

FACT SHEET

Connecting Physics Students To Career Opportunities



TIPS FOR HELPING PHYSICS STUDENTS FIND MEANINGFUL EMPLOYMENT

[overview & purpose]

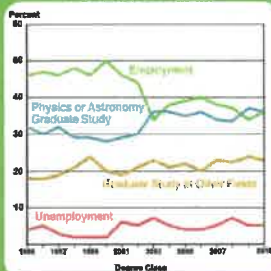
As the number of students receiving physics bachelor's degrees continues to rise, university career services staff are increasingly called upon to assist physics students with finding full-time professional jobs upon graduation at the baccalaureate level. Students completing the bachelor's degree in physics are uniquely prepared for a wide range of employment opportunities.

As a fundamental science, physics produces graduates with a wide variety of skills and knowledge. The career options for these students are broad, but are not widely known, even by the students themselves. This fact sheet has been created to serve as a quick reference for career services practitioners working with physics departments and undergraduate students.

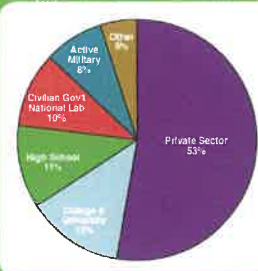
[what happens after the physics bachelor's degree?]

About 40% of graduates go directly into the workforce. Of these, more than half go into the private sector, and nearly three-fourths of those in the private sector go into STEM positions (Natural Science, Technology, Engineering, and Mathematics). Source: www.aip.org/statistics.

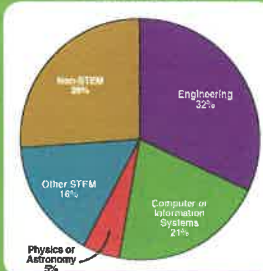
Trends in Status One Year After Earning a Physics Bachelor's, Classes 1995-2010



Initial Employment Sectors of Physics Bachelor's Classes of 2009 & 2010 Combined



Field of Employment for Physics Bachelor's in the Private Sector



STEM refers to Natural Science, Technology, Engineering, and Mathematics

[what a physics bachelor's degree qualifies graduates to do]

Critical thinking and problem-solving skills are the hallmarks of a physics bachelor's degree. From solving difficult theoretical constructs to collecting and analyzing data, physics majors are marketable in a wide range of professional settings. Physics bachelor's degree recipients commonly find employment in four broad areas:

- Engineering
- Computer Hardware and Software
- Research and Technical
- Education

[challenges]

- Although there are many jobs for physics bachelor's degree recipients, very few have the word "physics" in the title
- Hiring professionals may not understand what a physics student actually knows or is capable of doing
- Faculty may not understand what a physics student actually knows or is capable of doing outside of working in academia
- Students may lack self-awareness of or have difficulty articulating their strengths and capabilities
- Underdeveloped interpersonal communication skills may be a barrier to students in the job search

[skills developed through a physics education]

Encourage students to speak in terms of *skills* on their resumes, in their cover letters, and in interviews to effectively communicate their ability to do the work advertised by an employer. The following skills are developed during the typical undergraduate physics experience:

- Critical thinking
- Inventiveness and ability to address unforeseen problems
- Research and investigation
- Communication, both technical writing and verbal
- Working as a member of a team
- Capacity to learn new technologies quickly
- Mechanical aptitude
- Strong analytical and applied mathematical skills
- Advanced mathematics
- Computer programming, modeling and simulations
- Experience with sophisticated equipment

[resume writing tips for the physics undergraduate]

- Writing a skills-based resume may be the best option for physics undergraduates seeking an internship or job.
- Focus on skills and practical experience
- Translate transferable skill sets for the nontechnical reader
- Write a summary of technical qualifications
- Only highlight coursework to demonstrate knowledge of a topic
- Include GPA, overall or major
- Highlighting strong technical skills can be especially important. Consider including experience with
 - Lab equipment (mention expertise level)
 - Microsoft Office, Access
 - MatLab, LabView, or similar analytical/instrument control software
 - Programming languages (C++, SQL), technologies, and tools



*[careers toolbox]

The Careers Toolbox for Undergraduate students is a set of tools and tips designed to help physics students prepare to enter the STEM (science, engineering, and mathematics) workforce. Additional resources are also available for free online.

www.aipnational.org/careerstoobox/

Common job titles for physics bachelor's degree job seekers

These job titles were obtained from surveys of physics bachelor's recipients from the classes of 2009 and 2010, conducted by the American Institute of Physics Statistical Research Center. They are not exhaustive or exclusive.

Computer Hardware & Software

- Analyst
- IT Consultant
- Programmer
- Software Engineer
- Systems Analyst
- Technical Support Staff
- Web Developer

Education

- High School Physics Teacher
- High School Science Teacher
- Middle School Science Teacher

Engineering

- Application Engineer
- Associate Engineer
- Design Engineer
- Development Engineer
- Electrical Engineer
- Engineering Technician
- Field Engineer
- General Engineer
- Laser Engineer
- Manufacturing Engineer
- Manufacturing Technician
- Mechanical Engineer
- Optical Engineer
- Process Engineer
- Process Technician

- Product Engineer
- Product Manager
- Project Engineer
- Research Engineer
- Systems Engineer
- Technical Services Engineer
- Test Engineer

Research & Technical

- Accelerator Operator
- Lab Assistant
- Lab Technician
- Physical Sciences Technician
- Research Assistant
- Research Associate
- Research Technician

Where to find internship & job opportunities

There are many online Job databases with robust search options that feature many opportunities for physics graduates. On these sites, search posted positions by Job titles, key words, and industries, not just the term

"physics," as many bachelor's-level jobs appropriate for physics students do not contain the word "physics." Here are a few recommended job databases:

SPS Jobs

<http://jobs.spsnational.org>

USAJobs

<http://www.usajobs.gov>

Science Careers

<http://jobs.sciencecareers.org>

Dice.com

<http://www.dice.com>

Indeed.com

<http://www.indeed.com>

LinkedIn

<https://www.linkedin.com/job/home>

Effective career advising for physics undergraduates

- Strongly encourage students to COMPLETE AN INTERNSHIP OR OTHER NON-CURRICULAR PROFESSIONAL ACTIVITY
- Coach NETWORKING practice, and help them develop an elevator speech
- Encourage students to explore THE CAREERS TOOLBOX FOR PHYSICS STUDENTS* (see page 2) early in the process
- Advise students to read position descriptions that seek candidates with degrees in related fields. Most positions ask for applicants with degrees in, for example, "engineering and related fields." "Related fields" is often where physics majors fit in.
- Encourage students to attend career fairs and research employers who are looking for students not just in physics, but also in "related fields"
- Assign a reflection paper or informational interview as part of career fair attendance
- Develop an alumni mentoring group to foster better networking
- When employers in the fields of engineering, math, computer science, and other STEM areas attend campus events, invite physics students to participate along with students in those majors
- Host mock interview days for physics majors
- Propose a professional skills course or workshop series for physics majors
- Invite physics faculty to meet with employers during career fairs, allowing for an "industry-driven" conversation to occur
- Co-coordinate visits to employers with faculty and students
- Physics students often need additional help with utilizing the hidden job market. Encourage students to
 - Attend on-campus information sessions and networking events hosted by career services, alumni associations, and the physics department
 - Use social media such as LinkedIn, Twitter, and Facebook
 - Complete informational interviews and job shadowing with companies they are interested in working for, or work with alumni employed in their industry of interest

Summary

This is a resource designed to enhance the work done by career services professionals working with physics undergraduates and faculty. This is not intended to be a comprehensive document, but instead a starting point for individual conversations with students. Promotion of careers with an undergraduate degree in physics is essential to the success of physics bachelor's degree graduates from four-year universities, and to increasing recruitment and retention within the physics major. With the increasing costs associated with college and students' desire to enter the workforce, this guide is designed to help career services professionals help undergraduates to understand what they have to offer in the job market.



This resource was created as part of the American Institute of Physics (AIP) Career Pathways Project, funded by the National Science Foundation (award number 1011829).

Fact Sheet by Staci Heitcke, Associate Director of Career Services, University of Wisconsin-Eau Claire, in collaboration with Kendra Redmond, Programs Manager of SPS and Sigma Pi Sigma, American Institute of Physics and Toni Saucy, former Director of SPS and Sigma Pi Sigma, American Institute of Physics.

For more information, please visit www.aipnational.org/careerpathways/ or contact us at spis-programs@aip.org.