-play programs are read cautiously because cost can reflect access more than merit; they help most when you can show concrete responsibilities, real work, and strong mentorship (otherwise they carry less weight than one might expect).
 - Caltech and Columbia both ask applicants to provide details on how they accessed their research opportunities.

Recommendation Letters

Best: (1) AP Biology or AP Chemistry, (2) AP Calculus AB/BC, (3) AP English Language/Literature

- **Helpful Note:** The maturity level that a student shows in their Grade 11 and Grade 12 classrooms is closer to the maturity level they will display in a college classroom. AOs want to read about behavior that most likely reflects the behavior you'll display as an undergrad student.