



# Engineering and College Admission

Gilman School College Counseling Office

# Today's Topics

1. Thinking Broadly About STEM
2. The Necessity of Research and Experience
3. Engineering and Selective College Admission
4. Am I an Engineer?
5. What Should I Be Doing Now?

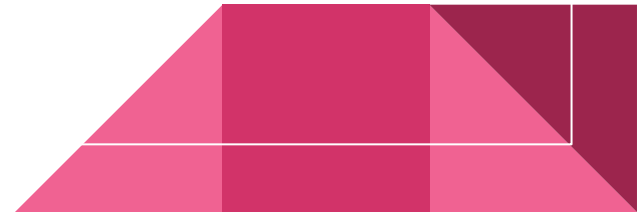
# STEM Majors

**S**cience: Physics, Chemistry, Biology, Environmental, Astronomy, Kinesiology

**T**echnology: Computer Science, Information Systems, Programming, Web Design

**E**ngineering: Mechanical, Biomedical, Civil, Chemical, Electrical

**M**ath: Applied, Theoretical, Statistics, Cryptography



# Engineering Majors

Aerospace  
Architectural  
Bioengineering  
Chemical  
Civil  
Computer  
Electrical  
Environmental  
Industrial  
Manufacturing  
Materials  
Mechanical  
Nuclear  
Software

# Researching and Experiencing Engineering

## General Information Resources:

- [TryEngineering.org](https://www.tryengineering.org)
- The College Board's [BigFuture: Career and Major Search](https://bigfuture.collegeboard.org)

## Summer Engineering Opportunities:

- Pre-College Courses:
  - Johns Hopkins' and Loyola's [Engineering Innovation Program](#)
  - UMCP's [Discover Engineering & ESTEEM/SER-Quest Summer Programs](#)
  - UMBC's [Summer Enrichment Experience in Cybersecurity and Mechanical Engineering](#)
- Internships and Lab-Based Research

## Gilman Courses and Clubs in Engineering and Robotics

## College Visits: Engineering Information Sessions and Open Houses

# A Side Note for Aspiring Student-Athletes

It is not unusual for student athletes to be told by certain college coaches that they may not major in engineering. Some coaches think that it's too difficult to play a varsity sport in the midst of studying engineering. If you are an athlete who wants to major in engineering, check in with college athletic departments as early as possible to see what their policies are.



# Undergraduate Engineering Programs

When researching programs at specific schools, consider the following:

1. What engineering programs are offered?
2. How big is the program and each major?
3. What is the curriculum for each engineering program?
4. Can you double major or minor outside of engineering?
5. Can engineers at the school study abroad?
6. Do most engineers graduate in four or five years?
7. Does the school offer a 3-2 engineering program? If so, what percentage of students are admitted to the 3-2 program?
8. How many students major in the hard sciences and then pursue a masters in engineering?

# Sample Engineering Curriculum

[Aerospace Engineering](#) at the University of Maryland

[Chemical Engineering](#) at Tufts University

[Bachelor of Science in Mechanical Engineering](#) at Lehigh University

[Electrical Engineering](#) at the University of Virginia

[Biomedical Engineering](#) at Duke University





# Liberal Arts & Engineering Dual-Degree Programs

In a 3-2 program students spend three years at a liberal arts college, followed by two years of education at a school that offers engineering. In a 3-2 program, you end up with two bachelor's degrees: a liberal arts degree and an engineering degree. Here are a few schools that offer 3-2 programs:

- [Colby College](#) with Dartmouth or Columbia
- [Davidson College](#) with Columbia or Washington University in St. Louis
- [University of Richmond](#) with Columbia



# Bucknell University: Class of 2019 Profile

| Academic Interest           | Applied       | Admitted     | Enrolled   | Admit. Rate |
|-----------------------------|---------------|--------------|------------|-------------|
| Arts & Humanities           | 698           | 333          | 108        | 48%         |
| <b>Engineering</b>          | <b>3,270</b>  | <b>624</b>   | <b>187</b> | <b>19%</b>  |
| Physical & Natural Sciences | 2,351         | 578          | 159        | 25%         |
| Business & Management       | 1,490         | 282          | 108        | 19%         |
| Social Sciences             | 1,744         | 470          | 167        | 27%         |
| Undecided                   | 1,414         | 431          | 209        | 30%         |
| <b>Total</b>                | <b>10,967</b> | <b>2,718</b> | <b>938</b> | <b>25%</b>  |

# Engineering and Selective College Admission

## Case Study of Engineering Applicants:

1. Transcript and Course Selection
2. Standardized Testing
3. Subject Tests
4. Engineering College Lists
5. Outcomes



# Am I an Engineer?

1. Do you singularly enjoy studying the most difficult math and sciences?
2. Have you earned high marks in the most difficult math and science courses offered at Gilman?
3. Do you enjoy science labs and building things in your spare time?
4. Do you want to take primarily math, science, and engineering courses in college?
5. Are you excited to do the research to actually learn and understand the differences between engineering majors?
6. Do you regularly read science and technology articles in your free time?
7. Do you care more about studying engineering than about precisely which school you matriculate into?
8. Are you willing to spend more time than most undergraduates studying and working in a lab?

# What Should I Be Doing Now?

1. Take and work hard in the most rigorously appropriate math and science courses available at Gilman.
2. Be engaged in extracurricular clubs or programs related to STEM fields.
3. Read voraciously beyond the curriculum.
4. Get your hands dirty. Look to work in a lab or apply for a pre-college engineering course over the summer.
5. Tinker and build things on your own.