What can I do with a major in... Physics

Physicists explore and identify the basic principles governing the structure and behavior of matter, the generation and transfer of energy, and the interaction of matter and energy. Some physicists use these principles in theoretical areas such as the nature of time and the origin of the universe. Others work in more practical areas such as the development of materials, electronic or optical devices, and medical equipment. Physicists design and perform experiments with lasers, cyclotrons, telescopes, mass spectrometers, and other equipment. For instance, lasers are used in surgery, microwave devices function in ovens, and measuring instruments can analyze blood or the chemical content of foods. Physicists also find ways to apply mathematics and physical laws and theories to problems in nuclear energy, electronics, optics, materials, communications, aerospace technology, navigation equipment, and medical instrumentation. Many physicists work in research and development. Some do basic research to increase scientific knowledge or applied research to build on basic knowledge. For example, knowledge gained through basic research in solid-state physics led to the development of transistors and then integrated circuits used in computers. A small number of physicists work in inspection, testing, quality control, and other production-related jobs in industry. Physicists generally specialize in one of the following areas: acoustics, astronomy, astrophysics, atmospheric physics, biophysics, chemical physics, cryogenics, electromagnetism, energy, environmental physics, fluid mechanics, geophysics, medical physics, metallurgy, nuclear physics, optical physics, plasma physics, rheology, solid state physics, or vacuum physics. Research in physics often requires a Ph.D.

INDUSTRIES
- Aerospace/aeronautical
- Automotive
- Biomedical
- Consulting
- Educational institutions
- Engineering consulting
- Government agencies
- Information technology
- Materials supply
- Nuclear plants
- Observatories
- Optics/electronics
- Petroleum/mining
- Research and development
- Telecommunications

EMPLOYERS
- 3M
- Accenture
- Amazon
- Boom Lab
- Carl Zeiss Industrial Metrology
- Deloitte
- Epic Systems
- General Mills
- Google
- Intel Corporation
- Meditec
- Micron Technology, Inc
- Minco Products
- Orbital ATK
- Proto Labs Inc
- RFA Engineering
- Seagate Technology
- Siemens
- Thomson Reuters
- Vascular Solutions

TECHNICAL SKILLS
- Electrical Analysis
- Excel
- Mathematica
- MATLAB
- Microsoft Office
- MotionLab Software

CSE Career Outcomes

Average Starting Salary: $**

Post-graduation Outcomes:*

**cohort size too small to report data due to privacy regulations
POSSIBLE POSITIONS

- **Data analyst**: Analyzes problems and comes up with creative solutions.
- **Field test engineer**: Performs electro-optical (EO) or infrared (IR) measurements, both on site and at field test sites as part of a small team. Develop/upgrade instrumentation and software for control and analysis, document test procedures and experimental setups, and analyze and document the results of the tests.
- **Lab analyst**: Conducts experiments, runs laboratory tests and analyzes results.
- **Physical scientist**: Conducts research, testing, evaluation, and analysis related to the identification and evaluation of products and features such as counterfeit deterrent security features on currency. They advise on and administer scientific work in the investigation and application of optical/light principles.
- **Physicist**: Conducts research into the phases of physical phenomena, develops theories/laws on the basis of observation and experiments, and devises methods to apply laws/theories to industry and other fields.
- **Professor/teacher**: Develops and teaches physics curriculum, which includes scientific experiments.
- **Researcher**: Conducts experiments, analyzes findings, operates necessary equipment, develops and tests theories.
- **Rheologist**: Applies physics to the study of the deformation and flow of matter. For instance, rheologists apply the principles behind the observation in the differences in the flow of ketchup from a bottle before and after shaking the bottle.
- **Thin film deposition engineer**: Conducts product development on thin film deposition using vacuum systems, including operation/maintenance of a vacuum system; designing and constructing part of the system as needed; analysis of the deposited thin film; and designing of experiments, analyzing results, and reporting.

**Some of these positions may require an advanced degree.**

GET INVOLVED

- Astronomy Club
- National Society of Black Engineers
- Science and Engineering Student Board
- Society of Asian Scientists and Engineers
- Society of Hispanic Professional Engineers
- Society of Physics Students
- Society of Women Engineers
- Solar Vehicle Project
- Tau Beta Pi
- TeslaWorks

RESOURCES

- American Association for the Advancement of Science: [aaas.org](http://aaas.org)
- American Association of Physicists in Medicine: [aapm.org](http://aapm.org)
- American Association of Physics Teachers: [aapt.org](http://aapt.org)
- American Institute of Physics: [aip.org](http://aip.org)
- American Society for Testing and Materials: [astm.org](http://astm.org)
- Careers in Physics: [aps.org/careers](http://aps.org/careers)
- Careers Using Physics: [spsnational.org/cup](http://spsnational.org/cup)
- Institute of Physics: [iop.org](http://iop.org)
- Laser Institute of America: [lia.org](http://lia.org)
- Microscopy Society of America: [microscopy.org](http://microscopy.org)
- National Academy of Sciences: [nas.edu](http://nas.edu)
- National Space Science and Technology Institute: [nssti.org](http://nssti.org)
- Optical Society of America: [osa.org](http://osa.org)
- Physics and Astronomy: [physlink.com](http://physlink.com)
- Physics Today: [jobs.physicstoday.org](http://jobs.physicstoday.org)
- Physics.org: [physics.org](http://physics.org)
- Radiological Society of North America: [rsna.org](http://rsna.org)
- School of Physics and Astronomy: [physics.umn.edu](http://physics.umn.edu)
- Science Careers: [sciencemag.org/careers](http://sciencemag.org/careers)
- Sciencejobs.org: [sciencejobs.org](http://sciencejobs.org)

See the Major Binders available in the CSE Career Center's Resource Center for more information about this major and career.

*Salary and Career Outcomes gathered from the 2016-2017 CSE Graduation Survey*

Post-graduation outcomes reflect the percentage of students who were employed full-time in their field or were enrolled in a graduate program.

For detailed starting salary information see the CSE Career Center website.