



# CALIFORNIA STATE POLYTECHNIC UNIVERSITY, POMONA

Cal Poly Pomona, SCI 1020/A – Spring 2019

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Class web page: <b>On BlackBoard</b> Blackboard is a system for distributing online course materials. You can log onto Blackboard from <a href="http://blackboard.cpp.edu">http://blackboard.cpp.edu</a> Use your Bronco ID and password to log in, and then click on the site for Science 1020A. From the Science 1020A Blackboard site you can access the weekly assignments, copies of the syllabus, course announcements, and course documents. Textbook: <a href="https://www.spsnational.org/sites/all/careertoolbox/PDFs/careertoolbox.pdf">https://www.spsnational.org/sites/all/careertoolbox/PDFs/careertoolbox.pdf</a>	

**Course Description:** Exploration of physics careers. We will discuss different branches of physics, careers in physics, and career skills for physicists. The course will consist of lecture, discussion, individual exercises, small group activities, and guest presentations from physics alumni.

## Learning Outcomes:

- Students will be able to effectively convey information about the broad range of career opportunities for physics undergrads.
- Students will be able articulate about themselves and about their experiences during networkingsituations
- Students will be able to plan and prepare for careers that require graduate level degrees.
- Students will be able to apply for jobs/internships by having the required job search tools prepared.
- Students will be able to choose opportunities that will strengthen career competencies making them more marketable to prospective employers.

## Grading

### **Class activities (10%)**

During class you will be working on activity worksheets / exercises. *At the end of each exercise* you will show me these worksheets. I will try to return them during the class period , however, if there is not enough time for me to grade all of them, they will be available in my office on the following day. Worksheets will receive either a check (v) or a minus (-)

### **Notes on readings(10%)**

Due most weeks. These should be typed, and will typically be at least ½ page in length. The report should answer the following questions:

- What seemed really important in this reading and why did it seem important
- What surprised you while doing this reading and why do you think it was surprising for you?

**A resume ( 10%):** We'll go over how to make a resume in class. Everybody has a weak resume before they get their first job; your task here is to make the least-bad (but still honest) resume that you can make, so that you have a shot at that first job or internship.

**Assessment Completion ( 10%)** Assessment data will be utilized to assist you with discovering career related preferences, interests, and talents.

- Myers Briggs Type Indicator
- Strong Interest Inventory
- strengths Quest

### **Report on alumni presentations( 20%)**

We will have several presentations from alums through the semester which you will report on. Each report should be about 400 words, and should be typed. It will be graded for grammar and writing style as well as substance.

- Summarize, what you learned from the seminar
- What seemed really important in the presentation and why did it seem important?
- What surprised you while listening to the presentation and why do you think it was surprising for you?
- Is the career path presented one that you might consider procuring? Why?

**Grad school paper ( 10%):** You should select a degree (MS, PhD, MBA, MD, Law, Optometry, teaching credential, etc.) in a field or profession where you will use your physics training in some way. If looking at physics programs, the website [www.gradschoolshopper.com](http://www.gradschoolshopper.com) will be helpful. ***Compare and contrast three or more graduate schools that award your selected degree in your selected field.*** The comparison may be in either paper form (2 pages typed, single-spaced) or table form.

- Some topics to include are: Admission requirements (grades?, exams?, “selectivity”, etc.), number of students who enter each year, fields or specializations available within the program, number of degrees awarded each year, cost and/or financial support, and average number of years to degree.
- You should also indicate whether the department provides information about what its graduates do, and how specific that information is. Do they just say “Our graduates get great jobs in a variety of setting”? Or do they say “50 percent of our graduates immediately go to full-time, long-term technical positions in the private sector, 30% go to non-permanent postdoctoral positions, and 20% take teaching positions”?

### **Two career papers( 20%)**

***Two career papers: One of the papers must be about a job that does not require any degree beyond a bachelor’s. The other paper must be about a job that requires some sort of training/degree/certification/etc. beyond a bachelor’s degree.*** These do not have to be jobs that you’ll get right after college, or even right after grad school. They can be jobs that you’d get sometime later in your career. These papers should be at least 2 pages single-spaced, and should discuss a very specific job. Don’t write about a job like “Physicist” or even “Semiconductor Physicist.” Write about a job like “Semiconductor device fabrication specialist” or “Medical physicist” or “Radiation dosimetrist” or something similarly focused. You will submit ***at least 2 sources***, at least one of which must be either recent job ads (i.e. something that says “Such-and-such Corp is hiring a person for [JOB TITLE], duties include X, Y, and Z, salary is \$[number]” or profiles of real, live individuals doing that job right now. Profiles can come from company websites, alumni magazines (universities love to write articles on the theme of “See, this person got a job! And it’s interesting!”), professional society websites (including some of the resources that I linked to under “Readings” on the first page of this syllabus), and sometimes personal blogs or sites like LinkedIn. The other source can either be another job ad, another profile, or statistical data from a government agency, professional society, or peer-reviewed journal. Points to address in your papers include:

- what are the typical job duties,
- what sorts of training or experience are required,
- what is the typical compensation,
- what sorts of organizations are hiring?
- you must cite your sources, using professional-looking bibliographic format.

### **Career Research Presentation (10%)**

You will use one of the two career papers above to give a 15 min presentation to the class.

You will also write an essay reflecting on the presentation that you have done. The essay must be typed and should be between ½ a page and a page long (single-spaced). Your essay should include answers to the following questions but should maintain a logical flow (i.e do not simply answer the questions sequentially in an unconnected fashion):

- Was the presentation instructive? What did you learn from this experience?
- What were the strong points of your presentation?
- What aspects of the presentation could benefit from revision?

- If you had the opportunity of repeating the presentation, what content would you change?

**Grading Policy:** Absolute grading will be used: No curves and no extra credit. You are not in competition with your classmates, so it is in your best interest to help each other learn in this class.

90%– 100%	A
80% – 89.9%	B
65% – 79.9%	C
55% – 64.9%	D
< 55%	F

Plus or minus grades will be within the ranges specified

**Make Up and Attendance policy:** Because you will play such an important role in your own learning and the learning of your classmates, your attendance is essential..

- One absences or two “lates” will result in a 5% grade reduction (A to A– or B+, for ex.)
  - Two absences or three “lates” will result in a 10% grade reduction (A to B, for ex.)
  - Three absences or 4 “lates” will result in a 20% grade reduction.
  - More than three absences or four “lates” will result in “F” for the course.
- Absences and “lates” are not excused without proper documentation (e.g. doctor’s note, record of a tow, etc.)

You are responsible for all work in the class. If you miss class because of illness or other compelling reason (written verification may be required), please notify the instructor as soon as possible by voice mail or email. Assignments due the date of your absence may be submitted for full credit upon return to class.

**Academic Integrity:** Every student is expected to be familiar with the university policy on academic integrity. Copying and cheating are serious offenses.

*Any student who feels s/he may need an accommodation based on the impact of a disability may contact me privately to discuss your specific needs, or may contact Disable Student Services at 909- 869-3333umented in room 126 of the University Library to coordinate reasonable accommodations for students with doc*

Outline of Instruction

Week	Topic	Homework for Next Class
1 1/21		
2 1/28	<p><b>Exploring Options, Finding Opportunities</b></p> <ul style="list-style-type: none"> <li>✓ What do physics majors do with their degrees?</li> <li>✓ *How to find information regarding employment prospects               <ul style="list-style-type: none"> <li>○ <a href="https://www.bls.gov/ooh/life-physical-and-social-science/psychologists.htm">Bureau of Labor Statistics</a> https://www.bls.gov/ooh/life-physical-and-social-science/psychologists.htm</li> <li>○ <a href="https://www.cpp.edu/~career/student/career-exploration.shtml">What Can I Do With this Major?</a> https://www.cpp.edu/~career/student/career-exploration.shtml</li> </ul> </li> </ul>	<p>Check out the following resources to see what people can do with a physics degree. Submit reading notes.</p> <ul style="list-style-type: none"> <li>○ <a href="https://www.spsnational.org/career-resources/physicist-profiles">https://www.spsnational.org/career-resources/physicist-profiles</a></li> <li>○ <a href="http://www.aip.org/statistics/trends/phytrends.html">http://www.aip.org/statistics/trends/phytrends.html</a></li> </ul>
3 2/4	<p><b>Exploring Options, Finding Opportunities</b></p> <ul style="list-style-type: none"> <li>✓ Career Planning Process Overview</li> <li>✓ Summer jobs and internships.</li> <li>✓ Tool #1: Common Job Titles for physics bachelors Exercise - Tool #1: Identifying Job Titles of Interest</li> <li>✓ * Demonstration on how to access MBTI assessment</li> <li>✓ * Workshop on Internships.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Check out the following resources to see what people can do with a physics degree. Submit reading notes.           <ul style="list-style-type: none"> <li>○ <a href="http://www.aps.org/publications/apsnews/features/profiles.cfm">http://www.aps.org/publications/apsnews/features/profiles.cfm</a></li> <li>○ <a href="https://www.aps.org/careers/physicists/profiles/index.cfm">https://www.aps.org/careers/physicists/profiles/index.cfm</a></li> </ul> </li> <li>✓ Complete the Strengths Quest</li> <li>✓ Complete the following test <a href="http://www.humanmetrics.com/personality">Jung Typology Test</a>(<a href="http://www.humanmetrics.com/personality">http://www.humanmetrics.com/personality</a>) Print out your results and bring them to class.</li> </ul>
4 2/11	<p><b>Exploring Options, Finding Opportunities</b></p> <ul style="list-style-type: none"> <li>✓ Tool #2: Informational Interviews Exercise - Tool #2: Planning For Your Informational Interviews</li> <li>✓ REUs</li> <li>✓ *MBTI interpretation: Sense of Purpose / Work style</li> </ul>	<ul style="list-style-type: none"> <li>✓ Explore AIP data about physics bachelors employment. Submit reading notes           <ul style="list-style-type: none"> <li>○ <a href="https://www.aip.org/statistics/employment/bachelors">https://www.aip.org/statistics/employment/bachelors</a></li> <li>○ Search <a href="http://www.monster.com">Monster.com</a> for job titles common to physics BS recipients</li> </ul> </li> <li>✓ Career paper 1 brainstorming -Find either an ad for a job that you might want after college, or a profile of a person that has a job you might want down the road. Bring it to class next week. But be sure to bring at least one profile or ad.</li> </ul>
5 2/18	<p><b>Exploring Options, Finding Opportunities</b></p> <ul style="list-style-type: none"> <li>✓ Tool #3: Gaining Experience Exercise - Tool #3: Gaining Experience</li> <li>✓ Tool #4: Networking Exercise - Tool #4: Networking Skills – Constructing Your Elevator Speech</li> <li>✓ Career paper 1 brainstorming discussion</li> </ul> <p><b>Alumni speaker</b> Visit by alumna Sarah Garcia (high school physics teacher)</p>	<ul style="list-style-type: none"> <li>✓ Complete the strengths Quest inventory</li> <li>✓ Check out the following resources regarding salaries Submit reading notes.           <ul style="list-style-type: none"> <li>○ The Society of Photonic Instrumentation Engineers (SPIE) maintains salary data for people working in optics: <a href="https://spicareercenter.org/survey">https://spicareercenter.org/survey</a></li> <li>○ The American Association of Physicists in Medicine (AAPM) also compiles a lot of salary data. A lot of it is members-only, but here's one report that they've made publicly available: <a href="https://www.aapm.org/meetings/amos2/pdf/49-14390-13903-290.pdf">https://www.aapm.org/meetings/amos2/pdf/49-14390-13903-290.pdf</a></li> </ul> </li> </ul>

<p>6 2/25</p>	<p><b>Assessing Your Knowledge and Skills</b>  <b>Tool #5: Identifying Your Skill Sets</b>  ✓ Exercise-Tool #5 Part 1: Brainstorming Your Experiences  ✓ Exercise - Tool #5 Part 2: Identifying Skill Sets from Your Experiences  ✓ * StrengthsQuest Interpretation + activities.  <b>Alumni speaker</b>  Visit by alumnus Jon Tran (computational scientist)</p>	<ul style="list-style-type: none"> <li>○ Report on alumni presentations</li> <li>○ Career paper 1 is due</li> </ul>
<p>7 3/4</p>	<p><b>Assessing Your Knowledge and Skills</b>  ✓ Tool #5: Identifying Your Skill Sets  Identifying My Skills – An Assessment Worksheet  ✓ *Workshop: Resume Essentials creating effective bullet statement activity.  <b>Alumni speaker</b>  Visit by alumnus Jase Nosal(metrology lab manager)</p>	<ul style="list-style-type: none"> <li>○ Report on alumni presentations</li> <li>○ Submit a first draft of a resume you can utilize drop in hours at the CoS Advising Center to have your resumes reviewed; Tuesday and Thursday from 2 – 4 p.m.</li> </ul>
<p>8 3/11</p>	<p><b>Getting to Work</b>  Tool #6: The Job Search Strategy  Exercise - Tool #6: Developing a Job Search Strategy  Tool #7: Putting <i>You</i> on Paper—The Resume  Exercise - Tool #7: Building the “Knowledge and Skills” Section of Your Resume</p>	<ul style="list-style-type: none"> <li>○ Report on alumni presentations</li> <li>○ Submit a second draft of a resume</li> <li>○ Career paper 2 brainstorming -Find either an ad for a job that you might want after college, or a profile of a person that has a job you might want down the road. Bring it to class next week. But be sure to bring at least one profile or ad.</li> </ul>
<p>9 3/18</p>	<p><b>Getting to Work</b>  ✓ * Workshop: Cover Letter  ✓ Tool #8: Writing an Effective Cover Letter  Exercise - Tool #8: Building Your Cover Letter  ✓ Career paper 2 brainstorming discussion</p>	<ul style="list-style-type: none"> <li>○ Career paper 2 is due</li> <li>○ Utilize Career Center drop-in hours to have your resume critiqued.  Wednesdays 11:00 a.m. – 12:00 p.m. and 1:00 p.m. – 3:00 p.m. at the Career Center (Bldg. 97, Rm. 100) Tuesdays &amp; Thursdays 2:00 p.m. – 4:00 p.m. at the College of Science Advising Center (Bldg. 3, Rm. 1645)</li> </ul>
<p>10 3/25</p>	<p><b>2 Alumni speakers</b>  Visit by alumni John Miller (PhD student in high energy physics) and Chrysten Green (college physics instructor)</p>	<ul style="list-style-type: none"> <li>○ Report on 2 alumni presentations</li> <li>○ Utilize Career Center drop-in hours to have your resume critiqued.  Wednesdays 11:00 a.m. – 12:00 p.m. and 1:00 p.m. – 3:00 p.m. at the Career Center (Bldg. 97, Rm. 100) Tuesdays &amp; Thursdays 2:00 p.m. – 4:00 p.m. at the College of Science Advising Center (Bldg. 3, Rm. 1645)</li> </ul>
<p>SPRING BREAK</p>		
<p>11 4/8</p>	<p><b>Getting to Work</b>  ✓ Tool #9: Acing the Interview Sample Interview Questions  ✓ resume critiques continued  <b>Alumni speaker</b>  Visit by alumnus Martin Sanchez (optical engineer)</p>	<ul style="list-style-type: none"> <li>○ Submit a final draft of a resume</li> </ul>

<p>12 4/15</p>	<p><b>Getting to Work</b>  <b>Tool #9: Acing the Interview</b>  ✓ Exercise - Tool #9: Preparing for an Interview  ✓ *Workshop: Successful Interviewing + practice interviewing in class; fish bowl activity.</p>	<p>Bring in a Personal Statement sample - share the reason(s) you chose to major in Physics and what your career goal(s) entails. 300 words minimum and 500 words maximum, Double space 12 – point font size New Times Roman</p>
<p>13 4/22</p>	<p>✓ Graduate School: Discussion on grad programs, Personal Statement , Letter of Recommendation Request  ✓ *Workshop: Personal Statement Strategy: Omit Needless Words.</p>	<p>○ Grad school paper due</p>
<p>14 4/29</p>	<p><b>Tool #9: Acing the Interview</b>  <b>Alumni speaker</b>  Visit by alumna Stephanie Zajac (aerospace engineer)</p>	<p>○ Report on alumni presentations  ○ Prepare your career presentation</p>
<p>15 5/6</p>	<p>Students career presentations</p>	