Career fields using nanotechnology:

- Lab technician
- Quality control engineer
- Engineering support
- Research scientist
- Electronics/semiconductor industry
- Materials science including textiles, polymers, packaging, etc.
- Auto and aerospace industries
- Sporting goods
- Biotechnology
- Cosmetics
- Computing
- Medical fields and pharmaceuticals
- Environmental monitoring, control, and remediation
- Food science including quality control & packaging
- Agriculture
- Forensics
- Geosciences
- Microscopy
- University and federal lab research
- Military and national security
- Energy production and storage
- Retail (RFID tags)
- Business
- Law
- And many more areas



Where is nanotechnology?





Learn more at :

- www.nnci.net/what-nano
- nano4me.org/index
- www.nnci.net/careers-nanotechnology
- www.dummies.com/education/science/nanotechnol ogy/where-are-the-nanotechnology-careeropportunities/
- micronanoeducation.org

Is a career in Nanotechnology in your future?

There are many paths to a career in nanoscale science & engineering



What do you need to do to become part of this technological revolution? Careers are abundant and you can choose one that interests you. Inside you will find information on the many education and career options available to you.





Brought to you by NNCI www.nnci.net

Is a Nanotechnology Career in your Future?



Possible Career Paths:

Engineer: developing new nanoscale materials and devices

Scientist: researching new nanoscale materials, devices, and phenomena

Technician: applying nano knowledge to lab operations, quality control, and material analysis **End user:** utilizes nano-enabled technologies manufacturing, product development, environmental monitoring, among others.

Potential Fields of Study:

- All areas of engineering
- Biology
- Chemistry
- Physics
- Medicine/Pharmacology
- Mathematics
- Computer Science

What is nanotechnology?

Nanotechnology is the science and engineering of small things, in particular things that are between 1 & 100 nanometers in size. A nanometer is 10-9 meters or one-billionth of a meter. A human hair is ~ 80,000 nm in diameter. Why is the nanoscale so interesting? Materials at this scale can have very different and unique properties than the same materials at a larger scale. For example, gold at the nanoscale interacts differently with light and appears red or violet. Your soda can made of aluminum is a very stable material but aluminum at the nanoscale is explosive. Scientists and engineers use these unique properties to enable novel applications. An example of a novel application is clear nanoscale coatings on computers and cellphones that make them water-repellant, scratch resistant, or antimicrobial. Nanotechnology can be used across the fields of science and engineering - chemistry, physics, biology, engineering and materials science. Its impact touches most aspects of our lives from your smart phone to the energy powering your classroom.



Preparing for a career in nanotechnology:

You will not find many jobs with nano or nanotechnology in the job name. But, lots of jobs will require skills and knowledge of nano.

In high school:

- Concentrate on science and math
- Take one year of chemistry, physics, and biology

Post high school education options:

- Technical Program Certifications
- Associate Degree (AA/AAS)
- Bachelors Degree (BS/BA)
- Masters Degree (MS/MA)
- Doctorate Degree (PhD)

Associate's Degree Level:

- Technician careers
- Programs across US for Associate's in nanoscience technology
- Learn more at: Micro Nano Technology Education Center (MNT-EC; micronanoeducation.org)

Baccalaureate and higher level - Nanoengineer & Nanoscientist:

- <u>4vr Bachelor's degree</u> and up. There are few "Nanotechnology" degree programs.
- Most undergraduates pursue traditional engineering disciplines: electrical, mechanical, chemical, biomedical engineering, materials science or fields in science.

Masters or PhD degrees

 Pursue an engineering field, such as electrical, mechanical, chemical, biomedical engineering, materials science or a science disciplines: such as physics, chemistry, biology, geology, environmental science.