

**Bachelor of Science: Physics**

**Tracks: Engineering, Engineering Technology and Astronomy**

**Minor: Physics**

Physics is the study of the laws of nature including mechanics, sound, electricity and magnetisms, optics, heat, and quantum theory. The Bachelor of Science program at Kutztown offers three tracks: Physics, Physics-Engineering Physics, and Physics-Astronomy. Courses in these programs include Heat and Thermodynamics, Quantum Mechanics, Optics, Mathematical Physics, and Electricity and Magnetism. Additionally, Physics students have access to an on-campus observatory, planetarium and physics laboratories for course work and research projects.

A degree in Physics is ideal for students who wish to pursue graduate studies in physics, engineering, or related fields and/or careers in manufacturing, technology, and applied research.

**Career types associated with Physics**

*(Is this a good fit for you? Are you a...)*

- Investigative - "Thinker"
- Realistic - "Doer"
- Enterprising - "Leader"

**Related skills, values, and qualities**

- Ability to organize, analyze & interpret scientific data
- Proficiency in reading, writing, thinking, questioning, analyzing & problem solving
- Ability to make critical observations & appropriate decisions
- Ability to conduct and explain scientific research
- Strong background in mathematics
- Aptitude for accuracy and detail
- Proficiency with computers

**Courses Physics majors typically enjoy**

- Computer Programming
- Earth Science
- Mathematics (Algebra/Trigonometry/Calculus)
- Physical Science
- Statistics

**Common interests of Physics majors**

- Completing puzzles or playing games of strategy
- Troubleshooting or repairing electronic equipment
- Solving logic problems
- Working with computers
- Participating in science or math clubs
- Reading physics or science publications

**For more information about the major**

Contact the Physical Science Department,  
425 Boehm, 610-683-4447, or visit  
[www.kutztown.edu/Physics](http://www.kutztown.edu/Physics)

**KU Majors related to Physics**

Chemistry, Computer Science, Geology,  
Mathematics, Secondary Education-Science or Math,  
Philosophy

Investigative students may also be interested in:

Anthropology, Biology, Biochemistry, Criminal Justice, Economics\*, Environmental Science, Geology, Geography, German Studies, History, International Studies\*, Marine Science, Multicultural Studies\*, PA German Studies\*, Political Science, Psychology, Sociology, and Spanish

\* minor only

# FOUR STEPS TO SUCCESS

EXPLORE

DISCOVER

EXPERIENCE

IMPLEMENT

1<sup>ST</sup> YEAR

- Enroll in the Career Exploration Certificate.
- Attend info sessions to learn about career development and personal branding.
- Take a career assessment to identify and confirm interests.
- Get involved in campus clubs and organizations.
- Develop basic workplace skills through jobs or volunteer work.
- Talk with professors, family, and friends about career ideas.
- Conduct informational interviews with professionals working in fields of interest.
- Develop a relationship with your professors and faculty advisor.

2<sup>ND</sup> YEAR

- Meet with CDC career coach.
- Attend info sessions to learn about resume writing, and externships.
- Confirm your choice of major and consider options for double major or minor.
- Research careers of interest.
- Complete a job shadowing (externship) experience.
- Seek meaningful employment or volunteer work in a field related to your major.
- Explore options for undergraduate research and study abroad.
- Write a resume and have it reviewed by the CDC.
- Manage your online presence.

3<sup>RD</sup> YEAR

- Enroll in the Career Success Certificate.
- Complete an internship and/or undergraduate research.
- Attend info sessions about internships, interviewing, job search strategies, and grad school.
- Build a LinkedIn profile and continue to monitor your online presence.
- Complete a mock interview.
- Build skills through research projects, part-time employment, and volunteer work.
- Participate in employer panels, site visits & networking events.
- Attend internship & job fairs.
- Take on a leadership role in a student organization or work.
- Consider graduate school options and prepare for admissions tests.

4<sup>TH</sup> YEAR

- Attend your Senior Kick-off and other info sessions to prepare for job search/grad school.
- Update your resume and LinkedIn profile.
- Create cover letter drafts.
- Gain experience through internships and/or undergraduate research.
- Secure references for job/grad school applications.
- Create your "30 second" commercial/elevator pitch.
- Meet with CDC to develop job search strategies.
- Research employers.
- Network with professionals through events and social media.
- Join a professional organization in your discipline.
- Attend the senior etiquette luncheon or dinner.
- Participate in job fairs and on-campus interviewing.

## Sample Career Titles

Physics majors can be found working in a wide variety of career fields. Here are just some career titles that may be of interest. Please note that some jobs may require further education and training.

To learn more about these careers, visit <http://online.onetcenter.org> or [www.bls.gov/oco](http://www.bls.gov/oco).

- Acoustics Physicist Administrator
- Aerodynamist
- Aerospace Testing Analyst
- Astronomer
- Astrophysicist
- Atomic Physicist
- Biophysicist
- Cardiac Imaging Researcher
- Chemical Physicist
- Computer Specialist
- Computer System Engineer
- Devices Designer Director
- Fluids Physicist
- Geophysicist
- High-Tech Designer, Oil Industry
- Hydrologist
- Industrial Hygienist
- Laboratory Tech/Director
- Lawyer, Technology Specialty
- Mathematician
- Mathematics and Physics Teacher
- Medical Physicist
- Medical Products Designer
- Meteorologist
- Molecular Physicist
- National Laboratory Research
- Nuclear Magnetic Resonance
- Nuclear Physicist
- Nuclear Power Plant Manager
- Operations Analyst
- Physicist
- Physics Researcher
- Physiognomist
- Plasma Physicist
- Process Engineer
- Project Manager
- Radiological Researcher & Developer
- Research Assistant
- Satellite Data Analyst
- Satellite Missions Analyst
- Science Teacher
- Science Writer Scientist
- Seismologist
- Solid Earth/State Physicist
- Stratigrapher
- Technical Consultant
- Technical Salesperson
- Technical Writer
- Test Engineer

## Common Internship Sites and Employers

Physics majors often find internships and employment in the following fields/industries.

- Aerospace Development
- Airports
- Business and Industry
- High Schools & Higher Education
- Medical Field
- Mining and Petroleum
- Research & Development Firms
- Scientific Publication Companies
- State/Federal Government
- Utility Companies
- Weather Bureaus

Handshake

Handshake is the primary online resource  
for preparing and connecting students and alumni with employers.  
[www.kutztown.edu/handshake](http://www.kutztown.edu/handshake)

## Useful Websites for Physics Majors

Whether you are researching related career fields, applying for internships or jobs, or planning to join a professional association, these websites are for you!

### Industry/Employment Information

Careers in Applied Mathematics  
[www.siam.org/careers/thinking.php](http://www.siam.org/careers/thinking.php)

DICE  
[www.dice.com](http://www.dice.com)

Institute of Physics  
[www.iop.org](http://www.iop.org)

Math Jobs  
[www.math-jobs.com](http://www.math-jobs.com)

Physics World  
<http://physicsworld.com>

Science Careers  
<http://sciencecareers.sciencemag.org>

Sloan Career Cornerstone Center  
[www.careercornerstone.org](http://www.careercornerstone.org)

We Use Math in Careers  
[www.weusemath.org](http://www.weusemath.org)

LinkedIn Job Search  
[www.linkedin.com/jobs](http://www.linkedin.com/jobs)

### Professional Associations

Advanced Laboratory Physics Association  
<http://advlab.org>

American Association of Physicists In Medicine  
[www.aapm.org](http://www.aapm.org)

American Astronomical Society  
<http://aas.org>

American Center for Physics  
<http://acp.org>

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

American Mathematical Society  
[www.ams.org](http://www.ams.org)

American Physical Society  
[www.aps.org](http://www.aps.org)

American Geoscience  
[Www.americangeosciences.org/workforce](http://www.americangeosciences.org/workforce)

International Society of Physics Students  
[www.iaps.info](http://www.iaps.info)

Society for Industrial & Applied Mathematics  
[www.siam.org](http://www.siam.org)

Society of Physics Students  
[www.spsnational.org](http://www.spsnational.org)

### Related Area Employers

Amcor  
Bosch-Robert Bosch LLC  
Brentwood Industries  
Crayola  
East Penn Manufacturing  
EnerSys  
FedChem LLC  
Fedegari Technologies Inc  
HCL Technologies Inc  
Knoll Inc.  
Morgan Corporation  
Radian Group  
Volvo Group

# Building Your Resume for a Career in Physics

Building a strong resume for your career field starts long before you ever start your job search. Employers want to hire graduates who not only have the necessary educational background but also have experience applying that knowledge.

## Phillip Physics

[pphys000@live.kutztown.edu](mailto:pphys000@live.kutztown.edu), [www.linkedin.com/in/phillip](http://www.linkedin.com/in/phillip), 555-555-5555

### PROFILE

Interested in working for a laboratory to analyze and test toxic chemicals.

### QUALIFICATIONS

- Combination of theoretical and laboratory experience
- Ability to work independently and as a cooperative team [member](#)
- Strong research, presentation and critical thinking skills
- Proficient in UNIX, SPSS, Linux, Microsoft Excel, Access & PowerPoint

### EDUCATION

B.S. Kutztown University of Pennsylvania Kutztown, PA  
Major: Physics, Minor: Mathematics Dec 20xx  
GPA: 3.52  
Dean's List Fall 20xx-Spring 20xx

Related Courses: Nuclear Physics, Heat & Thermodynamics, Mathematical Physics, Quantum Mechanics, Solid State Physics, Advanced Physics Lab (Mechanics, Heat & Thermodynamics)

### RESEARCH EXPERIENCE

*Absorption Rates of Aerosols in the Atmosphere* Fall 20xx-Present  
Kutztown University, Dr. Physics  

- Investigated effects and absorption rates of aerosols in [atmosphere](#)
- Assisted advisor in conducting an extensive literature review focused on effects of aerosols on [environment](#)

### INTERNSHIP & EXTERNSHIP EXPERIENCE

Aerosol Laboratories, Inc. Allentown, PA  
Physics Intern Summer 20xx  

- Assisted scientists in chemical vapor and aerosol decontamination [testing](#)
- Performed particle size analysis and variability [testing](#)
- Documented experiment process and assisted with report [writing](#)
- Completed 40 hours of training focused on aerosols and toxic [inhalants](#)

Student Extern Sept 20xx  

- Observed process of dry powder analysis
- Discussed developments in aerosol and inhalant [testing](#)

### CAMPUS INVOLVEMENT & PROFESSIONAL DEVELOPMENT

Member, Society of Physics Students, Kutztown University Fall 20xx-Present  
Member, National Society of Hispanic Physicists Spring 20xx-Present  
Volunteer, Kutztown University Graduate School Fair Spring 20xx-Present  
Volunteer, KuBok, Kutztown Neighborhood Watch Fall 20xx-Fall 20xx  
Recipient, Career Success Certificate, Kutztown University Career Development Center Fall 20xx  
Recipient, Career Exploration Certificate, Kutztown University Career Development Center Fall 20xx

### WORK EXPERIENCE

Admissions Office, Kutztown University Kutztown, PA  
University Tour Guide Fall 20xx-Present  

- Promote University during campus tours and field guest [questions](#)
- Communicate effectively with large and diverse student [groups](#)
- Provide information regarding [University](#) history and services

Learn more about your field and develop the necessary skills for employment by gaining hands-on experience through internships.

Utilize summer breaks to acquire valuable experience via volunteer or employment opportunities related to your major.

Develop professionally through campus involvement and professional memberships. This illustrates responsibility, leadership abilities and time management skills.