Getting to Work – Tool #7: Putting *You* on Paper—The 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 (on page 36)**, 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. These are the skills and experiences that you should highlight in your resume. After this, all that remains is to add your work experience and education, and decide on an order and layout.

The difference between a resume and a curriculum vitae

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.

The CV is a cumulative list of an individual's accomplishments, achievements, and experiences. Thus, the length of the CV grows over time and serves as one's permanent record for an academic career. For those early in their academic careers, the CV may be a few pages. For more experienced academics, the CV may be quite lengthy. For contrast, the resume is generally one, or *sometimes* two pages, but rarely so for undergraduates.

The CV generally includes details of record at a level that are not necessary (or desired) for a resume. Details about research, teaching, publications, and honors are always chronologically recorded on a CV. The goal is to provide sufficient detail so that the career of the individual is clearly codified. This differs from the resume, which must be designed for a specific job application, highlighting only those experiences that are relevant to the particular position.

Lastly, the CV changes only by the addition of experiences, achievements and accomplishments. In that sense, the CV is always growing and represents a detailed list of career milestones. In contrast, the resume usually stays the same length and changes with each job application, focusing on the knowledge and skills relevant to the position.

Undergraduate students are wise to develop a working set of bullet points for a resume, even if the goal is to pursue an academic career. Often, when applying for summer research or internship ions, it is crucial to be able to clearly and concisely articulate your knowledge and skills as they are relevant to the specific position, much like applying for a work position.

Being in command of your own set of knowledge and skills is important as you develop professionally, independent of your career goals! **It is advised that all students keep a CV, if only to record everything that you have done and to be able to keep it well organized.** Often, professionals will consult a CV when crafting resumes for specific positions.

Common sections for a CV: Education, Professional Experience, Awards and Honors, Publications, Leadership Positions, Professional Service, Society Affiliations, Conferences, Mentees, Grants and Proposals, Presentations (Talks and Posters), Teaching Responsibilities, Certifications, and Special Projects.

Warning: You should expect to write a separate resume for every single job application!

Note: The goal of a resume is not to get a job... it's to get an interview!

Resume essentials

Resumes have several components, but the most important one for you to focus on as a physics student is the detailed list of **education, experience, achievements and skills relevant to the specific job** for which you are applying.

Again, you should expect to write a separate resume for every single job application!

This sometimes comes as a surprise to job seekers, but it is one of the keys to an effective job search.

So what goes into a resume? There are two primary considerations when presenting information in a resume—make it **chronological** *and* **skills-based**. Both components are critical to convincing employers that you are the right person for the job.

Chronological: Most traditional resumes focus on the chronological order of your experiences. They typically use headings such as Education, Experience, and Skills to organize different types of information and the specific entries are ordered in reverse chronological fashion. Make your resume roughly chronological, as seen in the three examples that follow. More recent experiences need to go closer to the top within each heading, and experiences should be listed succinctly. By listing your experiences in this common format, your resume will look very familiar to recruiters.

Skills-Based: Since physics majors work in so many different areas and job sectors, we often need to specifically highlight the skills that a physics major brings to the table. Your goal is to show beyond a shadow of doubt that you are qualified for the position you are applying for by listing specific examples of qualification, skills, projects, and examples under your succinctly listed experiences. This process of adding bullet points summarizing specific qualifications after the name and date of the position is called **skills-based** context. This format is very helpful for someone who has broad skills and is seeking employment in a specific field. Physicists are problem solvers and, by highlighting specific examples, projects, and skills, you can *show* that you are qualified (instead of merely stating that you are qualified).

> Clearly detailing your relevant knowledge and skills may be the single most important part of your resume. For physics students, this can be challenging.

As an example, if you were applying to a semiconductor company but you had experience building and maintaining vacuum equipment, that would be a fantastic thing to list as a bullet. So would developing the automation sequence for the telescope you worked on at the observatory. The key is to be specific and to the point.

As a physics major applying to a position without the word physics in it, you need to make sure you display and explain your skills clearly to those looking at your resume.

Notes on resume style and length

Before we start, remember:

- No two resumes are the same.
- No two resume writing guides are the same.
- 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 relative importance of different components?

Take advantage of your network in getting feedback and insight on your resume. Your school's career services professionals are great people to start with to get tips on content, formatting, and style. See the samples on page 58-60 for other ideas.

Most recruiters agree that a resume for a student or recent graduate should be only one page long. If you have had multiple internships, research projects, or other work-related experiences, then your resume could be longer. However, most employers will not even glance at the second page if you have not caught their attention with the first one, so instead of focusing on the length, focus on including content that is **relevant, accurate, and presented well**.

Suggested sections on the resume

Educational background

For most students, your education is the most relevant qualification you will have for an entry-level position. It is also typically the section that most recruiters will look for first.

Start with your bachelor's degree with your completion or expected graduation date. Use a reverse chronological order: start with the most recent date and work your way back. Include double majors or minors. You may include honors and awards (Cum Laude and Sigma Pi Sigma membership), and scholarships received, with very brief explanations of honors and awards since the reader may not be aware of what they are. You may include community college or study abroad experiences here, but high school diplomas should not be included past your first year of postsecondary school.

Many recruiters will look for a GPA. If your GPA is above 3.0, you should definitely consider including it because it demonstrates your academic ability. If the employer asks for GPA in the job posting, be sure to include it. If you do include a GPA, indicate whether it is a cumulative (total) GPA or a major GPA (demonstrating aptitude in physics and math). Inclusion of GPA is tricky, since course rigor and grading mean different things at different schools and your employer may not be familiar with your university.

Knowledge and Skills

Explaining your skills and listing everything that is pertinent to a particular job posting is vital in the digital application age. Many companies search documents for key words (that often appear in a job posting) as a starting point of narrowing down a search. As an example if the job requires Python coding experience and it's not listed on your resume, your resume might not get looked at to begin with.

If you have done a careful assessment of your unique set of knowledge and skills (Tool #5), building this section of your resume becomes much easier. However, the most important part is to carefully compare your list of skills and abilities to those mentioned in the job description. Then, select from your set of skills those that overlap with the job advertisement. On your resume for *that particular job*, you should **list the skills that appear to be most important to the employer first**. This list of skills should be directly tied to the information in the job advertisement. You should also highlight these briefly in your cover letter (Tool #8).

New graduates often include a brief "Relevant Coursework" section on their resume as a way to demonstrate knowledge or familiarity with concepts highlighted in the job description. If you choose to do this, be sure to list descriptive course titles (e.g., "Statistical Methods for Physics") not course numbers (e.g., PHYS352). It's not advisable to put every related course (University Physics I, Calculus I) but it can help if you want to display your training. In general, if that course would directly help you with the job, consider listing it. You may also consider adding any technical and online training courses you have completed under qualifications. This might include certifications in software, safety, or other relevant areas.

Experiences

Include any related experiences (jobs, internships, research, class/personal projects, student leadership, community service), ordering them in reverse chronological order and using sections headers to move more relevant experiences higher on the page. Each work experience should be accompanied by bullet points that use action words (see page 55) and highlight specific accomplishments or tasks. Whenever possible, choose accomplishments or tasks that align with the description of the position you are applying for and quantify the impact you have had through this experience. Jobs that may at first appear unrelated may be excellent examples of your leadership or problem-solving experience, so spend some time writing thoughtful descriptions of your experiences that offer readers insight into your skills. In fact, highlighting your transferable skills is one of the easiest ways to demonstrate to employers that you have what they seek in a candidate. When explaining these skills, use action-oriented statements (note that the first word in the phrase is an action word).

Example action-oriented statements:

- **Designed and constructed a prototype drone to collect atmospheric data at multiple locations across campus**
- **Developed code in Python to reduce data processing time by 30%**
- **Authored and maintained the Society of Physics Students webpage and listserv; efforts resulted in a 25% increase in member participation at events**
- **Led weekly science outreach efforts for middle school students and mentored them in applying for selective STEM educational programs**
- **Demonstrated excellent customer service in taking and fulfilling orders. Recognized as employee of the month twice in 2016**

> Remember—it is better to show something than to state something. As an example, instead of saying you are proficient in Python and electronics, briefly explain the amazing project you led that used both skills.

Other information

You may want to include other information on your resume that provides evidence of your relevant skills, interests, or accomplishments. 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 awards or honors.

Individualize your resume to 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.

A word about describing your abilities

Writing a resume is about selling yourself, but it is important to be honest about your abilities. For example, when writing about computer software, many students use the term proficient when their skill level is merely adequate or less, i.e., they got a C in a programing course. While inflating your ability may help you get an interview, it could lead to real trouble on the job. In addition, candidates may be asked to demonstrate their skills in software or other areas through content-related questions or proficiency tests. It can be tricky to choose the appropriate word to describe your skill level because many of these types of words are inherently vague. The better course is to describe your experience. Consider how "Developed LabVIEW code daily to take materials characterization data for 10-week research project" is more descriptive than "Completed two semesters of C++. Tell a story.

A word about asking for references or recommendations

You do not need to include personal or professional references on a resume, but often an employment application requires a list of references. Sometimes there is a request for a letter of recommendation Before you list anyone as a reference, ask permission. It is also important to provide all of your references with a copy of your resume, specifically for the job to which you are applying, and a copy of the job description. If you need the recommender to do something other than wait for a phone call, provide specific written instructions. Do not make the mistake of making an informal request without providing details about what you want, when you need it, and where it should be sent. It is a good idea to provide an addressed, stamped envelope if you are requesting a letter that needs to be sent via regular mail. It is also your responsibility to follow up with the recommender.

A word about federal government resumes

Many physics students may seek opportunities to work in a national lab or other federal facility. If you are applying to a federal position, keep in mind that resumes for these jobs often require very specific information and details beyond what will be in your standard resume. Use the resume builder tool on USAjobs.gov to ensure that you are providing all the right details in the proper formats. There is a lot of competition for federal jobs and not following the rules is an easy way to have your resume disregarded.
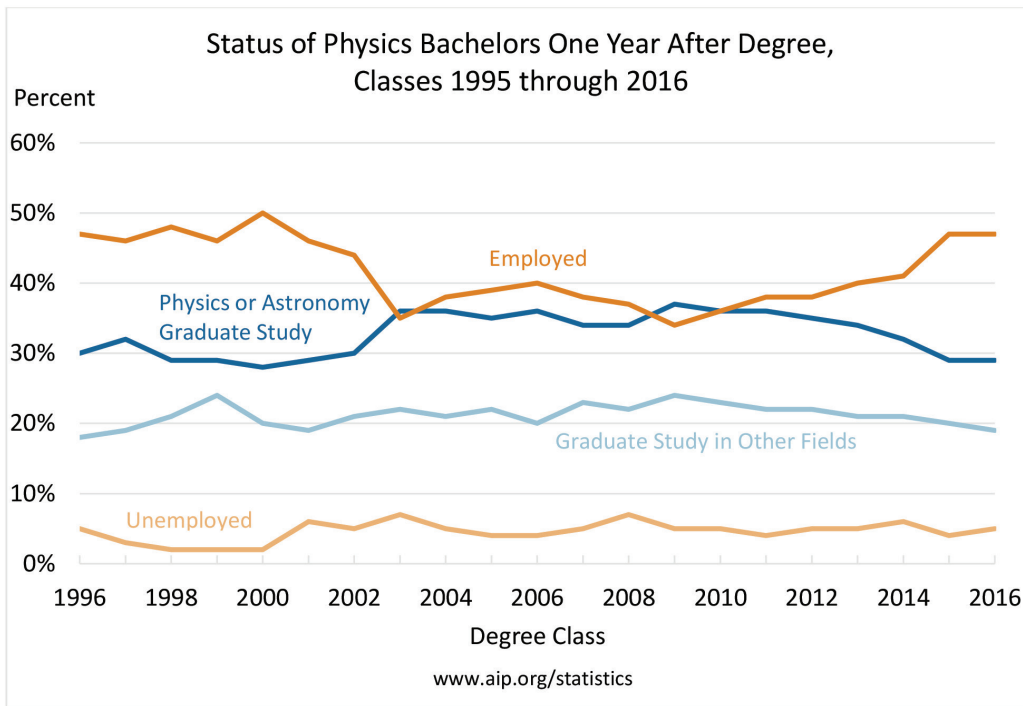
Career trajectory - Other options

Upon graduation, not all physics majors go straight into the work force. Many choose to continue their education. Historically, as seen in the Figure 7, while approximately one in three with a physics bachelor degree will go on in their studies of physics or astronomy and about one in five go on to study in another field. Of this group that continue their education, engineering is most common with many others following, as seen in Figure 8.

By identifying your career goals early on, you can research the educational backgrounds of people in that field and make an informed choice about whether graduate school is right for you. Many students to choose to focus their graduate studies in a different field from their bachelor's degree because of a desire to focus on a specific career trajectory or position. As an example, some students who enjoy electrodynamics and want to specialize in this branch of physics will go on to study Electrical Engineering. Physics degrees are a fantastic basis on which to develop a more specialized career.
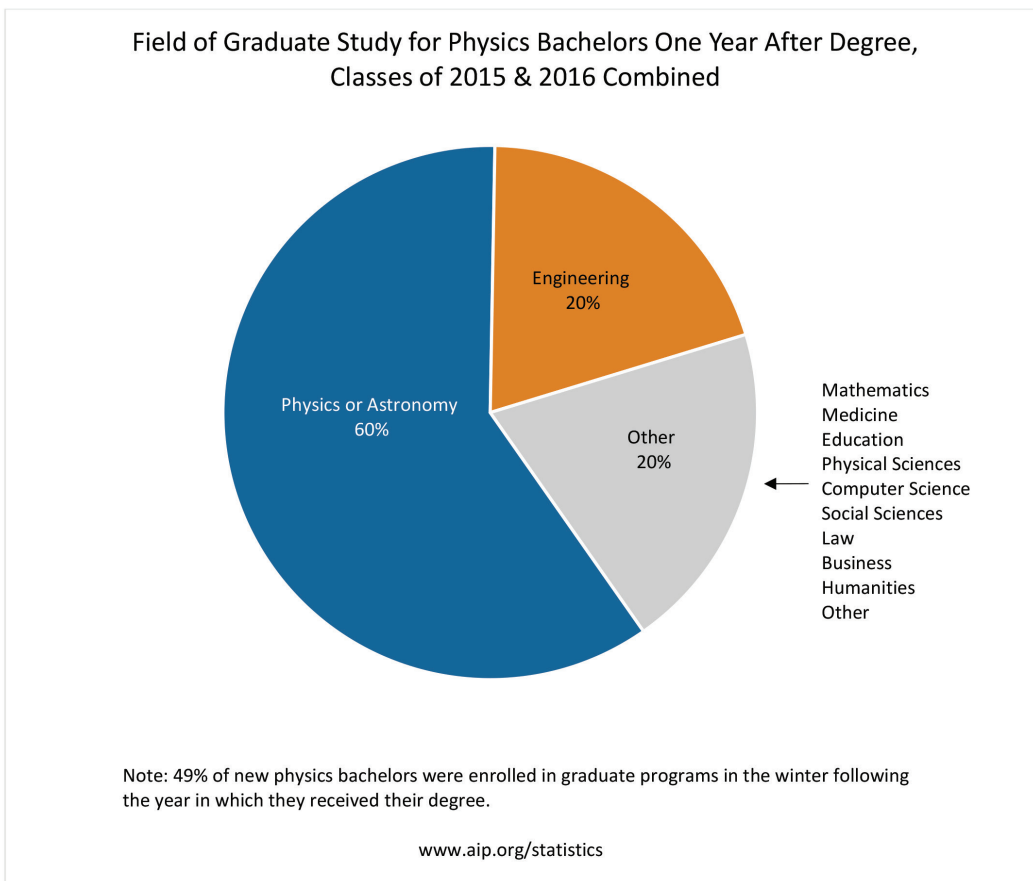
About 1 in 5 physics bachelor degree recipients go on to study other fields in graduate school.

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

Percent

- Employed
- Physics or Astronomy Graduate Study
- Graduate Study in Other Fields
- Unemployed

Degree Class

www.aip.org/statistics

Figure 7. Historic Trends in initial outcomes for Physics Bachelors.

Note that while graduate study in other fields and physics or astronomy graduate study are common, employment is the most likely initial status.

Field of Graduate Study for Physics Bachelors One Year After Degree, Classes of 2015 & 2016 Combined

- Engineering 20%
- Physics or Astronomy 60%
- Other 20%

Mathematics
Medicine
Education
Physical Sciences
Computer Science
Social Sciences
Law
Business
Humanities
Other

Note: 49% of new physics bachelors were enrolled in graduate programs in the winter following the year in which they received their degree.

www.aip.org/statistics

Figure 8. Physics Bachelors go on to pursue a range of graduate degrees.

While physics and astronomy are the most common fields of graduate study, 4 out of 10 students choose other fields.

An Action verb list for developing resume bullet points

MANAGEMENT

administered	chaired	delegated	executed	oversaw	recommended	supervised
analyzed	consolidated'	developed	improved	planned	reviewed	
assigned	contracted	directed	increased	prioritized	scheduled	
attained	coordinated	evaluated	organized	produced	strengthened	

COMMUNICATION

addressed	collaborated	directed	formulated	mediated	promoted	spoke
arbitrated	convinced	drafted	influenced	moderated	publicized	translated
arranged	corresponded	edited	interpreted	negotiated	reconciled	wrote
authored	developed	enlisted	lectured	persuaded	recruited	

RESEARCH

clarified	diagnosed	extracted	interpreted	organized	surveyed
collected	evaluated	identified	interviewed	reviewed	systematized
critiqued	examined	inspected	investigated	summarized	

TECHNICAL

assembled	computed	engineered	operated	remodeled	upgraded
built	designed	fabricated	overhauled	repaired	
calculated	devised	maintained	programmed	solved	

TEACHING

adapted	coached	demystified	encouraged	facilitated	instructed	goals
advised	communicated	developed	evaluated	guided	persuaded	stimulated
clarified	coordinated	enabled	explained	informed	set	trained

FINANCIAL

acted	customized	directed	founded	instituted	invented	planned
conceptualized	designed	established	illustrated	integrated	originated	revitalized
created	developed	fashioned	initiated	introduced	performed	shaped

HELPING

assessed	coached	diagnosed	facilitated	motivated	represented
assisted	counseled	educated	familiarized	referred	
clarified	demonstrated	expedited	guided	rehabilitated	

CLERICAL OR DETAIL-ORIENTED

approved	collected	generated	operated	purchased	specified
arranged	compiled	implemented	organized	recorded	systematized
catalogued	dispatched	inspected	prepared	retrieved	tabulated
classified	executed	monitored	processed	screened	validated

MORE VERBS FOR ACCOMPLISHMENTS

achieved	improved	reduced (losses)	resolved (problems)	restored	transformed
expanded	pioneered			spearheaded	

Exercise - Tool #7: Building the "Knowledge and Skills" Section of Your Resume

This exercise should be completed for each job! Carry over a position description and the relevant key words from Exercise #6. Choose a position that aligns well with your skills, abilities, and interests and complete the first two columns below. These bullet points will go either under your experiences or in your skills section.

Key words or phrases describing what the company is looking for in a candidate (Exercise #6)	Related bullet points (Exercise #5) - If you don't have one for this key word or phrase, create one following the Exercise #5 guidelines.	Priority
Key words or phrases describing the responsibilities of the position (Exercise #6)	**Related bullet points (from Exercise #5)** - **If you don't have one for this key word or phrase, create one following the Exercise #5 guidelines.**	**Priority**

⇒ Go back to the job description and identify which key word or phrase seems to be most important to the company. Put a "1" in the priority column next to this key word. Repeat this until you have prioritized the entire list. (Note that you should have one running priority list that includes the key words and phrases in both sections—do not restart at "1" in the second section.) Skip any key word or phrase for which you do not have a good bullet point.

Tip: To identify the keywords for a job, highlight the top 10 things listed in the ad.

$\Rightarrow$ In the boxes below, rewrite your top 5–8 list of "Tell it" bullet points in order of priority.

My related "Tell it" bullet points in order of priority

The bullet points for your resume are now done for this position! If you were applying to multiple positions, you would repeat this exercise for each position to create a version of your resume specific to each job. The hard work of writing the bullet points in Exercise #6 sets you up to easily create different resumes targeted for each position that interests you.