



[Welcome](#) [Examine Data](#) [Explore Options](#) [The Missing Link](#) [Get to Work](#) [Resources](#)  
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## Careers Toolbox

for Undergraduate Physics Students & their Mentors



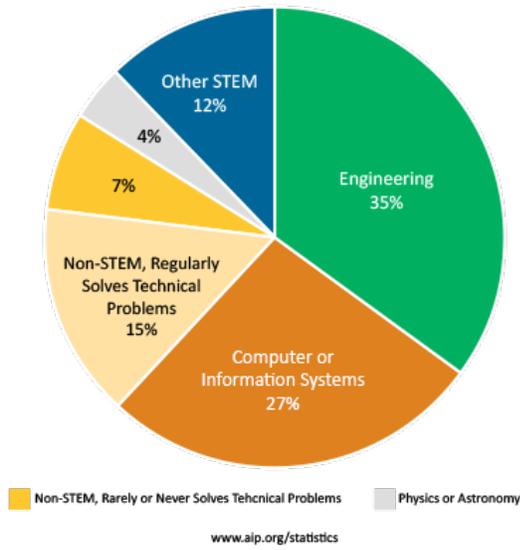
Solving difficult theoretical constructs, mastering hands-on experimental techniques, wrangling data acquisition and analysis, and developing skills in error analysis, technical writing, and computer programming are hallmarks of the undergraduate physics experience. These skills and abilities make physics students excellent candidates for a wide variety of jobs. If you are considering entering the workforce after earning a bachelor's degree, the nine tools in the Careers Toolbox can help you discover your options and prepare for success.

The Careers Toolbox focuses on undergraduate physics students entering the workforce after graduation. But even students who choose to go to graduate school will eventually be looking for a job! Many of these tools can be applied to finding internships, research positions, or even entrance into graduate programs.

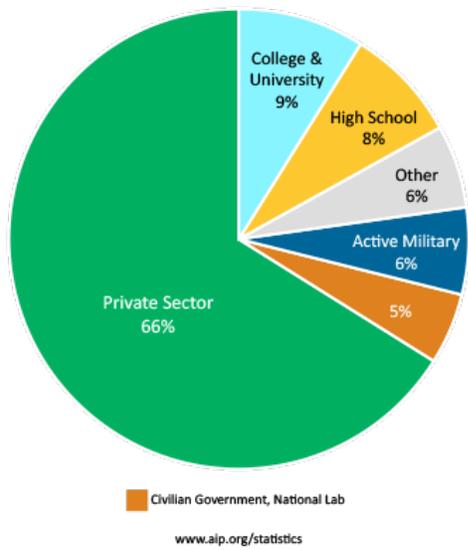
### Examining the Data

Nearly half of all physics bachelor's degree recipients go directly into the workforce. Of this group, about two-thirds go into the private sector.

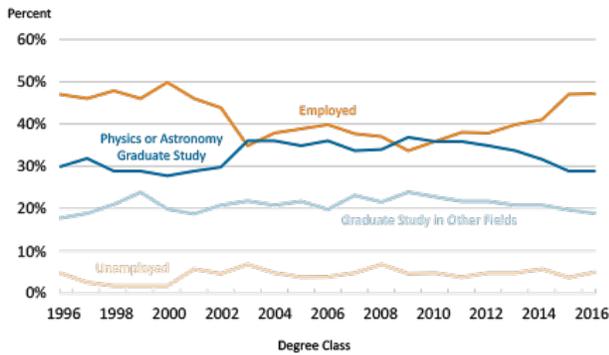
**Field of Employment for New Physics Bachelors Employed in the Private Sector, Classes of 2015 & 2016 Combined**



**Initial Employment Sectors of New Physics Bachelors, Classes of 2015 & 2016 Combined**



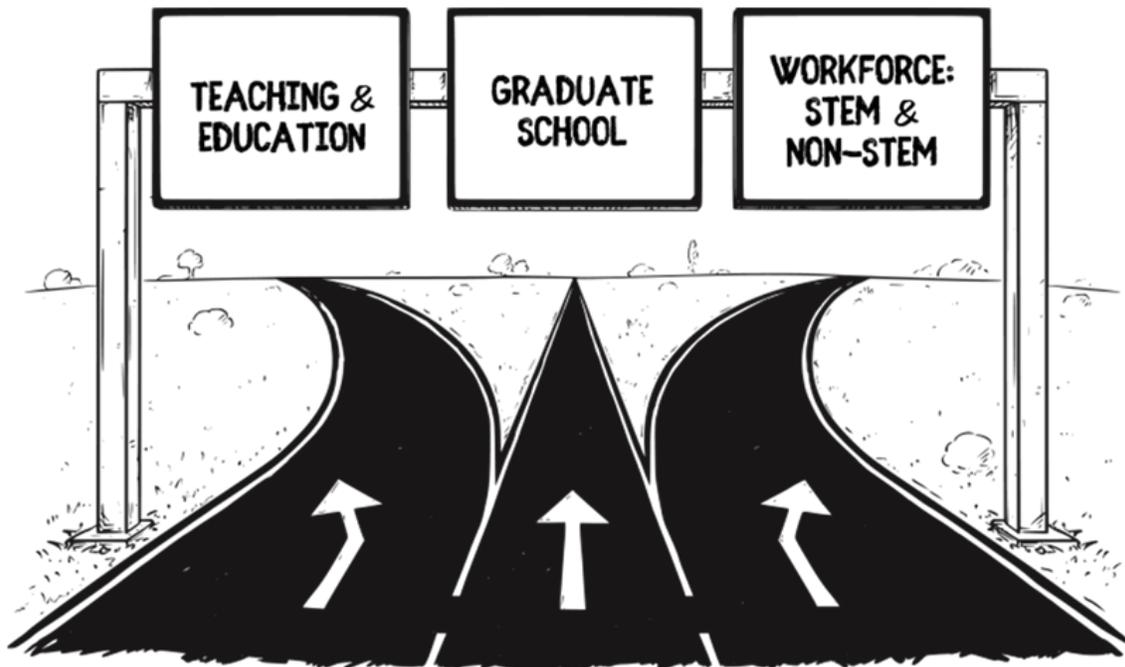
**Status of Physics Bachelors One Year After Degree,  
Classes 1995 through 2016**

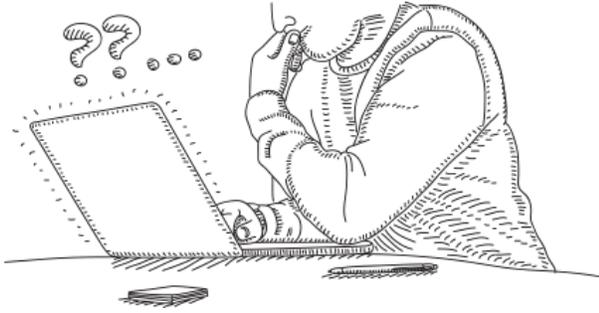


[www.aip.org/statistics](http://www.aip.org/statistics)

## Exploring Options, Finding Opportunities

The variety of opportunities available to physics bachelor's degree recipients is good news, but navigating all of the options can be overwhelming. This section features important resources for exploring your options and tips for finding (and creating) opportunities.

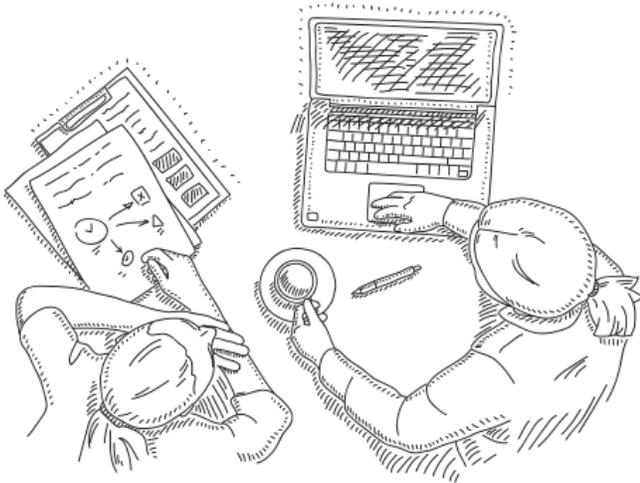




### **Tool #1: Common Job Titles**

You can find physics majors in ALL kinds of professions—engineering, information technology, finance, writing, medicine, law, history, music, healthcare, and the list continues on and on. To start narrowing down your options, take a look at this list of common job titles held by physics bachelor's degree recipients that go right into the workforce and see what interests you.

[Learn More](#)



### **Tool #2: Informational Interviews**

Once you have a list of job titles that sound interesting, the next step is to gather information about what each job really entails. An excellent way to do this is through informational interviews, professional meetings with individuals who have jobs that interest you.

[Learn More](#)

#### **The basic concept**

An informational interview is a professional meeting with an individual who has a job that you are interested in having. You request an appointment for the purpose of asking questions about the job and company and evaluating the extent to which your interests, knowledge, and skills match that kind of job. By doing multiple informational interviews, you can get a good sense of the career path that you would like to pursue—and those that you do not want to pursue! You can also explore multiple career paths in a short amount of time.

#### **Why do informational interviews?**

1. Informational interviews are an ideal way for physics students to learn about different jobs. Sometimes, your faculty advisors have little experience outside of academia and so are limited in the guidance they can provide regarding the details of specific jobs.
2. Informational interviews introduce you to the specifics of a certain type of job—including jargon that may be helpful for resume writing and job searching.
3. Informational interviews allow you to see an individual in a job environment and determine if this environment is right for you.
4. Informational interviews provide an opportunity to seek advice from someone working in the field. This allows for a more informed career choice and may help guide you in your educational choices.

5. Informational interviews help you initiate professional relationships and expand your network of contacts in a relaxed and genuine way.
6. Informational interviews help you to develop your communication skills and self-confidence in talking with professionals in a low-pressure interview environment.

## **Why do informational interviews?**

### **Finding people to interview**

Research general career fields (e.g., engineering) and specific jobs within that field (e.g., civil engineer) using your list of potential job titles (Exercise #1). Once you narrow down the kinds of jobs that interest you, seek out potential interviewees in those areas. You can focus your attention on organizations that interest you.

### **Making contacts**

Ask friends, neighbors, family, professors, campus career professionals, and alumni associations for suggestions of whom to interview. Many universities have a career mentoring network of alumni and professionals who have volunteered to be contacted by students to discuss what they do. If yours does, this is a great place to start. Also search your contacts on LinkedIn and other social media networks. Do not limit yourself to interviewing people with physics degrees, although such people might have useful perspectives if you can find them. Build a list of potential contacts. Identify people with shared interests, enthusiasm, or involvement. Consider people that work in a setting (e.g., office, academia, classroom, etc) you prefer.

### **Scheduling the interview**

Once you have some names, contact your potential interviewees by email or phone. Be sure to tell them who you are, why you are contacting them, and from whom you received their name. Be professional, clear, and state that you are a student seeking to conduct an interview with them about their job as a means of exploring what you would like to do for a career. Request 15–20 minutes for a phone interview, or 20–30 minutes for a face-to-face interview (if the person is local). You are not asking for a job.

It is very important to respect an interviewee's time. With that in mind, be sure to stay within the agreed upon timeframe. Keep in mind that visiting interviewees at their workplace can be insightful, especially when assessing workplace culture. This may also be more convenient for the interviewee.

Remember that an informational interview is not a job interview. You can bring your resume or business cards, but avoid asking questions about whether specific employment opportunities exist in the company. Do not offer your resume to the interviewee unless they ask specifically for it.

### **Preparing for the discussion – Questions and topics to discuss**

Because you want to be respectful of the time you take from the interviewee, you will only be able to cover a small number of issues. Prepare your questions in advance, write them down, and take them to the interview. A notepad is helpful.

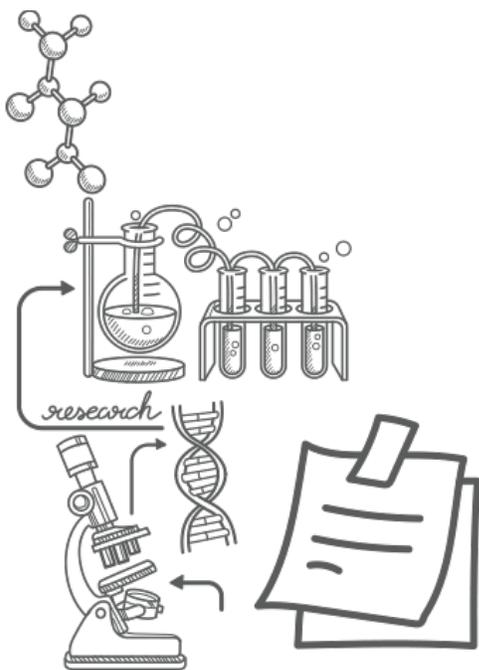
### **Example questions**

The following are some suggested topics for your informational interview questions. You should plan for 4 – 6 questions, which leaves some time for follow-up questions in a 15 – 20 minute conversation.

- Typical position duties and responsibilities?
- Necessary skills for this type of job?
- Most satisfying/challenging/frustrating aspects of the job?
- Atmosphere/culture of the work place?
- Where are open positions posted in this field?
- How well the job lends itself to work–life balance?
- Important personal characteristics for this type of job (e.g., tenacity, creativity, initiative, leadership)?
- What professional/trade associations people in this field join?
- Advice for an undergraduate looking to enter this field?
- Who you might contact for more information?
- Advice about building an effective resume that might be attractive to the company?

### **Following up after the informational interview**

- Be sure to send a short, personal thank you note within a few days of the interview to convey your thanks and demonstrate your professionalism. In the note, mention something that you found particularly useful or helpful from the interview.
- Write down what you learned and decide on next steps. For example, if the interviewee said that most people in that field are members of a specific professional society, you might consider joining.
- If the interviewee connected you to other people or opportunities, be sure to follow up on the leads with an email, call or short note.



### Tool #3 Gaining Experience

While employers are going to look at your major and GPA when making hiring decisions, they will also want to see that you have practical experience where you have developed skills that are relevant to the workplace. This experience may include: internships, co-ops, research, student teaching, campus involvement, service-learning, volunteering, military service, personal projects, entrepreneurship or others.

Learn More

#### Research

While you may have encountered a sampling of experimental work in your courses, engaging in a sustained research experience over a summer or several semesters will provide you with a better understanding of what it might be like to engage in research as a career. In fact, most students who gain undergraduate research do so by working with a faculty member, often for course credits or as a volunteer. Paid research experiences are also possible, but this varies depending on lab and department. A research experience, even if it's only for a semester, is critical if you hope to attend graduate school. A research experience can enhance your communication skills, strengthen concepts learned in the classroom, and provide project based examples of your skills for your resume.

To start this process, begin by reviewing the department webpages to learn about the research areas of different faculty. Then, approach one or several faculty by asking to talk about their research. Be sure to have done your homework on their specialties in advance. Bring a copy of your CV or resume with you in case you are asked for it. If the research projects within the lab appear to be interesting to you, it is appropriate to inquire about if there any openings with the lab. Faculty can also guide you toward other opportunities, on- and off-campus, that align with your specific interests. If you elect to apply for a competitive program like an REU, you should be prepared to spend significant time on your application. It will likely include a resume, personal statement, transcripts and letters of recommendation.

#### Internships & Co-ops

Internships and co-ops are supervised, structured learning experiences in a professional setting related to your field of study. Most internships last at least one semester and require a regular weekly commitment. Internships can be either full-time or part-time. Summer is often the most popular time for students to intern. Co-ops are a unique subset of internships that require you to alternate semesters between full-time work and full-time study. Co-op students will typically take more than 4 years to graduate, but these students are also often offered full-time employment with their co-op organization after graduation. Many colleges offer the opportunity for students to earn independent study credit for internships and co-ops. Check it out!

Finding an internship or co-op is a similar process to seeking a full-time job. You will need to seek out opportunities, have a resume, and may go on interviews. Consider using many of the tools outlined in this book to help you narrow your options and secure opportunities. Your college career center should also be a valuable resource for you.

Also, don't forget to check out [jobs.spsnational.org](https://www.spsnational.org) for possible positions in your local area and across the nation. SPS Jobs hosts not only jobs but internships, REUs, and co-ops!

#### Campus Involvement

Leadership in any campus organization, particularly national groups like the Society of Physics Students, is likely to impress employers. Consider

ways you make an impact through your leadership and be sure to document your efforts and their results. This may be by recruiting members, organizing or improving an event, impacting a campus policy or developing a system to help a group run more efficiently.

Many campuses will host a student organization fair at the beginning of each school year or the start of the semester. Take advantage of these opportunities to see what exists and where you might like to get involved. Don't take this too far though! Employers would rather see you commit yourself to a small number of organizations where you are truly making a difference than see you spread too thin.

### **Volunteering and Service-Learning**

Engaging in service to your community is an important part of being a citizen, however, it's also a way to enhance your employability. Consider investing your time in opportunities and organizations that can make the most of your interests and skills. This goes beyond simply participating in a one-time 5k or a fundraiser. Find out what happens behind the scenes and how you can participate in the planning and execution of activities. Making the time and effort to see a service project through to completion is strong evidence for an employer that you will be an asset to their organization. A non-profit may be excited about your beginner skills with web pages or database and offer you more chances to hone and grow them than you would find in a private sector company.

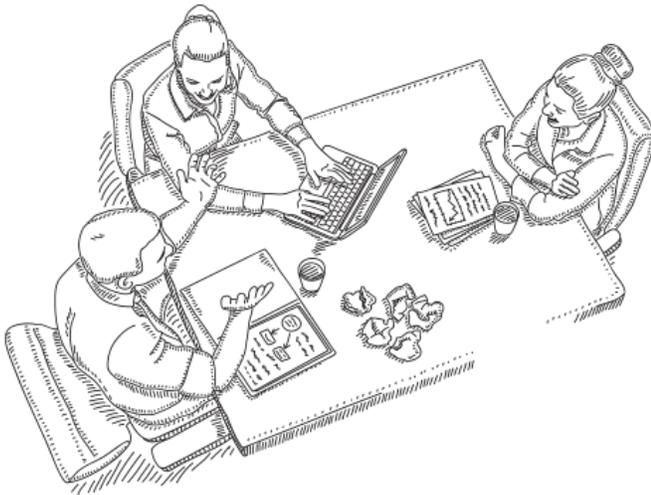
Don't forget - outreach done with your SPS chapter is an important form of service!

### **Personal Projects and Entrepreneurship**

Have you designed a web page, built an app, written a blog, built a robot or maybe even started a small business? These experiences and others where you apply your skills toward a project or larger outcome are outstanding examples of ways to foster the attributes employers are seeking. Taking initiative, securing resources, persevering through challenges and striving toward excellence are key elements of these experiences and invaluable to any employer.

### **Student Teaching and Teaching Assistantships**

Interested in teaching as a career? Many departments often employ students to help within classrooms, grade coursework, or provide tutoring services. Inquire with your adviser and department about these opportunities. They are a great way to not only increase your knowledge of the topic, but also foreshadow a possible career in education. Teaching roles as an undergrad provide you with a way to not only learn the material but test drive careers. Also, consider tutoring, physics help labs, and serving-learning courses.



### **Tool #4: Networking**

Having great credentials is important when you begin searching for a job, but networking—making professional contacts—can expand your access to opportunities and provide valuable advice and guidance all throughout your career journey.

Learn More

#### **Networking tips**

##### **Prepare an “elevator” speech**

An elevator speech is a 30-second introduction of yourself.

##### **Network everywhere**

Every event is a potential networking event.

**Help others**

Networking is about connecting with people—not just furthering your career. Think of what you have to offer new connections.

**Attend physics meetings**

Meetings of scientific societies are great ways to meet potential employers.

**Get involved!**

Attend professional events on and off campus. Ask questions and practice your elevator speech.

**Ask questions!**

One of the simplest conversation starters is, “So, what do you do?”

**Exchange contact information**

Get and give away business cards. They are a great way to provide your contact information, leave a good impression, and look professional.

**Network online**

Use networking sites such as LinkedIn to stay in touch with new contacts.

**Cultivate Relationships**

Send updates to your connections to let them know how school is going, where you are in your search, or to pass along information of interest. Build a strong foundation with each person.

**Project a positive attitude**

You never know when you will meet someone that can connect you to your next job!

**The elevator speech**

An elevator speech is the 30-second version of who you are, what you've accomplished, and where you hope to go in the future. Think of the elevator speech as a short conversation with a purpose—to open the door to a conversation with a new connection.

You should practice your elevator speech several times so that you can easily recall the highlights when an opportunity arises; however, you do not want to sound too rehearsed.

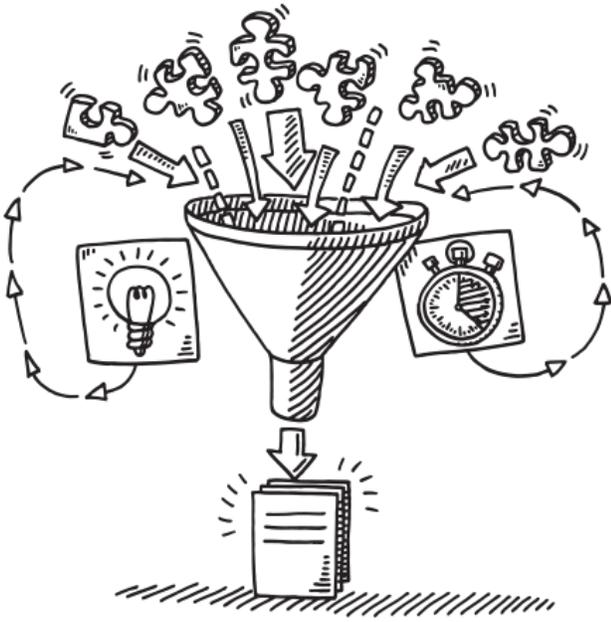
Let's say that you are standing in line for coffee at a meeting, and you notice a Nobel laureate standing next to you. What do you do? Take a selfie? Maybe, but definitely give your elevator speech!

Your elevator speech must explain:

- Who you are
- What you've accomplished
- Where you hope to go
- What you are passionate about

**The Missing Link**

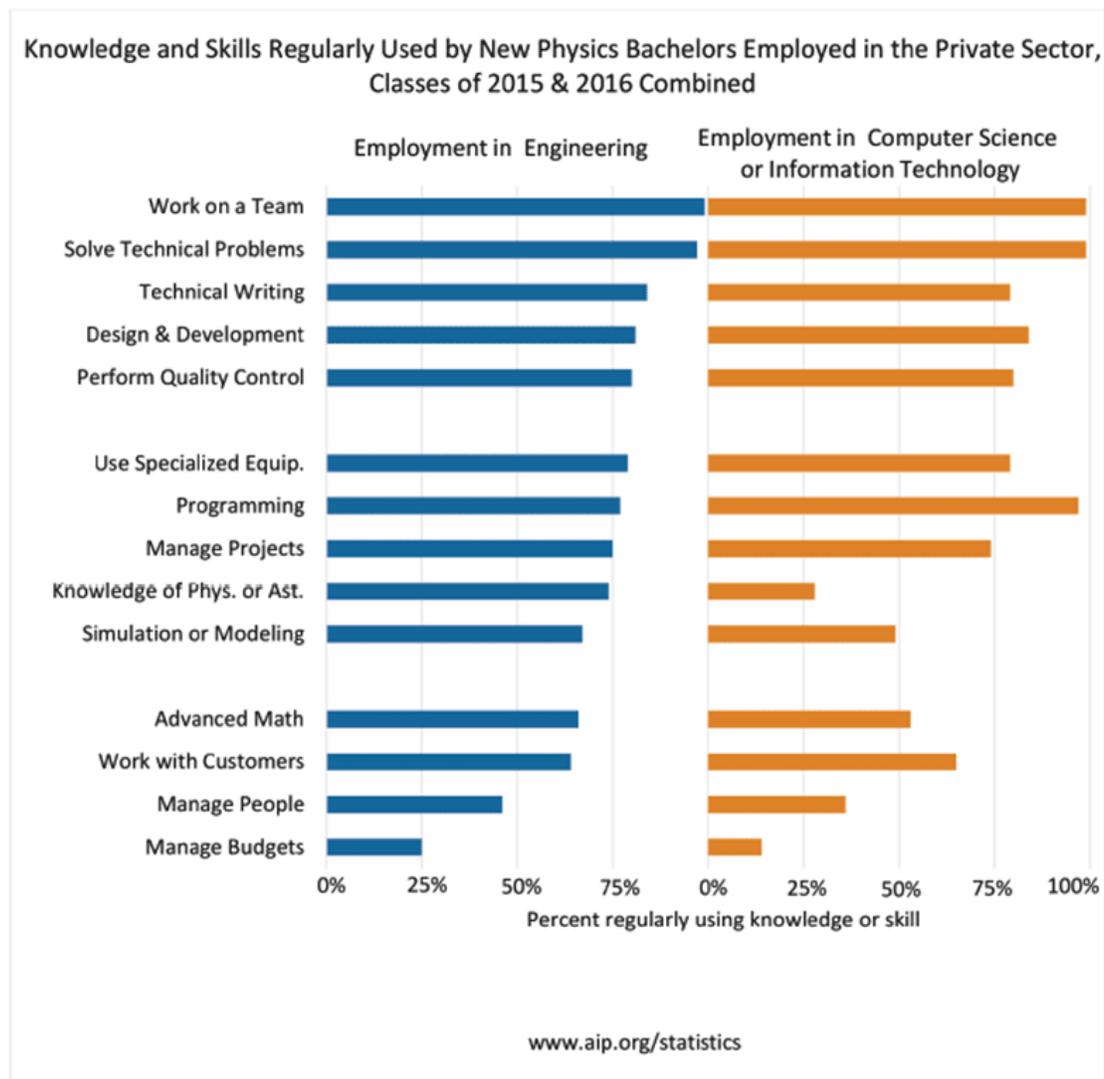
Physics graduates are prepared to tackle a wide variety of jobs, but many hiring managers are unfamiliar with the typical undergraduate physics experience. This section focuses on translating your experience into a list of knowledge, skills and abilities that is meaningful to potential employers and that forms the backbone of a resume.



### **Tool #5: Assessing Your Knowledge and Skills**

In order to stand out among a pool of applicants, you must be able to accurately and competitively represent yourself on paper (in a resume and cover letter) and in person (in networking environments and in interviews). To do this, you have to figure out who you are and what you know before you start drafting a resume. The careful assessment of your knowledge and skills is imperative, and requires practice.

[Learn More](#)



### Working with laboratory instruments

Virtually all physics curricula require students to take a lab with the introductory courses and as a part of a senior thesis or a capstone project. Through these experiences, students learn how to use a variety of different instruments (e.g., optical components, electronics, machine shop tools, vacuum systems, telescopes, spectrographs) and often develop skills related to their operation, maintenance, repair, quality control, and troubleshooting.

### Conducting research

Physics majors are strongly encouraged to participate in open-ended research. This includes on-campus experiences with professors, off-campus research experiences (maybe as part of a Research Experience for Undergraduates program or an internship), working on an independent research project, or working on a project for a specific course. Research experiences engage students in higher-order skills and knowledge, including research design, data analysis, creative thinking, critical thinking, error analysis, and complex problem solving. An often overlooked skill developed through conducting research is the ability to find, read, analyze, and interpret relevant background information. This is useful in a wide variety of settings.

### Proficiency with computer hardware and software

Studying and conducting research in physics often provides opportunities for students to develop knowledge and skills in computer hardware and software. Many physics majors write new code or modify existing programs, use statistical analysis software, or use modeling, image processing, and simulation techniques for research activities. In addition, many students use programs like LabVIEW to run equipment and take data, or build specialized interfaces for this purpose.

### Communicating complex ideas

Beyond the general education requirements, physics students usually develop enhanced written communication skills through writing technical lab reports and research papers that are part of the required curriculum. Physics students may also have the opportunity to publish research work in a professional journal or to write about science for a nontechnical audience, e.g., a school newspaper. Oral communication skills are developed when

students have to present their research/class work in an oral presentation, another common experience for physics students.

### **Analysis and quantitative thinking**

Physics students have a demonstrated ability to apply math to a variety of real world problems. When seeking employment in a STEM field, this is especially important. Employers value the analytical skills that help people manage information effectively, think logically, and interpret data. The ability to analyze quantitative data helps in examining a problem thoroughly and seeking possible solutions. The quantitative physics intuition students possess is developed over years of physics coursework and endless hours of homework. Related to this, the ability to analyze information and determine what is and is not relevant is developed over years of lab work and problem solving.

### **Working with others**

Many students are members of a research team, are active in campus organizations like the Society of Physics Students, and have extensive experience with group projects. Do not underestimate the importance of these experiences and skills. Teamwork, collaboration, leadership, and decision making are important skills to employers that are evidenced by examples of effective group work. Working with others is often one of the most challenging aspects of a job.

### **Problem solving and critical thinking**

Underlying many of these other skills is the ability to solve problems—the ability to examine a situation, identify problems, and think creatively about a solution. Physics students do this again and again in labs, research, and homework. They learn how to find solutions through literature searches, online searches, collaborating with colleagues, experiments, and reasoning. This skill is incredibly valuable to all types of employers, because problem solvers save employers time and money.

## **Getting to Work**

How can you stand out from all of the other job applicants vying for a position, especially when some of those applicants have experience or degrees that more closely match the job ad? This section highlights several strategies for increasing your odds of getting an interview – and a job.



### **Tool #6: Effective Job Searching**

Many people think that getting your dream job means having a stellar resume, cover letter, and interview. While all of this helps, first you have to find the job! Effective job searching concentrates your time on jobs that fit you and match your skills. For physics students, this means knowing what job listings to browse, how to prepare for job fairs, and how to reach out to your network.

[Learn More](#)

### **Networking**

Many people find employment through taking advantage of their network. Your faculty members, colleagues, family, friends, LinkedIn contacts, career professionals on campus, contacts from professional society meetings, and other people that have become part of your network are excellent resources when it comes to job searching.

Do not be afraid to tell everyone that you meet that you are looking for a job. Most people are eager to help students by offering advice, leads, and sometimes even making introductions. When reaching out to professional contacts, be sure to remind them how you received their name or where you met. In many cases it is best not to ask for a job directly, but to ask for advice or leads instead.

### **The online job search**

Online databases are great places to find job openings. Note that many jobs appropriate for physics graduates will not show up in a “physics” keyword search, so use the list of common job titles. While not an exhaustive list, here are some great STEM job databases:

[SPS Jobs](#) Features bachelor-level positions appropriate for physics applicants, as well as jobs for graduates at other levels.

[USAJobs](#) The US federal government's official job list, includes jobs at NASA, NIST, and other federal labs.

[Science Careers](#) A database of job postings from around the world for scientists of all disciplines and experience levels.

[Engineer Jobs](#) An extensive database of engineering job opportunities of all types within the United States and Canada.

[The Institute of Electrical and Electronics Engineers \(IEEE\) job site](#) A database for engineering positions with a related portal for students looking for entry-level jobs.

[Glass Door](#) Glass Door aggregates jobs from the web, but also allows job seekers to see reviews from current and former employees as well as salary data. These insights can be helpful as you investigate workplace culture.

[LinkedIn](#) In addition to being a hub for networking, LinkedIn also allows employers to post jobs. This particular portal will guide you toward positions oriented to students.

[Indeed](#) Indeed is a large single-topic search engine that aggregates job listings from thousands of websites.

[Idealist](#) Idealist is an online meeting place for nonprofit organizations, resources, consultants and volunteers. Many opportunities for STEM outreach and education positions are posted here.

### **Job fairs**

Even before you are ready to begin applying to jobs, explore some job fairs to learn what kinds of positions are available, find out what types of skills those employers are looking for, and practice your elevator speech. Note that the list of common job titles may help you communicate effectively with job fair hosts unfamiliar with the kinds of jobs that are often done by individuals with a bachelor's degree in physics.

The challenge for physics students attending job fairs is to know how to talk about their skills in ways that are meaningful to potential employers. The representatives of an engineering firm at a job fair may not know that physics students commonly go into engineering positions with great success, so it is up to you to show that you are a great candidate.

### **Is teaching a career for you?**

Teaching can be a rewarding way to share your love of physics and astronomy while learning from students and the experience as well. Because a career in education is often not emphasized during physics undergraduate studies, it may be easy to overlook when considering a long-term career. But even without a teaching license or an education degree, it is easy to transition from physics into teaching!

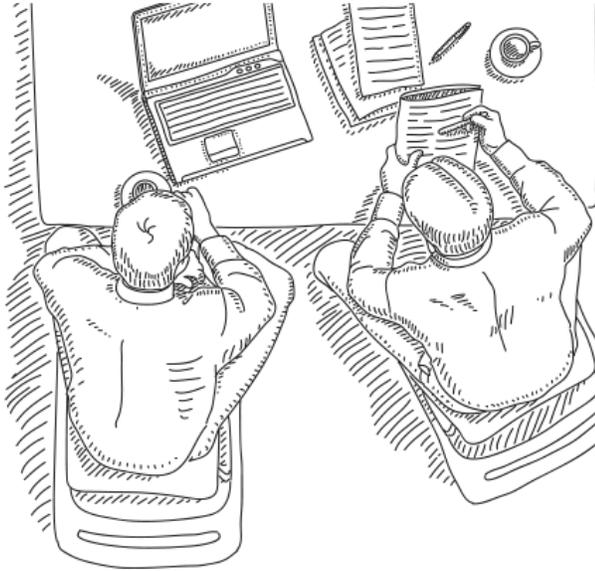
Begin your search by looking at school district websites to see what types of jobs are available and what the requirements are for each position. Also reach out to anyone you may know who has contacts in these districts. License requirements vary by state, but all of the information you need about licensure can be found on each state's Department of Education website. Most public schools, some charter schools, and few private schools require licenses. Additionally, some schools prefer if you have degrees in the subject area that you want to teach! If a license is required and you do not have one, you need to apply for an alternative license through your state in addition to filling out applications. Alternative license candidates are often not primarily considered, but having a contact who can put in a good word for you can go a long way. Substitute teaching before applying for full-time teaching jobs is also a good way to gain experience, make contacts, and show educators that you are passionate and highly qualified to teach physics, math, and other related subjects.

### **Who is hiring physics bachelor's?**

See who is hiring physics bachelor's in your state by visiting this American Institute of [Physics Statistical Research Center resource](#).

### **Salaries**

New physics bachelors earn some of the highest starting salaries of any undergraduate major. There is some variation, depending upon the specific type of employment, however, positions in the private sector tend to pay the most. When considering salary, be sure to consider factors like the cost of living for the area where the job is located and other benefits such as retirement, flexible work schedules, health insurance and transportation allowances. Understanding your value as well as the full compensation package will put you in a much stronger position for negotiation.



## Tool #7: Building Your Resume

A resume is a summary of your qualifications for employment. It may be the only information a potential employer has to determine whether or not you will be interviewed, so it is important to make sure that yours stands out.

Resumes can be challenging to write, but there is good news! If you have already gone through the “Identifying Your Skills” exercise, you have done much of the hard work of writing an effective resume. Now your task is to match your skills and experiences with those highlighted in the description of the job to which you are applying.

[Learn More](#)

### Resumes vs. CVs

Having a resume for work or research positions as an undergraduate is important. The resume, which is intended to articulate concisely your knowledge and skills as they apply to a particular position, is very different from the experience record that is typically used for academic positions (such as post doctoral positions, etc.). This longer account of an individual’s experience is called a curriculum vitae, or “CV”. Students who intend to pursue a career in academia should consider beginning to develop a curriculum vitae even as an undergraduate. This is in addition to a resume. Even for undergraduates, the differences between the resume and the CV are in length, content, and level of included detail.

### Resume essentials

Resumes have several components, but the most important one for physics students is the detailed list of the knowledge and skills relevant to the specific job for which you are applying. This list is featured in skills-based resumes, which we recommend for physics students. Warning: You should expect to write a separate resume for every single job application!

### Notes on resume style and length

Experts have different opinions about resumes, and employers do too. The main questions you should ask yourself related to the organization of your resume are:

1. Is it effectively telling my story?
2. Is it an accurate portrayal of me and my experiences?
3. Is the visual layout easy to read, and does the layout reflect the different components?

For more specific guidance on the exact components that should be included in your resume, formatting, and style, visit your school’s career services professionals.

Keep in mind, you should expect to write a separate resume for every single job application!

### Suggested resume sections

#### Knowledge and skills

Carefully compare your list of skills and abilities to those mentioned in the job description. On your resume for that particular job, list the skills you have that appear to be most important to the employer first.

### **Experience**

Include any related experiences (jobs, internships, research, service, leadership, projects) in reverse chronological order and using section headers to move more relevant experiences higher on the page. Write thoughtful descriptions of each experience that provide insight into your skills and use action-oriented statements to quantify your impact.

### **Educational background**

List where and when you got your bachelor's degree (or your expected graduation date), as well as any technical and online training courses you have completed. Use a reverse chronological order and include double majors and minors. You may include honors and awards, and scholarships received, with very brief explanations. Many recruiters will look for a GPA. You should definitely include yours if it is above a 3.0.

### **Other information**

This may include affiliations with organizations and societies, extracurricular activities, especially if you had a leadership position (e.g., captain of the tennis team), and relevant hobbies.

### **Targeting your resume for the job**

You will increase your chances of receiving an interview if you take the time to make your resume specific to each position for which you are applying. When you apply to a new position, take out your skills list and modify an existing resume to better match that specific job ad. Make it easy for a potential employer to see why you are right for this job by highlighting your skills and experience most relevant to those listed in the description first and in the most detail.

### **Action Verbs**

Use the verbs below to start the phrases that describe your accomplishments within the Experience section of your resume. Be as specific as you can about the impact you had.

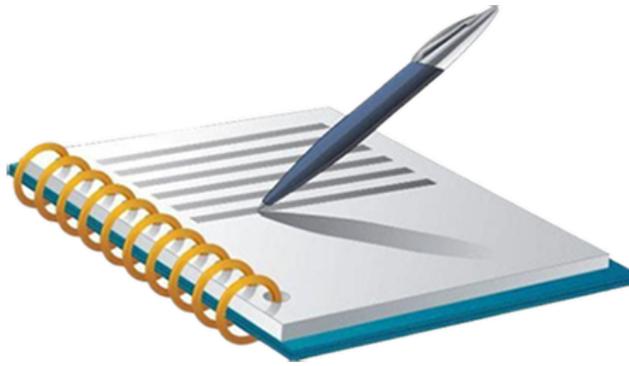
[Action Verbs PDF](#)



### **Sample Resume**

[Example Resumes PDF](#)





## **Tool #8: Writing an Effective Cover Letter**

The cover letter is your first opportunity to engage a prospective employer. Always send one along with your resume when applying for a job, even if it is not requested in the ad. A well thought-out cover letter is especially important if you are seeking a job that does not require a physics degree because it gives you an excellent opportunity to highlight why you are a good match for the position.

[Learn More](#)

### **Cover letter basics**

#### **The opening**

If an ad lists a specific contact person, address the cover letter to that person. If no specific individual is listed, "Dear Hiring Manager" is appropriate.

#### **The beginning**

The first paragraph should be brief. In it, identify the name of the position to which you are applying and indicate your interest in the position.

#### **The middle**

This is the substantive portion of the cover letter, and it is typically one or two paragraphs in length. Its goal is to explicitly connect aspects of your background with the job requirements as specified in the position ad.

#### **The closing**

Thank the employer for considering your application and let him or her know that you look forward to the opportunity to meet in person to discuss the position. It is fine to say that you are excited by the prospect of this position.

### **Cover letter tips**

Connect the requirements in the job ad with your experiences, skills, knowledge, and background in your cover letter. In short, highlight phrases from your resume that match the job description or stated requirements. Give specific examples of your experiences and abilities. For example: "I have over two years of experience using \_\_\_\_, the kinds of equipment that this position requires."

Give evidence of your skills. Include intrapersonal skills you possess, such as time management, initiative, dependability, self-monitoring, organization, planning, and professionalism. However, avoid sounding generic by listing several traits—pick one or two to highlight and show these traits with specific examples rather than providing a broad list. For example: "As a result of my dependability and leadership, I was promoted to manager within six months of starting at \_\_\_\_."

### **Maximizing the opportunity**

#### **Demonstrate your ability to write well**

The cover letter is a professional letter; however, it need not be a dull letter. Always use active voice and verbs, and check your spelling and grammar. Writing eloquently can jump your resume to the top of the stack of serious contenders. Ask someone at the university career center, a professor, or a friend to provide critical editorial comments on your draft. Avoid using generic adjectives; instead, focus on being genuine, straightforward, and engaging.

#### **Emphasize what you will contribute to the company**

Use the cover letter to convey what you would contribute to the company, not how you would personally benefit from having the job. For example, "I am excited by the prospect of using my skills in data manipulation to help your team more efficiently process images." Focus on what excites you that also benefits the company.



### **Tool #9: Acing the Interview**

An interview is an opportunity for you and an employer to determine whether or not the position is a good “fit” for both of you. The employer is selling the job to you, and you sell yourself by elaborating on the contents of your resume and cover letter. The interview is your time to impress on the employer that you are the best candidate for the position.

[Learn More](#)

#### **Increasing your odds**

The truth is, which applicants receive interviews depends on many different factors—the mood of the person reviewing the applications, whether the employer already has someone in mind for the position (perhaps an internal candidate), the method by which applications are ranked, how long the position has been posted, and maybe even the weather. However, by following best practices and preparing thoughtful and targeted resumes and cover letters for positions that really would be a good fit for you, you can increase your odds of getting an interview. And by doing all of this work in advance, you have already completed most of the preparation for an interview.

#### **Preparing for an interview**

##### **1. Know who will conduct the interview**

Research the individual, company, department, and other relevant information in advance.

##### **2. Do mock interviews**

Practice answering interview questions out loud and ask for feedback on your verbal and nonverbal communication.

##### **3. Know your main strengths and weaknesses**

These types of questions become easier and more strategic with preparation.

##### **4. Have specific stories in mind that demonstrate your skills and abilities**

Practice articulating these in response to common interview questions.

##### **5. Prepare questions for your interviewer**

This demonstrates your interest and professionalism, and an insightful question can leave a good impression.

##### **6. Remain calm!**

If you do not know how to answer a question, relax, take a deep breath, and pause to think. It is perfectly acceptable to say "I don't know," but follow up with what you would do to find a solution.

## **7. Be aware of illegal questions**

Employers cannot legally ask you direct questions about your race, ethnicity, citizenship, marital status, whether you've had or plan to have, children, sexual orientation, religion, age, disabilities, military service, or membership in organizations. Some states also limit the ability of employers to ask about criminal records.

## **Tips for phone or virtual interviews**

In many cases, a phone interview is key to receiving face-to-face interview. Sometimes phone interviews even take the place of face-to-face interviews. Take them seriously!

## **Tips for face-to-face interviews**

### **1. Dress professionally for your potential job title**

Your attire should be an illustration of your confidence and desire to succeed. If you are not sure about your attire, consult with someone who has a job like the one for which you are interviewing. Take the time to do some research. Not only will you look professional, your employer will realize you took your job interview seriously. It is always better to be overdressed than underdressed.

### **2. Be on your best behavior at all times**

Even if you are buying coffee a block away or chatting with your future supervisor's administrative assistant before your interview, treat everyone with respect.

### **3. Turn off your phone**

Turn off your phone before you enter the facility. Do not wait until the interview begins.

### **5. After the interview**

After every interaction you have with interviewers, be sure to thank the people you have met for their time. A thank you letter is not just a chance to express your gratitude, it's also another chance to show your writing skills and share any information you may not have mentioned during your interview. Best practice is to send a tailored thank you email to each person you met or talked with within 24 hours of your interview. Following that up with a hand written note is an extra wow!

### **6. Evaluating Offers**

The goal of an interview is to get a job offer. Once you have received an offer, resist the temptation to jump at the first one. Take time to evaluate it. Once you accept an offer, you should cease all other job search activity and not renege on your acceptance.

## **Sample Questions**

### **Sample Interview Questions**

- Tell me about yourself.
- Why are you interested in working for this company?
- Tell me about your education.
- Why have you chosen this particular field?
- Describe your best/worst boss.
- In a job, what interests you most/least?
- What is your major weakness?
- Give an example of how you solved a problem in the past.
- What are your strengths?
- How do others describe you?
- What do you consider your best accomplishment in your last job?
- Where do you see yourself in three years?
- Think about something you consider a failure in your life, and tell me why you think it happened.
- How do you think you will fit into this operation?
- If you were hired, what ideas/talents could you contribute to the position and our company?
- Give an example of where you showed leadership and initiative.
- Give an example of when you were able to contribute to a team project.
- What have you done to develop or change in the last few years?
- Do you have any questions for me?

## Behavioral-based Questions

from [www.thebalance.com](http://www.thebalance.com)

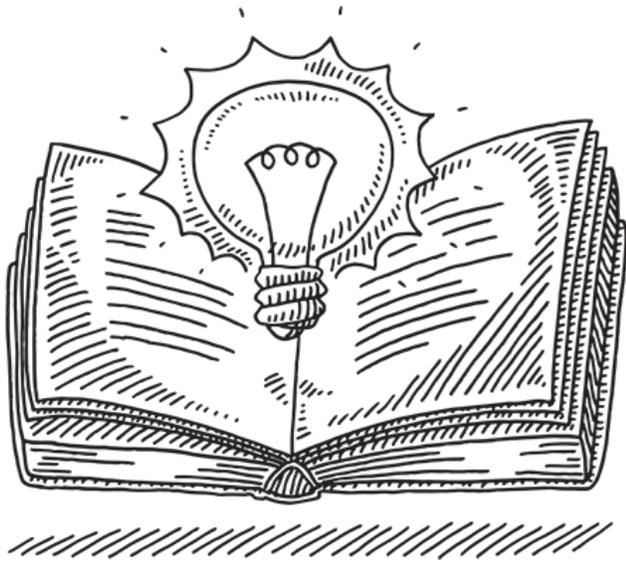
- Give an example of an occasion when you used logic to solve a problem.
- Give an example of a goal you reached and tell me how you achieved it.
- Give an example of a goal you didn't meet and how you handled it.
- Describe a stressful situation at work and how you handled it.
- Tell me about how you work effectively under pressure.
- How do you handle a challenge?
- Have you been in a situation where you didn't have enough work to do?
- Have you ever made a mistake? How did you handle it?
- Describe a decision you made that was unpopular and how you handled implementing it.
- Did you ever make a risky decision? Why? How did you handle it?
- Did you ever postpone making a decision? Why?
- Have you ever dealt with company policy you weren't in agreement with? How?
- Have you gone above and beyond the call of duty? If so, how?
- When you worked on multiple projects how did you prioritize?
- How did you handle meeting a tight deadline?
- Give an example of how you set goals and achieve them.
- Did you ever not meet your goals? Why?
- What do you do when your schedule is interrupted? Give an example of how you handle it.
- Have you had to convince a team to work on a project they weren't thrilled about? How did you do it?
- Give an example of how you've worked on a team.
- Have you handled a difficult situation with a co-worker? How?
- What do you do if you disagree with a co-worker?
- Share an example of how you were able to motivate employees or co-workers.
- Do you listen? Give an example of when you did or when you didn't listen.
- Have you handled a difficult situation with a supervisor? How?
- Have you handled a difficult situation with another department? How?
- Have you handled a difficult situation with a client or vendor? How?
- What do you do if you disagree with your boss?

*Career preparation is an iterative process. You should revisit the skills and knowledge assessment frequently, update your elevator speech often and keep expanding your network throughout your undergraduate career and beyond. As you continue developing new skills and participating in new experiences, your career plans may evolve as well. By investing time in career preparation activities throughout your undergraduate experience, you can be ready to carry out an effective, thoughtful job search when the time comes.*

## Resources

### Dig Deeper

- Affecting change in your department
- Recommended online resources
- About the Careers Toolbox
- [Download the entire Careers Toolbox \(PDF file\)](#)
- [Purchase the Careers Toolbox Book](#)



## Affecting change in your department

### Action items – Ways for students to have influence in the department

- Talk to faculty and department leaders about the possibility of contacting alumni to help with mock interviews.
- Talk to faculty and department leaders about how the department supports student participation at professional meetings.
- Encourage faculty to engage undergraduate students in collaborative research.
- Encourage physics departments to offer a one- or two-credit course focusing on career decision-making and professional skill acquisition.
- Address career preparation issues at an SPS meeting, perhaps by inviting alumni to share their stories or inviting career services professionals to talk about the services they provide to students.

### Recommended online resources

[SPS Jobs](#) Browse job listings and resources for students seeking employment with a bachelor's degree in physics.

[Physics Today Job Resources](#) Visit the Resources section for information on different physics career options, resume and cover letter templates, and advice on applying for jobs.

[SPS Career Resources](#) Explore physics career-related information, including profiles, advice, and links to related resources

[Who's Hiring Physics Bachelor's?](#) Click on a state to see a list of some of the employers that hired physics bachelor's recipients recently in that state.

[AIP Statistics: Skills Physics Bachelor's Use](#) Read the report, "Physics Bachelor's Initial Employment." Figure 4 in this report shows the skills used by physics bachelor's recipients in their first job.

[APS Careers Website](#) Access a host of career resources including links to the APS Webinar Archive, Career Workshops from annual meetings, links to a professional development guide, and more.

[GradSchoolShopper](#) Investigate graduate programs in physics, astronomy and the physical sciences.

## About the Careers Toolbox

In 2010, the American Institute of Physics (AIP) was awarded a grant from the National Science Foundation aimed at understanding how physics departments can most effectively prepare undergraduate students for the STEM workforce. The project is a collaboration between the AIP Education Division, which houses the Society of Physics Students, and the AIP Statistical Research Center. The 4th Edition of the Toolbox was issued in 2017.

Through site visits to a diverse set of physics departments that are intentional about career preparation, the project explored best practices for preparing physics students to enter the STEM workforce. The information is being disseminated through reports, articles, and workshops. In addition, this toolbox was created based on the findings of the investigation, along with significant input from undergraduate physics student interns and others.

The American Institute of Physics (AIP) Career Pathways Project is funded by National Science Foundation Award Number: 1011829.

For more information, please contact [sps-programs@aip.org](mailto:sps-programs@aip.org). Print copies of the Toolbox may be ordered from the SPS Store.

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The Careers Toolbox is a product of the AIP Career Pathways Project, carried out by the American Institute of Physics and the Society of Physics Students.

Funded by National Science Foundation award number 1011829.

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