



# THE PATHWAY FROM **EDUCATION TO VOCATION**

*Becoming a Difference Maker in*  
**PHYSICS**

## **Why Study *Physics* at Azusa Pacific University?**

The combination of technical and problem-solving skills developed by physics graduates makes them highly sought after by prospective employers in engineering, chemistry, and other technical fields, extremely well prepared to teach at the middle or high school level, and well-positioned for graduate school. Physics majors develop strong technical skills in classical mechanics, thermodynamics, electromagnetism, waves and optics; a strong math and computer background; and an understanding of how to seek out the core technical issues of a problem, preparing them to make meaningful technical advancements in a variety of fields.

APU's physics program offers small classes (often 15 students: 1 faculty), a robust engagement with how faith and physics intersect and relate to one another throughout the curriculum, a close-knit community among students and faculty, and incredible opportunities for undergraduates to pursue research with faculty or internships during the academic year and summer sessions. Graduates of APU's physics program have gone on to work in industry, teach at the high school and college level, and attend graduate school.

## YOU MIGHT CONSIDER A PHYSICS MAJOR IF YOU:

- Enjoy solving puzzles and engaging mental challenges
- Are thorough and detail oriented
- Enjoy problem solving and logical reasoning
- Like exploring how the world works
- Enjoy approaching problems carefully and methodically
- Enjoy math



**CALEB WAGNER '14**  
Physics Graduate Student  
Brandeis University

Caleb is currently in the Ph.D. program at Brandeis University and is a teaching assistant for undergraduate physics classes. Studying physics, he says, is the best way to figure out the essential pieces in the structure of the universe.

*“Once you think like a physicist, you are well-equipped to take on a variety of real-world problems.”*



**SARAH GUERRERO '07**  
Principal  
Northbrook Middle School

After graduating from APU, Sarah went on to receive her M.Ed. and M.B.A. Having a career in education gives her the opportunity to make an immediate impact on younger generations.

*“Building cross-generational relationships will help you learn and gives you access to opportunities and ideas.”*

## PHYSICS MAJORS ARE PREPARED FOR:

- Solving complex problems in a variety of situations
- Quantitative and deductive reasoning skills
- Communicating technical findings through verbal and written media
- Critically thinking through complex processes
- Learning new skills to remain vocationally agile in technical fields
- Seeking out core technical issues and problems
- Computer programming
- Laboratory based techniques and skills
- Applying key principles to a wide variety of technical situations

## GRADUATES IN PHYSICS WORK AS:

- High school and middle school teachers
- Professors
- Research scientists
- Research and development engineers
- Engineering managers
- Financial analysts
- Technicians
- Computer programmers

*\*Many of these careers may require additional training and/or graduate education*



**ADAM CRAYCRAFT '11**  
Physics Graduate Student  
Colorado State University

Adam received his M.S. in Physics from Colorado State University and is now in the Ph.D. program. He is a member of a large particle physics collaboration that is regularly published in the most prestigious physics journals.

*“I owe my graduate career in large part to my APU professors in math and physics. They worked hard to get me prepared and accepted to grad schools.”*

To connect with these and other APU alumni, email [clasalumni@apu.edu](mailto:clasalumni@apu.edu)

## STEPS TO TAKE AS A MAJOR IN PHYSICS

## OPTIONS TO EXPLORE AROUND APU

### BE CALLED.

EXPLORE. DEFINE. RESEARCH. LEARN.

- **TAKE PHYSICS FOR SCIENCE AND ENGINEERING (PHYC 161)**  
Explore who scientists are and what they do.
- **ATTEND CAREER NIGHT PANELS**  
Hear from current students about their experiences in internships and from alumni about possible careers in the field of Physics.

- **LEARN HOW TO APPLY YOUR STRENGTHS WITHIN YOUR ACADEMICS, LIFE, AND CAREER**  
Meet with a Career Consultant\* or Strengths Mentor.
- **CONSIDER CAREER OPTIONS FOR YOUR MAJOR**  
Meet with a Career Consultant\* or your faculty advisor to explore and discuss requirements for your career options.

### BE PREPARED.

IDENTIFY. STRENGTHEN. PRACTICE.

- **ATTEND RESEARCH DAY**  
Learn more about the field and what other students are doing by participating in the annual Fall Research Day.
- **BUILD YOUR RESEARCH SKILLS**  
Get paid to work over the summer with a faculty member on his/her research, and then present it at a conference.
- **PRACTICE YOUR TEACHING SKILLS**  
Volunteer to represent Physics through service-learning opportunities at middle schools, boy scouts, etc.
- **SHARE YOUR RESEARCH AND SHOWCASE PRESENTATION SKILLS**  
Present your original research at APU's Fall Research Day, Common Day of Learning, and/or the Southern California Conference on Undergraduate Research.
- **SECURE AN INTERNSHIP**  
Seek out a paid internship over the summer with a variety of technical firms.
- **JOIN THE PHYSICS GRE PREP GROUP**  
If you're planning to pursue graduate-level education, meet up with your peers and faculty to put your best foot forward on the GRE.

- **RECEIVE FEEDBACK ON YOUR INTERVIEWING ABILITIES**  
Complete a Mock Interview with a Career Consultant\*
- **CREATE A RESUME TO APPLY FOR AN INTERNSHIP**  
Meet with a Career Consultant\* to review your resume and cover letter. Run them by your professors, too.
- **GROW YOUR SKILLS IN AN ON CAMPUS JOB OR STUDENT LEADERSHIP POSITION**  
Talk to Student Employment or Student Life about the available opportunities.
- **VOLUNTEER LOCALLY AND GLOBALLY TO SHAPE YOUR PERSPECTIVE**  
Talk to the Center for Student Action about how you can serve.
- **GAIN KNOWLEDGE ABOUT YOUR CAREER OPTIONS**  
Do informational interviews or go to a career-related event to learn more about your career, degree, and experience requirements.

### BE CONNECTED.

JOIN. NETWORK. BE ACTIVE.

- **JOIN APU'S CHAPTER OF SOCIETY OF PHYSICS STUDENTS**  
Connect with physics students from other universities through involvement in this student club.
- **ATTEND ALUMNI PANELS AND EVENTS**  
Students have the opportunity to engage with panelists from a variety of science or health-related fields.
- **COME BACK TO PARTICIPATE IN MATH/PHYSICS/ENGINEERING CAREER NIGHT**  
Return to campus to pay forward the mentoring and advice you received to other students.
- **JOIN APU CONNECT**  
Use the exclusive online networking portal to connect with other alumni.

- **TALK TO ALUMNI FROM YOUR MAJOR**  
Join [APUConnect.com](http://APUConnect.com) and start reaching out. You can also email [clasalumni@apu.edu](mailto:clasalumni@apu.edu)\* for help connecting with alumni.
- **GET ACTIVE ON LINKEDIN**  
Meet with a Career Consultant\* to review your profile and learn how to use LinkedIn.
- **ATTEND CAREER-RELATED EVENTS**  
Keep an eye out for career events related to your major or that are happening around campus.
- **HAVE LETTERS OF RECOMMENDATION ON HAND**  
Request them from professors and advisors at least a month before due.

\* Visit [apucareer.youcanbook.me/](http://apucareer.youcanbook.me/) to make an appointment with a Career Consultant

\* Use subject line: Connect me with APU alumni

# APPLYING TO GRADUATE SCHOOL

## EXPLORE.



Learn more at  
[www.apu.edu/career/graduateschool](http://www.apu.edu/career/graduateschool)

## SELECT.

ONLINE RESOURCES TO HELP IDENTIFY THE BEST PROGRAM FOR YOU

[Peterson's Guide](#)  
[GradSchools.com](http://GradSchools.com)  
[The Princeton Review](#)  
[National Assoc. of Graduate Professional Students](#)  
[The Council of Graduate Schools](#)  
[APU Pew Society Graduate Guide](#)

EXAMPLES OF SCHOOLS ATTENDED BY APU PHYSICS GRADUATES:

[Arizona State University](#)  
[University of Chicago](#)  
[Colorado State University](#)  
[Brandeis University](#)  
[University of Southern California](#)

## APPLY.

- APPLICATION FORM AND FEES**  
Follow instructions carefully and have one or more people check for errors.
- ENTRANCE ESSAY**  
Provide a writing example that shows your personal objectives.
- TRANSCRIPT**  
Ask APU to send it directly to the school you are applying to.
- LETTERS OF RECOMMENDATION**  
Schools usually require three letters, so get them early.
- INTERVIEWS**  
If your potential school requests an interview, treat it as a job interview.

# FINDING YOUR CAREER

## IDENTIFY.

- Search online job boards and professional associations in the Physics field
- Regularly check-in with your organizations of interest and network with those who can inform you of opportunities
- Look on APU Career Network for possible opportunities

### PHYSICS ASSOCIATIONS:

[American Physical Society](#)  
[American Association of Physics Teachers](#)  
[National Science Teachers Association](#)  
[Society of Physics Students](#)  
[American Association for the Advancement of Science](#)  
[American Scientific Affiliation](#)  
[Southern California Conference on Undergraduate Research](#)  
[American Institute of Physics](#)  
[National Science Foundation - Research Experiences for Undergraduates](#)  
[Physics Today - Jobs](#)

## PREPARE.

### BRAINSTORM YOUR EXPERIENCE

What have you done? What is relevant?



### TAILOR YOUR RESUME

What does the job description say?



### WRITE GOOD BULLET POINTS

Do you focus on your accomplishments?



### FORMAT YOUR RESUME

Is it easy to read and follow?



### PRACTICE INTERVIEWING

Know yourself.  
Know the position.  
Know the organization.

## RESEARCH OPTIONS

### OCCUPATIONAL OUTLOOK HANDBOOK

[www.bls.gov/ooh/](http://www.bls.gov/ooh/)

### O\*NET ONLINE

[www.onetonline.org](http://www.onetonline.org)

### PROFESSIONAL ASSOCIATION REFERENCE

[www.weddles.com/associations](http://www.weddles.com/associations)

## NETWORK.

WHO DO YOU KNOW?  
WHO DO YOU NEED TO KNOW?



### WHY NETWORK?

- Learn about different options in your field
- Research companies and positions of interest
- Find hidden opportunities that are not advertised
- Obtain referrals from those who have influence

### EXAMPLES OF COMPANIES THAT HIRE APU PHYSICS GRADUATES:

Lawrence Livermore National Laboratory  
Jet Propulsion Laboratory (JPL)  
Tuan & Robinson Structural Engineers  
Chevron  
Wooster Engineering  
Taconic Biosciences  
OspreyData, Inc.  
NovaWurks, Inc.  
Walt Disney Animation Studios  
Leidos  
DRS Technologies  
Ontario School District