VT COLLEGE OF SCIENCE ACADEMY OF INTEGRATED SCIENCE VIRGINIA TECH

NANOSCIENCE

Nanoscience is the study of materials, phenomena, properties, and applications at the smallest length scale at which we can control matter. A nanometer is one-billionth of a meter, just slightly larger than individual atoms.

Nanoscience and nantotechnology have rapidly growing applications in a wide range of technology areas including electronics, information technology, medicine, renewable energy, aerospace, and advanced materials. The National Science Foundation predicts that by the year 2020, $1 trillion of products in the U.S. will contain nanotechnology. The Bachelor's degree program in Nanoscience at Virginia Tech is one of only two such programs in the U.S.

▶ Covers materials such as fullerenes, nanotubes, quantum dots, and graphene and techniques such as self-assembly, lithography, electron microscopy, and scanning tunneling microscopy.

▶ Federal government created National Nanotechnology Initiative (www.nano.gov) in 2000, which has invested >$25 billion in research and development.

Careers in Nanoscience

Electronics and Semiconductor Industries
Environmental Monitoring and Remediation
Materials Science Medical Devices
Energy Generation and Storage
Auto and Aerospace Industries
Pharmaceuticals
Sporting Goods
Biotechnology
& many others

▶ A Nanoscience minor is also available!

Course Offerings

NANOSCIENCE
Intro to Nanoscience
Nanoscience Research Seminar
Undergraduate Research
Quantum Physics of Nanostructures
Nanoscience & the Environment
Nanoscale Synthesis, Fabrication, & Characterization
Professional Dissemination of Nanoscience Research
Introduction to Nanomedicine
Advanced Nanomaterials and Devices

PHYS
Foundations of Physics

CHEM
General Chemistry and Lab
Organic Chemistry and Lab

BIOL
Cell & Molecular Biology for Engineers

MATH
Elementary Linear Algebra
Calculus of a Single Variable
Intro to Differential Equations

▶ 8 credits of undergraduate research required as part of degree.

http://www.ais.science.vt.edu/