

PHYSICS

What can I do with this degree?

AREAS

EMPLOYERS

STRATEGIES

ASTRONOMY

Teaching
Research
Writing

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

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

ACOUSTICAL PHYSICS

Basic and Applied Research
Development
Teaching
Consulting
Administration
Testing

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

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

Teaching
Consulting
Administration
Research
Design
Astronautics

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

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.

AREAS

EMPLOYERS

STRATEGIES

BIOPHYSICS

Basic and Applied Research
Development
Teaching
Consulting
Administration

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

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 AND PLASMA PHYSICS

Basic and Applied Research
Development
Teaching
Consulting
Administration

Colleges and universities
Government laboratories
Government agencies
Nonprofit research centers
Industry e.g., automobile, jet engine, space vehicle
design, controlled fusion device design

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

GEOPHYSICS

Basic and Applied Research
Development
Teaching
Consulting
Administration
Exploration

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

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

HEALTH PHYSICS

Basic and Applied Research
Development
Teaching
Consulting
Administration
Monitoring/Inspection

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

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.

AREAS

EMPLOYERS

STRATEGIES

MEDICAL PHYSICS

Basic and Applied Research
Development
Teaching
Consulting
Administration

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

Gain experience working in a hospital.
Develop a research speciality in a medical or health related area.

NUCLEAR PHYSICS

Basic and Applied Research
Development
Teaching
Consulting
Administration
Law
Quality Control
Operations and Maintenance

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

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

OPTICAL PHYSICS

Basic and Applied Research
Development
Teaching
Consulting
Administration

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

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

Teaching
Computer Software Development
Educational Research
Writing and Editing
Library and Information Sciences

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

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.

AREAS	EMPLOYERS	STRATEGIES
TECHNICAL Engineering (Process and Testing) Quality Control Industrial Hygiene Design Development Technical Writing Computer Technology Research	Research and development firms Mining and petroleum companies Hospitals 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	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 Basic and Applied Research Development Consulting Teaching Administration	Government laboratories Nonprofit research centers Colleges and universities Electronics industry e.g., communications, automobile, computer, navigation/guidance systems Government agencies e.g., National Aeronautics and Space Administration, Department of Defense	Obtain experience working with electronics and computers. Request applicable job listings from the American Institute of Physics.
GENERAL INFORMATION <ul style="list-style-type: none">• 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 speciality 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 speciality 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.		

What can I do with this degree?

PHYSICS

Physics Links:

[Professional Science Masters](#)

[Sloan Foundation Careers in Science, Technology, Engineering and Mathematics](#)

[American Physical Society](#)

[Careers Using Physics](#)

[American Institute of Physics Careers for Physicists](#)

[Physics Jobs Online](#)

[Science Careers](#)

[Careers in Science and Engineering](#)

[PhDs.org](#)

[The American Astronomical Society](#)

[The Scientist's Employment Network](#)

[Science Technicians from the Occupational Outlook Handbook](#)

[Physicists and Astronomers from the Occupational Outlook Handbook](#)

[Teacher-Postsecondary from the Occupational Outlook Handbook](#)

AREAS

ASTRONOMY

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.

AREAS

ACOUSTICAL PHYSICS

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.

AREAS

ASTROPHYSICS

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.

AREAS

BIOPHYSICS

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.

AREAS

FLUID AND PLASMA PHYSICS

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.

AREAS

GEOPHYSICS

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.

AREAS

HEALTH PHYSICS

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.

AREAS

MEDICAL PHYSICS

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.

AREAS

NUCLEAR PHYSICS

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.

AREAS

OPTICAL PHYSICS

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.

AREAS

SCIENCE EDUCATION

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.

AREAS

TECHNICAL

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

EMPLOYERS

Research and development firms
Mining and petroleum companies
Hospitals
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.

AREAS

SOLID STATE PHYSICS

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., National Aeronautics and Space Administration, 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. (2005) UTK is an EEO/AA/Title VI/Title IX/Section 504/ADA/ADEA Employer