What Can I do with a major in Physics?

Astronomy
Areas
Teaching
Research
Writing

Employers
Colleges and universities
Observatories
Planetariums
Science museums
Nonprofit foundations
Industry e.g., aerospace, scientific supply, mass media
Federal government: National Aeronautics and Space Administration, Smithsonian Astrophysical Observatory, U.S. Naval Observatory, U.S. Naval Research Laboratory

Strategies
- Acquire excellent verbal and written communication skills.
- Get involved in a research project.
- Develop a specialty area of expertise and experience.

Acoustical Physics
Areas
Basic and Applied Research
Development
Teaching
Consulting
Administration
Testing

Employers
Colleges and universities
Government laboratories
Nonprofit research centers
Industry e.g., electronics, building design, medical instrumentation, communications, engineering, noise pollution, sound recording, film production

Strategies
- Supplement program with courses in psychology, physiology, communications, political science, and sociology.
- Obtain a graduate degree in physics for opportunities in industry.
- Maintain an interest in music, the arts and humanities.

Astrophysics
Areas
Teaching
Consulting
Administration
Research
Design
Astronautics

Employers
Government laboratories
Research centers
Airports
Colleges and universities
Commercial industry
Space industry
National Aeronautics and Space Administration
Observatories
Planetariums
Military

Strategies
- Obtain experience through part-time or voluntary position in a planetarium, observatory or science museum.
- Complete an internship with a research organization or related industry.
- Participate in research with scholars in the field.
- Contact the American Astronomical Society for more information.

Biophysics
Areas
Basic and Applied Research
Development
Teaching
Consulting
Administration

Employers
Colleges and universities
Government laboratories
Nonprofit research centers
Industry e.g., biotechnology, environment, pharmaceuticals
Hospitals

Strategies
- Acquire information about state licensure required for various types of technicians working in medical settings.
- Gain experience as a laboratory assistant or hospital orderly.
- Volunteer at a hospital or clinic.

Fluid & Plasma Physics
Areas
Basic and Applied Research
Development
Teaching
Consulting
Administration
Employers
Colleges and universities
Government laboratories
Government agencies
Nonprofit research centers
Industry e.g., automobile, jet engine, space vehicle design, controlled fusion device design

Strategies
• Obtain a graduate degree (master's or doctorate) for opportunities in industry or research.

Geophysics
Areas
Basic and Applied Research
Development
Teaching
Consulting
Administration
Exploration

Employers
Colleges and universities
Nonprofit research centers
Federal government e.g., Coast and Geological Survey, U.S. Geological Survey, Army Map Service, Naval Oceanographic Office
Industry e.g., petroleum, mining, exploration
Consulting firms

Strategies
• Specialize in geophysics or minor in geology.
• Develop good background in mathematics, chemistry, engineering, and physics.
• Maintain good physical condition.

Health Physics
Areas
Basic and Applied Research
Development
Teaching
Consulting
Administration
Monitoring/Inspection

Employers
Colleges and universities
Government laboratories
Government agencies e.g., Department of Defense, Department of Energy, Department of Public Health Service
Nonprofit research centers
Industry e.g., health physics instrumentation, nuclear power, nuclear weapons, radioisotope products, nuclear accelerators, nuclear reactors
Environmental firms
Hospitals

Strategies
• Earn a Ph.D. and certification by the American Board of Health Physics (ABHP) for top university teaching, research and administrative positions.
• Complete a master's degree and certification by the ABHP for professional health physicists’ positions.
• Specialize in health physics and obtain technician certification from the National Registry of Radiation Protection.
• Acquire knowledge of government standards and regulations.

Medical Physics
Areas
Basic and Applied Research
Development
Teaching
Consulting
Administration

Employers
Colleges and universities
Medical schools
Hospitals
Industry e.g., medical instrumentation
Government laboratories
Nonprofit research centers
Government agencies

Strategies
- Gain experience working in a hospital.
- Develop a research specialty in a medical or health related area.

**Nuclear Physics**
Areas
Basic and Applied Research
Development
Teaching
Consulting
Administration
Law
Quality Control
Operations and Maintenance

Employers
Colleges and universities
Military
Industry, e.g., nuclear weapons, nuclear accelerators, nuclear reactors, nuclear instrumentation, radioisotope products
Government laboratories and research centers

Government agencies e.g., Department of Defense, Department of Energy

**Strategies**
- A master's degree is preferred for positions in industry.
- Develop excellent laboratory skills.
- Acquire a strong mathematics and chemistry background.

**Optical Physics**
Areas
Basic and Applied Research
Development
Teaching
Consulting
Administration

Employers
Colleges and universities
Government laboratories
Nonprofit research centers
Industry e.g., medical scanners, eyeglasses, binoculars, microscopes, lasers, holography, display technologies, x-ray, ultraviolet spectra, fiber optics
Federal agencies e.g., NASA, Department of Energy, Department of Defense

**Strategies**
- Obtain a master's degree for positions in industry.
- Supplement program with courses in electricity, magnetism, quantum mechanics, and electronics.
- Get involved in an independent optics project during senior year.

**Science Education**
Areas
Teaching
Computer Software Development
Educational Research
Writing and Editing
Library and Information Sciences

Employers
Public school systems, K-12
Private schools, K-12
Publishing companies: books, magazines, videos
Software developers
Libraries

Strategies
- Gain experience working with young people through volunteering and tutoring.
- Work with after school programs and summer camps.
- Acquire appropriate state teacher certification for K-12 teaching opportunities.
- Visit schools and observe classrooms.
- Create a portfolio of science experiments and activities.
- Become skilled in the use of computers.
- Earn a graduate degree in information science.

Technical Areas
Engineering (Process and Testing)
Quality Control
Industrial Hygiene
Design Development
Technical Writing
Computer Technology
Research

Employers
Research and development firms
Mining and petroleum companies

Hospital
Engineering firms
Professional and technical journals
Government laboratories
Manufacturing and processing firms
Atomic and nuclear labs
Government agencies e.g., Department of Commerce,
Department of Defense
Television and radio stations
Weather bureaus

Strategies
- Gain experience through internships or co-ops.
- Complete applicable certification or licensure through professional organizations.
- Gain knowledge about the field through informational interviews with professionals.
- Develop work habits that are systematic, precise, and patient.
- Develop a strong computer background.
- Gain experience using scientific instruments and equipment.
- Pursue a graduate degree in engineering.

Solid State Physics
Areas
Basic and Applied Research
Development
Consulting
Teaching
Administration

Employers
Government laboratories
Nonprofit research centers
Colleges and universities
Electronics industry e.g., communications, automobile, computer, navigation/guidance systems
Government agencies e.g., NASA, Department of Defense

**Strategies**
- Obtain experience working with electronics and computers.
- Request applicable job listings from the American Institute of Physics.

**General Information**
- A bachelor’s degree will qualify for positions as research assistants, high level technicians, or computer specialists, as well as nontechnical work in publishing or sales.
- An undergraduate degree also provides a solid background for pursuing advanced degrees in other employment areas such as law, business, accounting, or medicine.
- Be aware that expertise and experience in a specialty area are usually required for employment opportunities directly related to physics.
- A graduate degree and post-graduate experience will allow for more responsibility and advancement in the field of physics.
- An earned doctorate is required for college or university teaching, advanced research, and administrative positions.
- Some industries such as the manufacturers of electrical devices will train in the specialty of the firm.
- A bachelor’s degree and state teacher certification are required for K-12 teaching opportunities.
- Visit government laboratories or research centers. Talk with a physicist about his/her profession and career path.
- Join relevant professional associations. Attend their meetings and read their publications.
- Acquire excellent oral and written communication skills.
- Gain experience with tools, electronics, and machinery.
- Become familiar with government job application process for positions in federal, state, or local government.

Prepared by the Career Planning staff of Career Services at The University of Tennessee, Knoxville.

**Career Exploration**

California Occupational Guides
http://www.calmis.ca.gov/file/occguide/healthph.htm

Occupational Outlook Handbook
http://stats.bls.gov/oco/ocos052.htm

Physicsworld
http://physicsworld.com/cws/lp/jobs

O’Net-
http://online.onetcenter.org/find/stem?t=8&g=Go Click on Physicists

The Princeton Review

Wetfeet.com

**Exploring Majors**

Discover Science

Major Resource Kits
http://www.udel.edu/CSC/physics.html
Job Postings

SMC Student Job Search - www.stmarys-ca.edu/studentjobs
American Association for the Advancement of Science
www.aaas.org
Science’s Next Wave
http://nextwave.sciencemag.org
ScienceJobs.com
www.sciencejobs.com
The New Scientist
www.newscientist.com
American Institute of Physics
www.aip.org/careersvc/
American Nuclear Society
www.ans.org
CERN Summer Research Program - Summer
www.dac.neu.edu/physics.reu_cern/
Fermi National Accelerator Laboratory
http://sist.fnal.gov/students.php
Intel
http://intel.com/jobs/usa/students/internships/
Lunar Planetary Institute (LPI)
http://www.nasa.gov/audience/forstudents/postsecondary/index.html
NSF Research Experiences for Undergraduates Program
www.nsf.gov/home/crssprgm/reu/start.htm
Ohio Aerospace Institute
AT&T Labs
Bay Area Careers
www.bayareacareers.com/
Career Builder.com
www.careerbuilder.com
Cool Works
www.coolworks.com
Government Jobs
www.govexec.com
Monster.com
www.monster.com
Adguide’s College Recruiter
www.adguide.com/
Campus Career Center
www.campuscareercenter.com
College Central network
www.collegecentral.com/
WetFeet.com
www.wetfeet.com
Federal Jobs
www.usajobs.opm.gov
www.studentjobs.gov
Bright Recruits
http://www.brightrecruits.com/

Professional Associations

Professional associations can be a good resource for finding jobs and internships. Follow the links! Participating in associations can be a valuable avenue for learning about an occupation or field. Associations are an excellent resource for
networking, and their websites often have information about careers.

American Institute of Physics (AIP)
http://www.aip.org/

American Association of Physics Teachers
www.aapt.org/

The American Nuclear Society
www.ans.org/

American Physical Society (APS)
www.aps.org/

The Institute of Physics (IoP)
www.iop.org/

International Association of Mathematical Physics (IAMP)
www.iamp.org/

Laser Institute of America (LIA)
www.laserinstitute.org/

SETI Institute
www.seti-inst.edu/

Society of Physics Students
http://www.spsnational.org/cup/profiles/

American Astronomical Society
http://aas.org/education/resources.php#college

American Geophysical Union
http://www.agu.org/outreach/education/careers.shtml

American Association of Physicians in Medicine
http://www.aapm.org/main.asp

Health Physics Society
http://hps.org/