

[MUSIC PLAYING]

NARRATOR: MIT was founded just a few years before Canada, just a few miles from the birthplace of the American Revolution. And that revolutionary spirit still haunts this place. From the transistor radio to computer networks to pharmaceuticals the stuff that gets dreamed up, built, and tested here affects millions. But MIT's geniuses all have to somewhere, as freshmen. Freshmen like--

Every January, the chemistry department runs a four-week lab class for freshmen. The class is called 5.301, and it teaches practical techniques that chemists use every day.

DR. JOHN DOLHUN: Recrystallization to distillation to column chromatography, protein assays, and it ends with a research project, where the students actually synthesize a penicillin derivative and test it on live bacteria.

NARRATOR: And those who pass get a UROP.

ANU: A UROP stands for undergraduate research opportunities program, and it lets you do real research in a lab.

KATHERINE: It's a great opportunity for people to get experience in a lab, figure out if research is right for them, and get publications on your resume.

NARRATOR: This year, 5.301 has 14 students. Let's meet a few of them.

ANTHONY: My family basically consists of my mother and my sister and now my nephew.

ANTHONY'S NEPHEW: M, I, T.

ANTHONY: Yay! I'm the first, actually, in my family to go to college. My mom is the best person in the world. When I go home at night and call her and tell her what I did in lab, she's always like, oh, that's interesting. I think I saw that in CSI one day.

I'm in the logs. We run around like crazy men on Valentine's Day and interrupt classes and sing to people. I'm either Course 5 or Course 10-- for non-MIT, either chemistry or chemical engineering. If I enjoy being in lab, then Course 5 is probably a really good choice.

EMILY: If you want to, you could definitely just lock yourself in your room and study all the time. I just

wanted to show you guys my room. Here I have a bunch of formulas for derivatives, integration by parts, common polyatomic ions, your basic kinematic equations for physics. So it's kind of up to you if you want to go out there and explore. In high school, I was on the varsity tennis team, so I definitely try to do a lot of that here. I'm taking a taekwondo class, which should be interesting. I'm thinking Course 5, which is chemistry, or Course 10, which is chemical engineering.

ETHAN: I do love science, but I also have that soft spot for Robert Frost and Walt Whitman. Instead of writing a valedictorian speech in high school, I actually just wrote a poem that they published, because I guess I do sort of like poems more than speeches. But since my parents want me to come out of college and be able to get a job, they decided that I will be doing sciences. And I'm completely cool with that.

I am the student manager for the basketball team, so I go to all the practices and the games. I feel that's a really cool way to relax, I guess, after class.

LINA: I've always been into the secret tunnels thing. Now we're down in the tunnels, the famous MIT tunnels. I love playing pranks. I used to play pranks on my high school teachers.

Well, my chemistry teacher, back in high school, he was really known for giving a lot of lab reports and grading them pretty harshly. So I got my entire AP classes to give me their lab reports. We took the front covers of all these lab reports, and we just wallpapered his entire wall with them. I hope that 5.301 will help me want to do more research.

IKE: Hey. What's up, what's up? This is Ike, AKA, Smooth Scholar. Ravens fan-- we're going to win the Superbowl this year. So watch out. This is my first time in lab. Don't feel intimidated, because you're going to come across people who have taken crazy classes in high school, you know?

And some of you probably have never even taken calculus before, like me. You're still here, right? You still made it, so it still counts. That's it for now.

NARRATOR: Everyone's excited to get started.

YI-SHIUAN: I haven't had that much lab experience.

HANSOL: I haven't worked in a music lab-- just high school.

JULIE: I haven't done any research yet in a lab.

JASON: I'm actually pretty excited.

LEALIA: I'm excited.

DAN: I'm really excited.

YI-SHIUAN: Definitely excited.

JULIE: Really eager to get into the lab and get hands on right away.

DAN: I can't wait to get started.

NARRATOR: But they have no idea what they're in for.

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