



# GOT YOU COVERED! CAREER GUIDE

## Dear Student,

Do you want to make an impact on the world? Then a career in Science, Technology, Engineering, or Math (STEM) might be the direction for you. Scientists study the world around them and help find better ways for us to live, work, and play every day. And there's no limit to where their knowledge can be applied — science is behind *everything* we do! Consider your hobbies:

- Obsessed with sports? There's science behind it!
- Love fashion and beauty? There's science behind it!
- Happiest at a gaming console? Definitely, there's science behind it!

STEM careers are exciting, challenging, and rewarding — for you and the world. So, as you look toward the future, think: What do you love? And what's the science behind it?

### Air, Space, and Speed

Automobiles, airplanes, sailing vessels, rockets, and more... The physics involved in building machines that can move over land or through air, water, and space is just the first step. Take a deeper look and you'll see science at every level! For example, high-tech coatings on ships prevent corrosion of metals and deterioration by marine life, while coatings on satellites must accommodate for extreme temperatures in space. As we look toward the future of self-driving vehicles, there will be an increased need for new and better sensor and camera lens coatings, highway markings, and more.

### Architecture

Working at the crossroads between form and function, engineers and architects continuously strive to make our homes, offices, and cities more sustainable, aesthetically pleasing, and functional. Cool roofs, treatments that prevent corrosion, and solar panels are just the beginning when it comes to the development of coatings for structures and surfaces. Interior design gets a boost from advancements in paint textures and technologically-active surfaces

for more personal, purposeful spaces. Architecture is one area of study, but you may also want to consider structural engineering, environmental science, or chemistry.

### Arts and Entertainment

They say an artist is only limited by imagination, but the technology available to create is another challenge. Advancements in paints, pigments, and other physical mediums; conductive surfaces that can project sound and display imagery; and computer technology that makes characters come to life on-screen can be both a tool and an inspiration for artistic expression.

### Cosmetics and Wellness

The multi-billion-dollar cosmetics industry is a hotbed of scientific inquiry and technological advancement. From light-reflecting make-up foundation to plumping lip-gloss to UV nail gels, a background in chemistry, physics, or materials science is as glam as it gets.

### Fashion

Love your stretch jeans? Cozy in a polyurethane-coated raincoat? Materials scientists and chemists have provided the fashion world with some of its most important



*“In the last decade, growth in STEM jobs was three times as fast as growth in non-STEM jobs. In addition, statistics show that STEM jobs command significantly higher salaries than non-STEM jobs. Clearly, careers in science, technology, engineering, and math create great opportunities for young people who are preparing today to take part in tomorrow’s workforce.”*

— Ryan Dirks, Arkema Coatings

moments — high-tech fabrics like spandex and nylon, special protective coatings that extend functionality, super-absorbent undergarments, and pigments and inks for new patterns and prints. The possibilities for the future are endless. For curious minds that love textiles, studies in biology, chemistry, and industrial design offer the ultimate backstage pass!

### Nature and the Environment

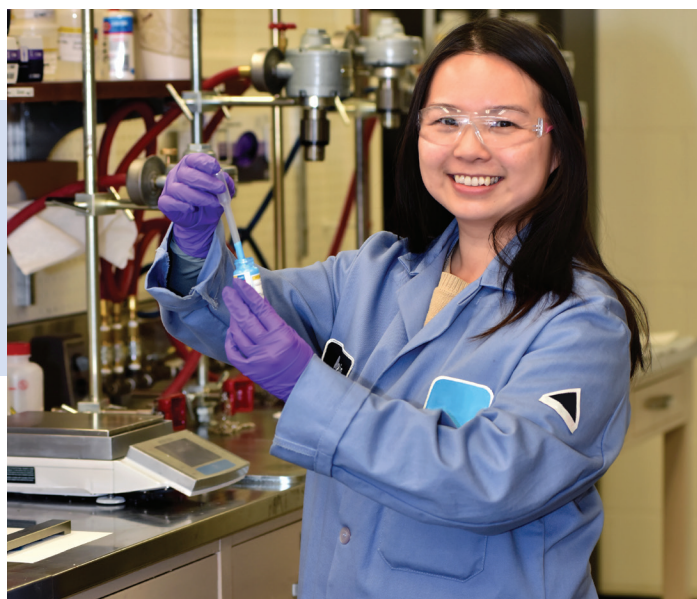
As human populations continue to grow, protecting our environment will be a sort of scientific “all hands on deck.” If you’d like to work toward the greater good, there are many surprising ways to contribute. Materials scientists in the coatings industry, for example, are working to use more renewable materials, and in agriculture, chemists are finding ways to keep crops healthy with fewer chemicals. Studies in chemistry, materials science, and microbiology offer a chance to make a global difference.

### Sports

Athletes train hard to maximize speed, endurance, and coordination, and their equipment must meet the same standards. Scientists support these needs with applications like breathable fabrics and high-impact shoe soles; lighter, more durable bike frames and helmets; and aerodynamic coatings on balls, shuttles, and even kayaks. Get in the game with a degree in physics or materials science!

### Video Games

Digital devices and gaming have only scratched the surface of possibility, and software coding is just one part of the equation. Creating new worlds — and new ways to see our existing world — through computer science or the many intersecting disciplines include applied mathematics, robotics, artificial intelligence, computational physics, and electrical engineering.



## GETTING STARTED



As you can see, STEM subjects offer many opportunities for a bright and financially rewarding future. You will need at least a Bachelor’s Degree, although many people choose to pursue advanced degrees. Research universities and colleges have programs to match your interests. Whatever your specialty, there’s a field of science to match. For careers in the coatings industry, the most relevant subjects are chemistry, engineering, materials science, and physics.

As you prepare for college admissions, take as many science and math courses as you can during high school. You can also look into enrichment programs at nearby colleges. Join after-school clubs and teams that will support your learning and enable you to demonstrate leadership. If your school doesn’t have any STE(A)M clubs, you can start your own. Here are a few programs you may be able to join:

- Adopt-a-Physicist ([adoptaphysicist.org](http://adoptaphysicist.org))
- American Science Olympiad ([sonic.org](http://sonic.org))
- First LEGO League ([usfirst.org](http://usfirst.org))
- International Chemistry Olympiad ([acs.org](http://acs.org))
- Math League ([mathleague.org](http://mathleague.org))
- MATHCOUNTS® ([mathcounts.org](http://mathcounts.org))
- Team America Rocketry Challenge (TARC) ([rocketcontest.org](http://rocketcontest.org))

## SALARIES



A 2016 survey from the American Chemical Society shows high employment rates and solid pay. Chemists reported making an average of \$97,630 per year, and chemical engineer salaries were \$123,000. For more information, check out [acs.org](http://acs.org), or the Bureau of Labor statistics for related fields.

*“As a coatings scientist, I play with paint to make special features and spectacular colors that protect and beautify the world. Who knew that such a thin layer of material could be so amazing!”*

— Maria Wang, Senior Research Chemist at PPG