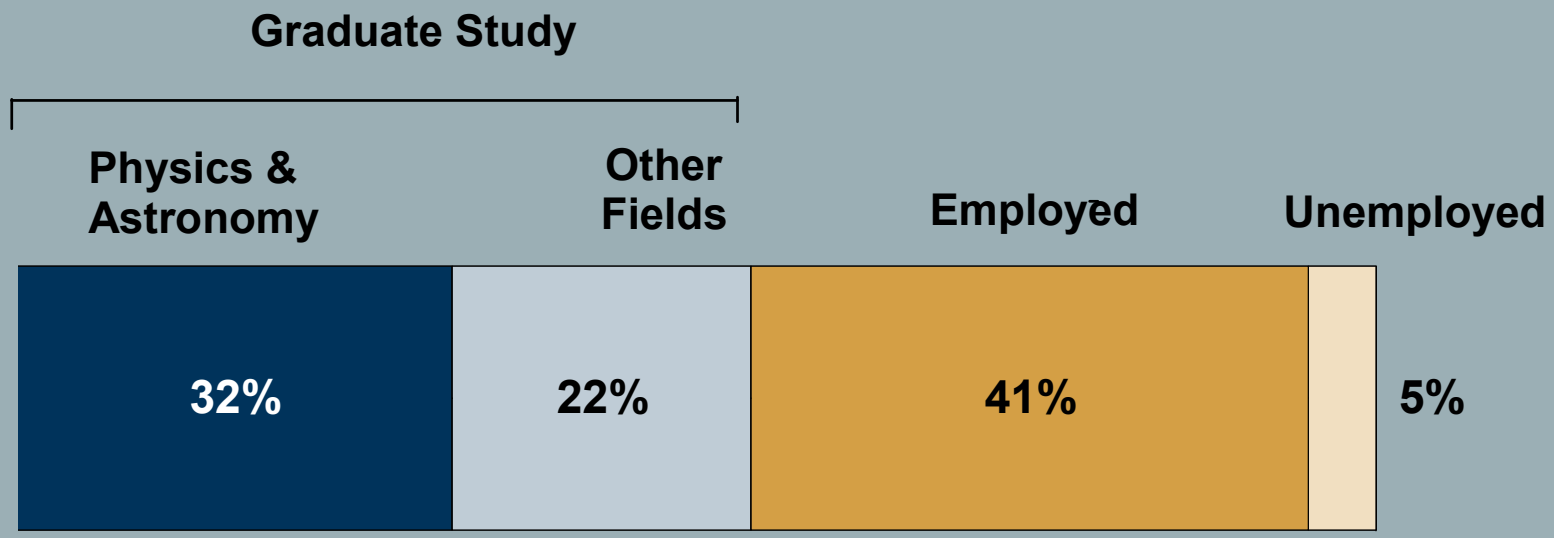
PHYSICS JOBS

What can I do with a physics degree?

Dr. John Stewart

SO YOU GRADUATED; NOW WHAT?

Physics Bachelor's One year after Degree



Classes of 2013 & 2014 combined

Status of Physics Bachelors One Year After Degree, Academic Years 2020-21 and 2021-22

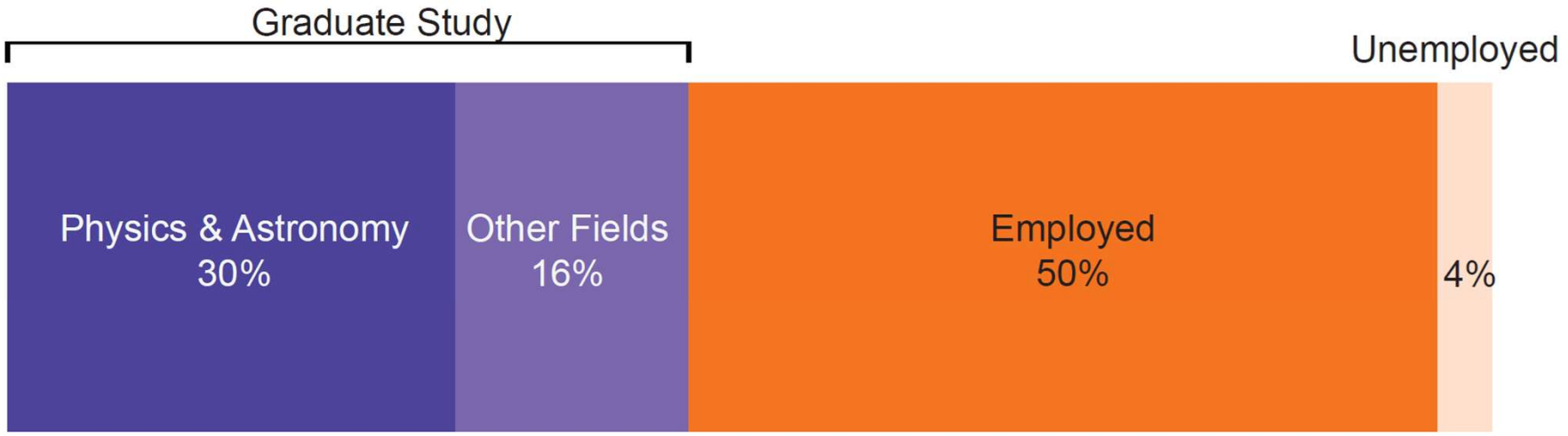
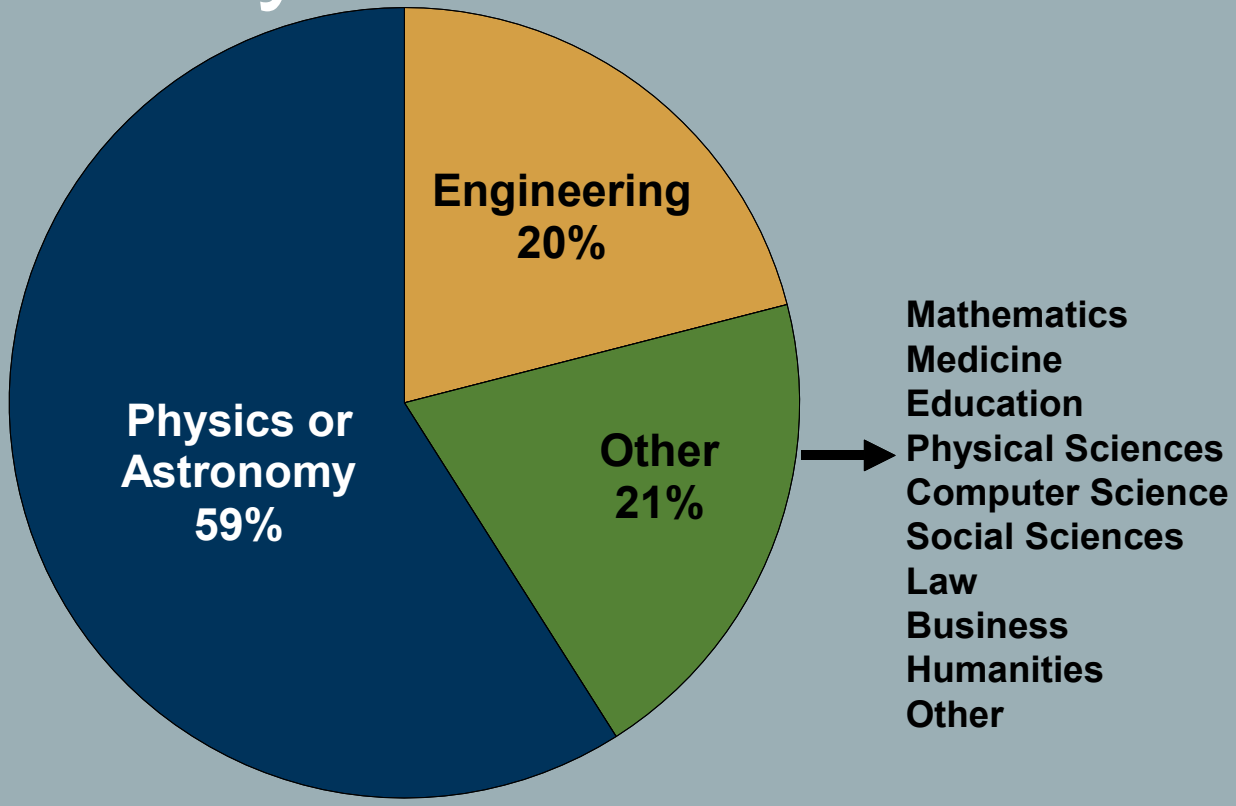


Figure based on 3,939 responses.

Graduate School

- Many of you will chose to attend graduate school in physics, astronomy, mathematics, or engineering.
- In almost all cases, graduate school in science and engineering is FREE.
- WVU Physics graduate students receive a full tuition waiver AND a salary of $29,000 per year to be students.

Fields of Graduate Study



Classes of 2013 & 2014 combined

About 1 out of 6
US physics bachelors graduates
receive a
physics or astronomy PhD

This is about 6 times the rate for all bachelor's degrees.

THE MATH THAT MATTERS

- If only 17% of physics bachelors get physics PhDs and only 46% of those expect permanent academic positions then only (.17)(.46)=8% of physics bachelors become professors (the real number including national labs is about 6%).
- Everyone here is preparing both for the possibility of an academic job and the probability of a private sector job.

Professional School (You pay for this)

Medical School

- ***Physics majors out-perform most other majors (including pre-med and biology) on all three sections on the MCAT.***

Law School

- ***As a group, the physics bachelor's who apply to law school achieve high scores on the LSAT exam.***

Other Professional School

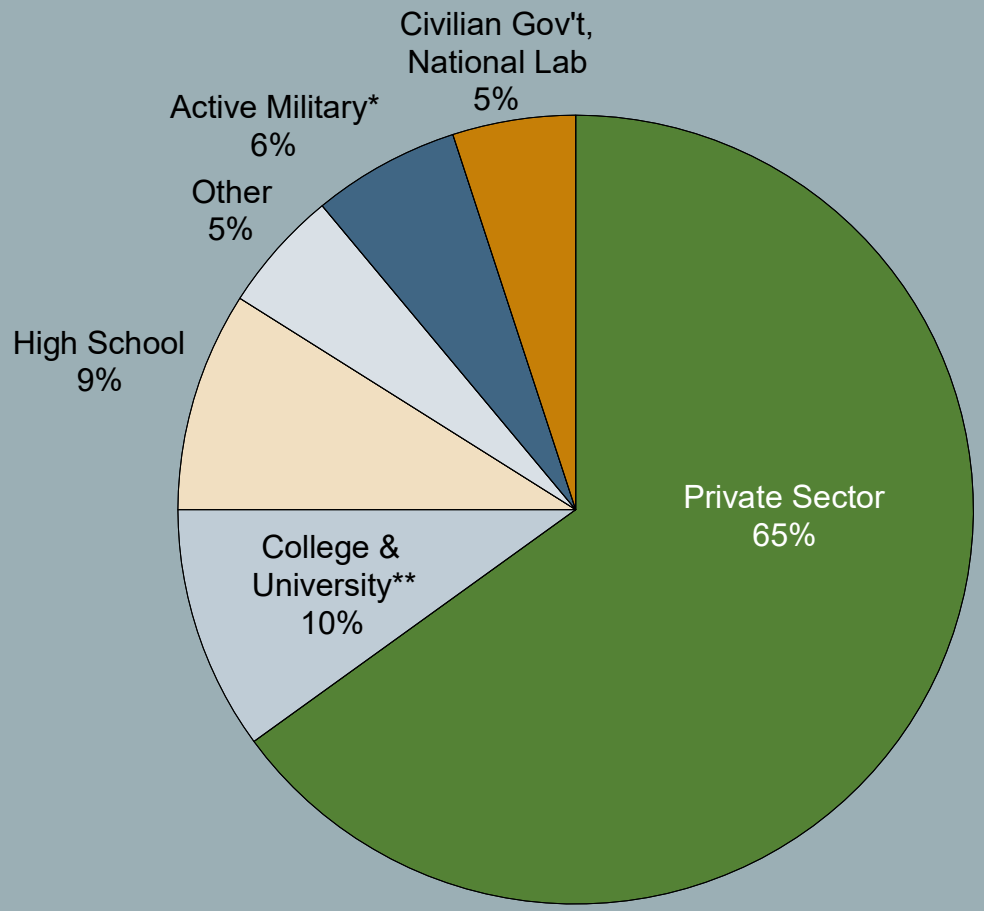
Dentistry, Physical Therapy, Seminary??

BUT I DON'T WANT TO GO TO SCHOOL ANYMORE

Jobs with a bachelors degree

Initial Employment Sectors of Physics Bachelors

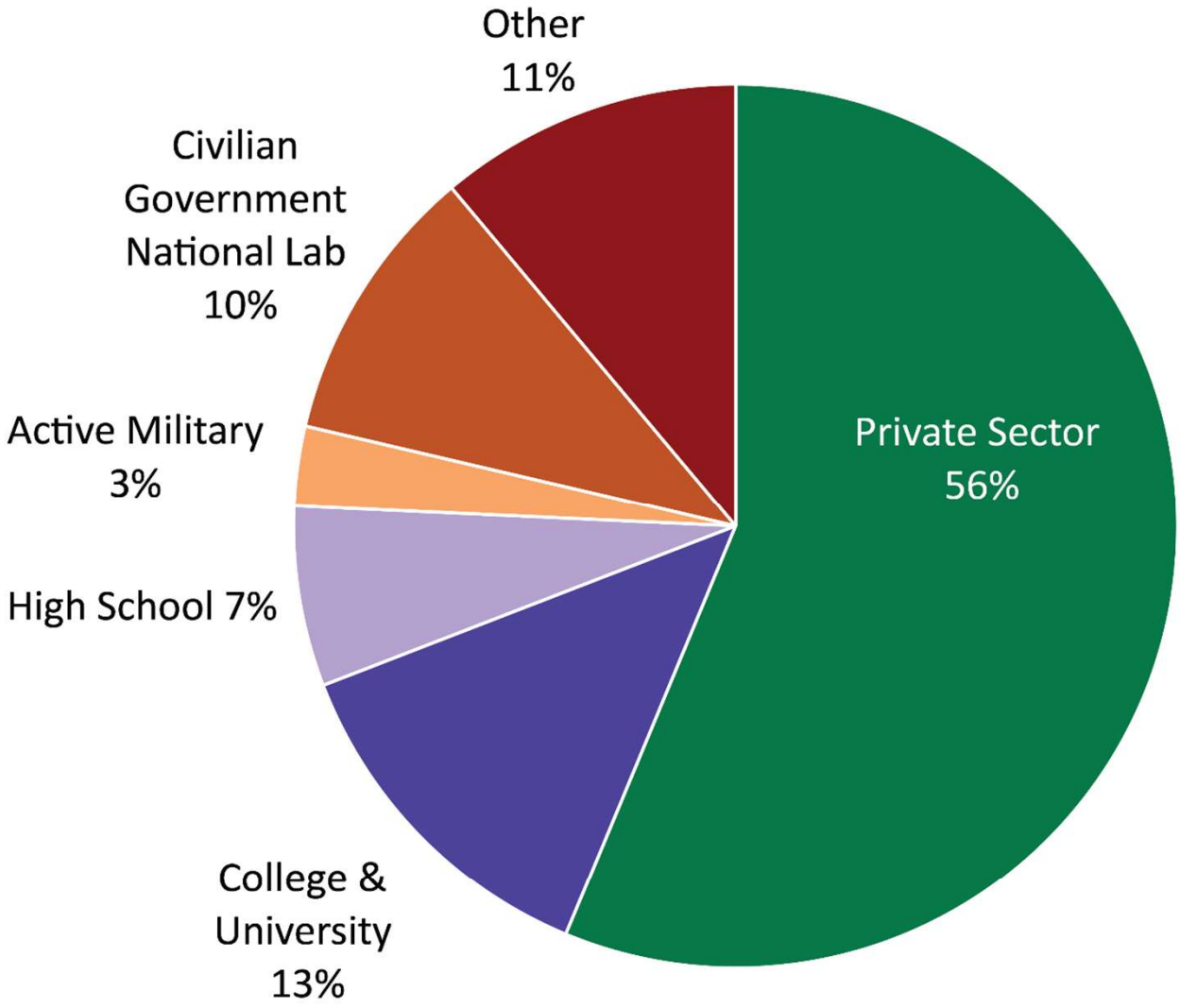
Classes of 2013 & 2014 Combined
Students not Enrolling in Graduate School



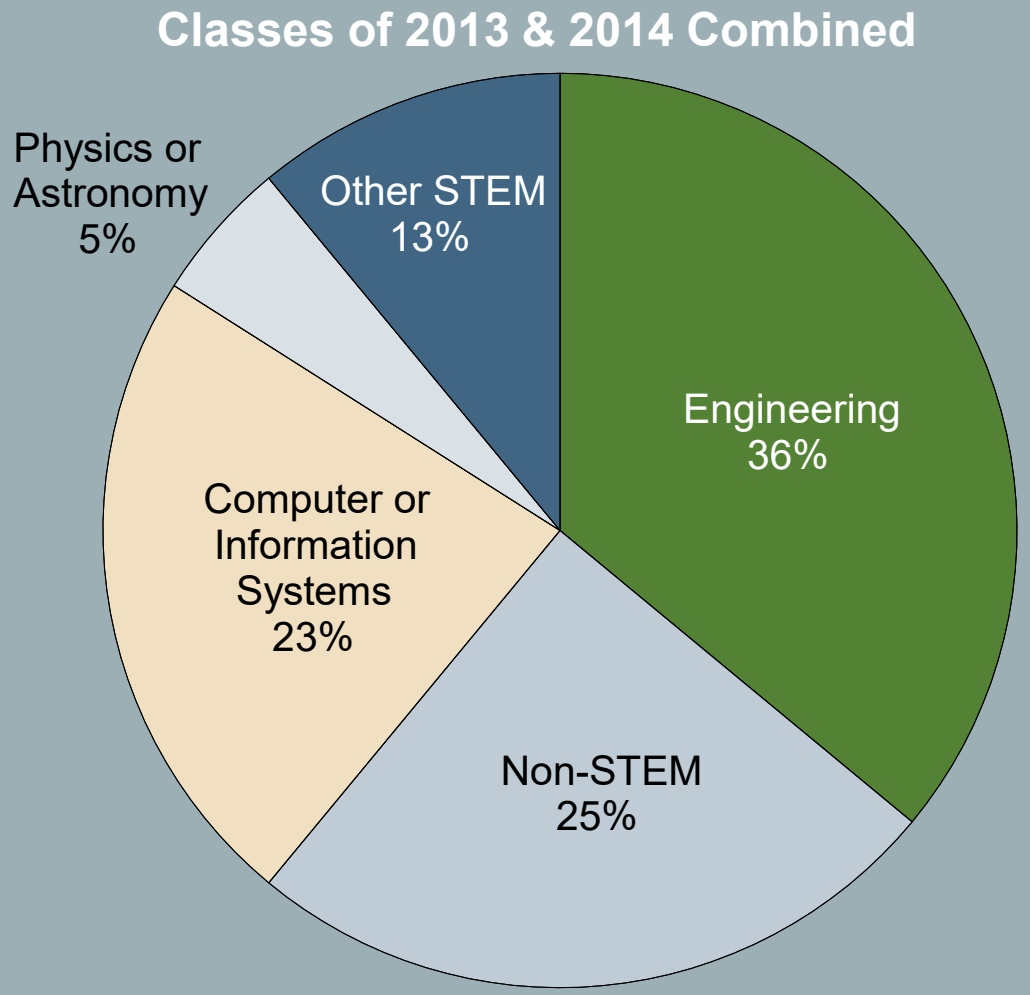
*Data does not include degree recipients from the three military academies (US Naval Academy, US Military Academy, US Air Force Academy).

** Data include two- and four-year colleges, universities, and university affiliated research institutes.

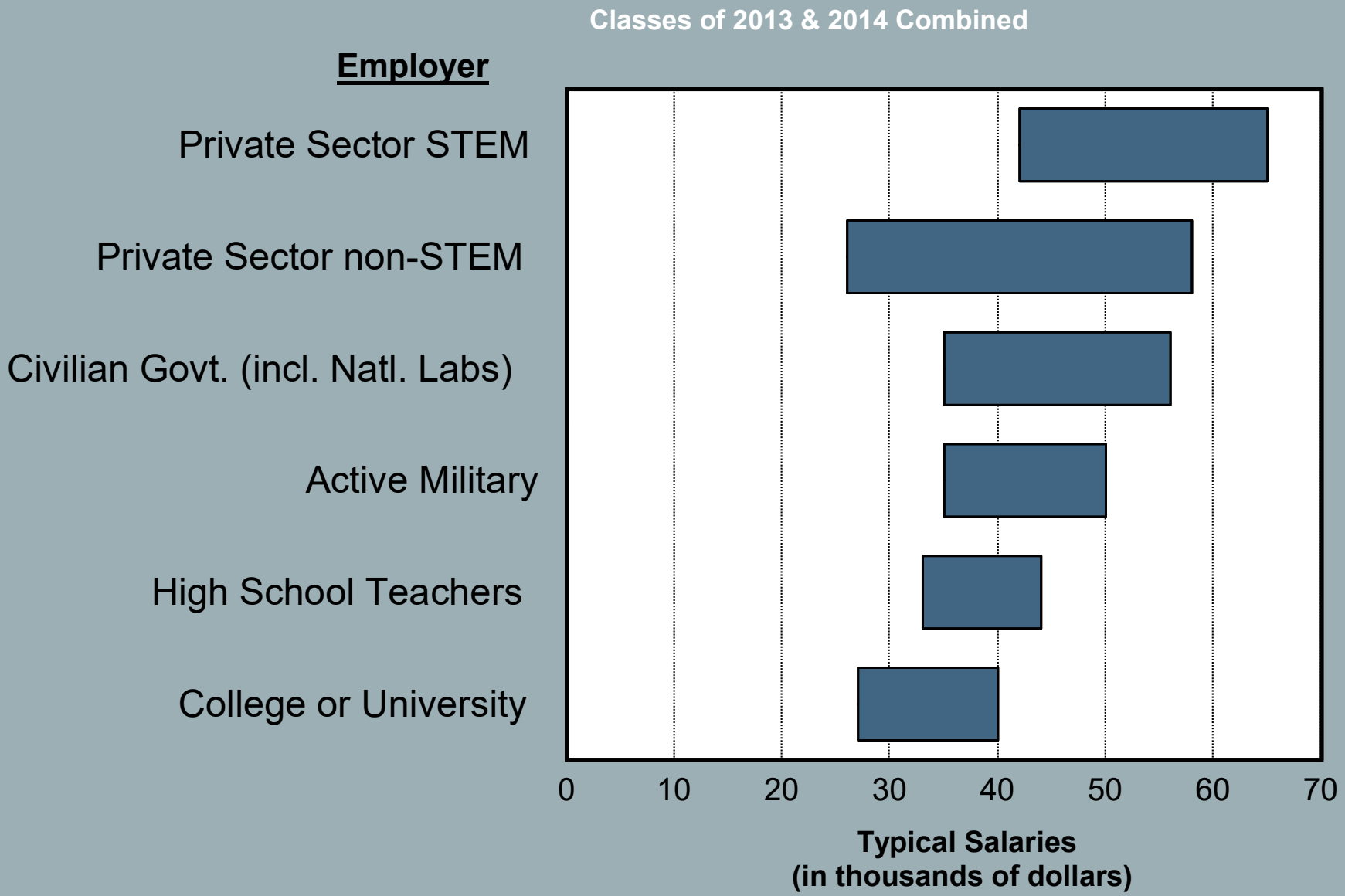
Initial Employment Sectors of New Physics Bachelors, Academic Years 2022-23 and 2023-24



Field of Employment for Physics Bachelors in the Private Sector



Starting Salaries for Physics Bachelor's



AIP PHYSICS TRENDS

Fall 2023

Starting Salaries for Physics Bachelors

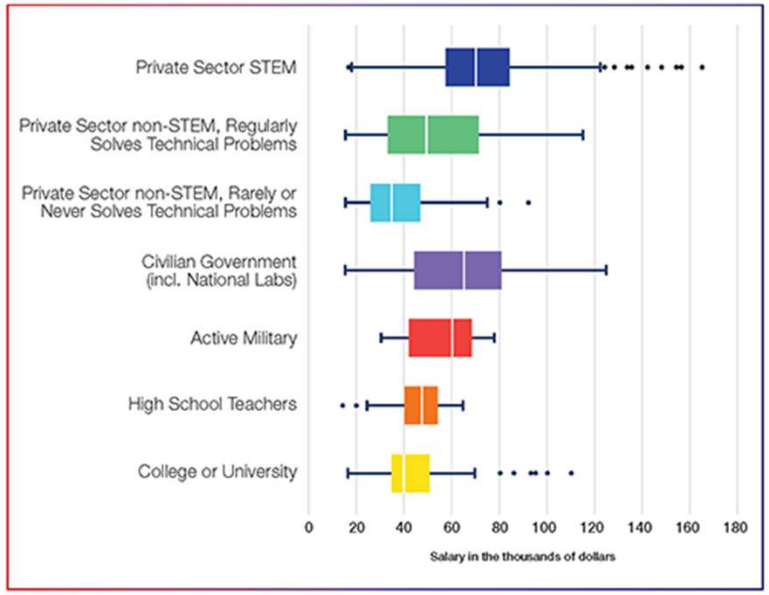


Figure only includes starting salaries for full-time employed, US educated physics bachelor's degree recipients from the classes of 2021 and 2022 combined. The box represents the middle 50% (25th to 75th percentile) of the salaries. The vertical line within the box represents the median salary. The full starting salary range, excluding outliers, is represented by the lines extending to each side of the box. The dots outside the lines are statistical outliers but actual salaries. STEM refers to positions in science, technology, engineering, and math.

Figure 1: Top-paid math and science majors at the bachelor's level

Major	Average Starting Salary
Physics	$64,625
Construction science	$56,750
Mathematics/statistics	$56,714
Chemistry	$55,750
Geology/geological sciences	$53,079
Environmental science	$51,811
Biology/biological sciences	$51,218

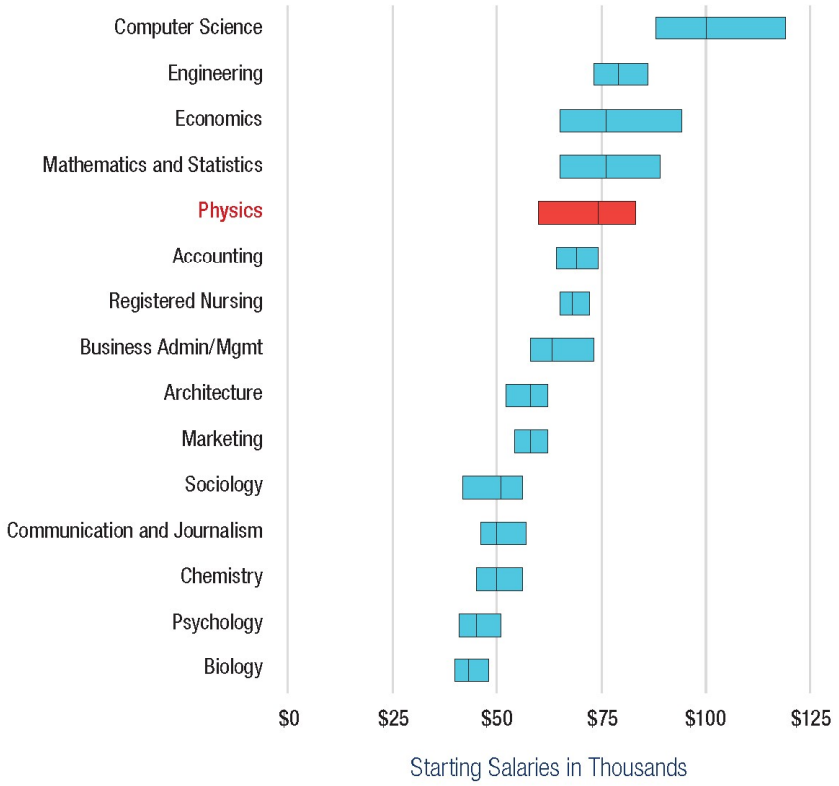
Source: *January 2015 Salary Survey*, National Association of Colleges and Employers

AIP PHYSICS TRENDS

Spring 2026

What Do New Bachelors Earn?

Starting Salaries for the Class of 2024



The boxes represent the middle 50% (25th to 75th percentile) of the salaries. The vertical line within the box represents the median salary.

Source: Summer 2024 Salary Survey, National Association of Colleges and Employers (NACE), copyright holder

WVU GRADUATES

Graduation Term	Placement upon graduation	Graduation Term	Placement upon graduation
201701	software development at Leidos	202205	Laboratory Technician at Pace Analytica
201708	Accelerator operator, Jefferson Lab	202301	US Army Officer Program
201801	IGA Photonics	202301	Navy Nuclear Power Program
201901	Actuarial analyst for Homesite Insurance	202301	Management Consultant - Naviagate Corporation
201901	Navy Nuclear Lab	202301	Technical Writer - Fischer Thermo
202001	Works for main Saudi oil company	202301	Radiological Health Specialist for the WV Department of Health
202001	Laboratory Technician Vesuvius USA	202305	Medical School - WVU
202008	Laboratory Technician II at Integrated DNA Technologies	202401	Green Bank Observatory
202008	Clinical Laboratory Assistant at Ruby Memorial Hospital	202401	High School Physics Teacher
202108	High school physics teacher Boone County WV	202401	Dental School - LECOM
202201	Finance job in NY	202401	High School Physics Teacher
202201	Teaching at Preston High School in Preston, WV	202501	Green Bank Observatory
202201	Navy nuclear program	202501	Industry - UR-Energy-Geotechnical Engineer
202201	Mechanical Technicion - Element Materials Technogy	202508	High School Teacher
202205	Institute for Mathematical and Biological Syntasis - Knoxville	202601	High School Teacher - North Carolina

Physics Job Titles.

https://www.aip.org/statistics/common-job-titles-physics-bachelors

Engineering

- Systems Engineer
- Electrical Engineer
- Design Engineer
- Mechanical Engineer
- Project Engineer
- Optical Engineer
- Manufacturing Engineer
- Manufacturing Technician
- Laser Engineer
- Associate Engineer
- Application Engineer
- Development Engineer
- Engineering Technician
- Field Engineer
- Process Engineer
- Process Technician
- Product Engineer
- Product Manager
- Research Engineer
- Test Engineer
- General Engineer
- Technical Services Engineer

Computer Hardware / Software

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

Education

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

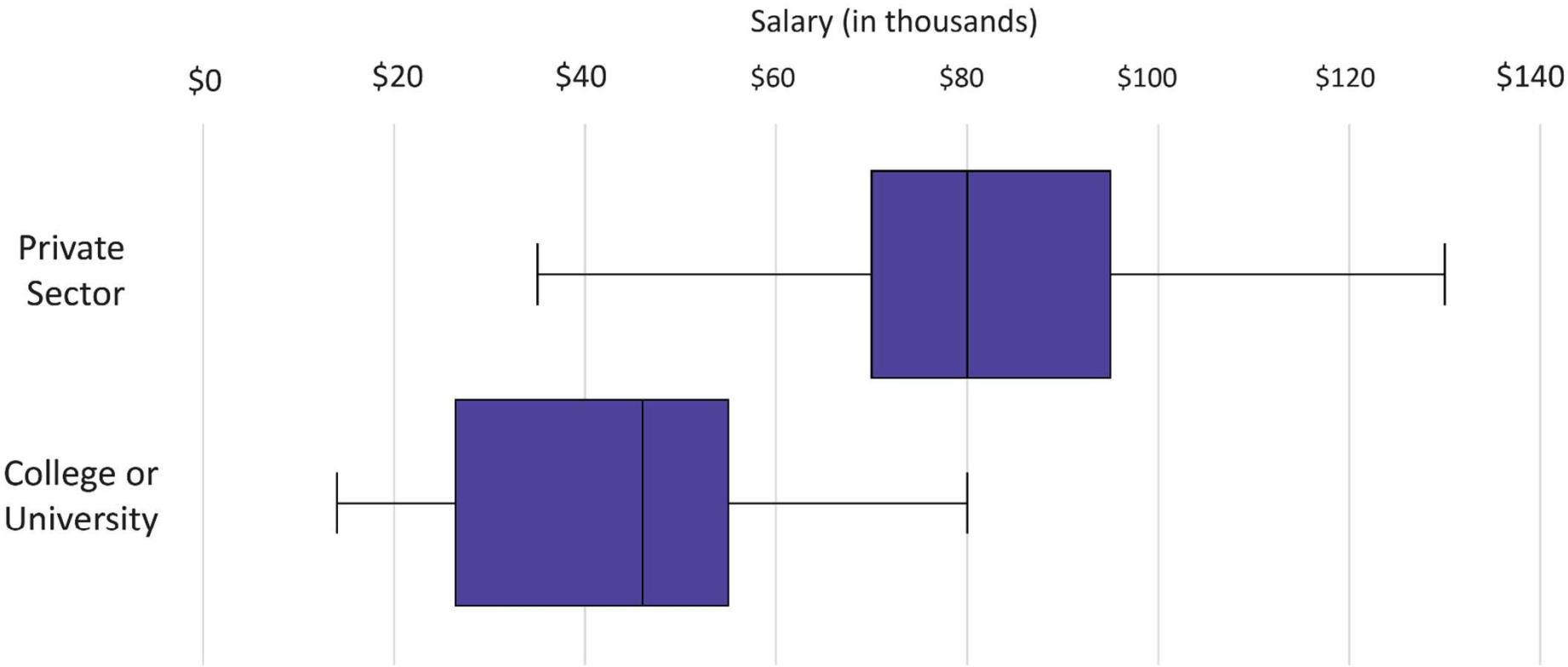
Research and Technical

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

Note: No physicist, so if you use the career center on campus, you need to be aware of the job titles you are actually searching for.

SO YOU DECIDE TO STAY IN SCHOOL

Starting Salaries of Exiting Physics Masters One Year After Degree, Degree Recipients from Academic Years 2021-22, 2022-23, and 2023-24



The full starting salary range (excluding outliers) is represented by the lines extending to each side of the box. The box represents the middle 50% (25th to 75th percentile) of the salaries. The vertical line within the box represents the median starting salary for the sector. Figure does not include salaries for masters holding part-time positions or salaries for respondents who reported starting their employment more than a year prior to earning their master's degree. The College or University category includes two-year colleges, four-year colleges, universities, and university affiliated research institutes.

STARTING SALARIES FOR PHYSICS PHDS

AIP American Institute of Physics

PHYSICS TRENDS

Fall 2022

Starting Salaries for New Physics Doctorates

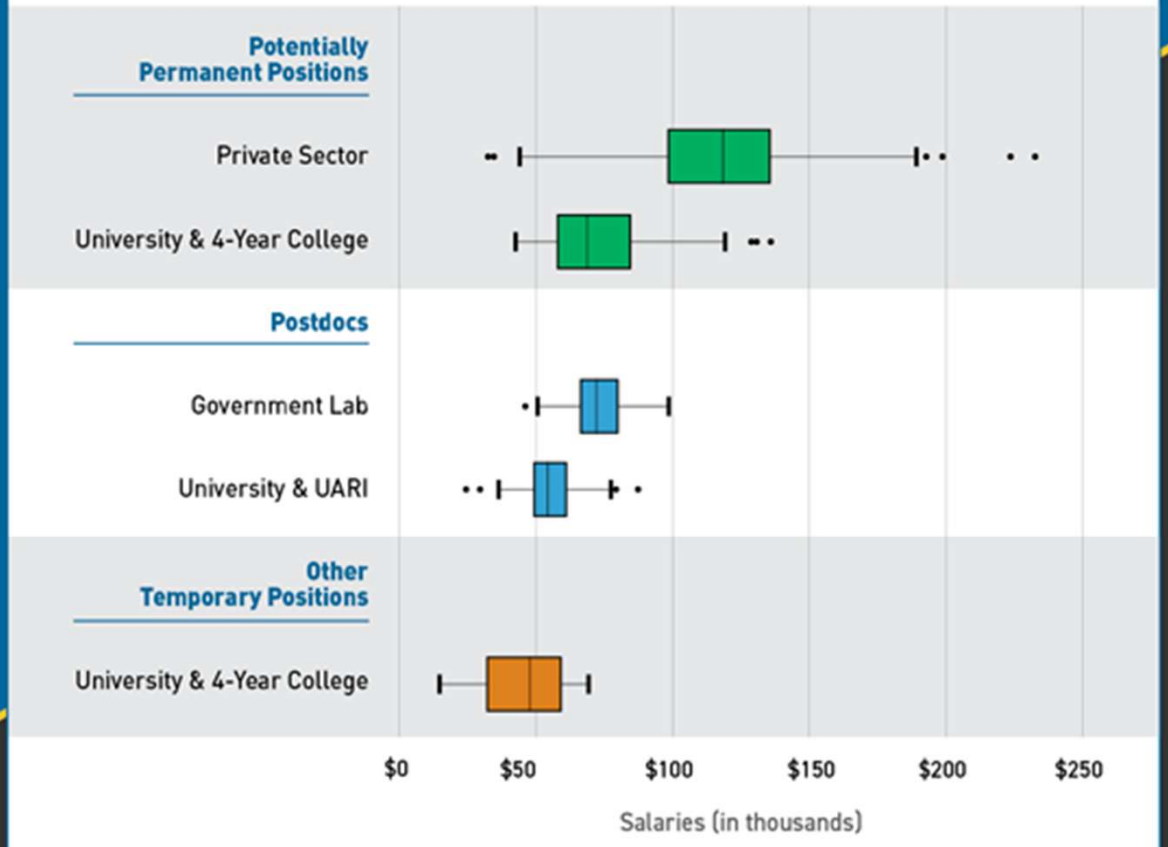
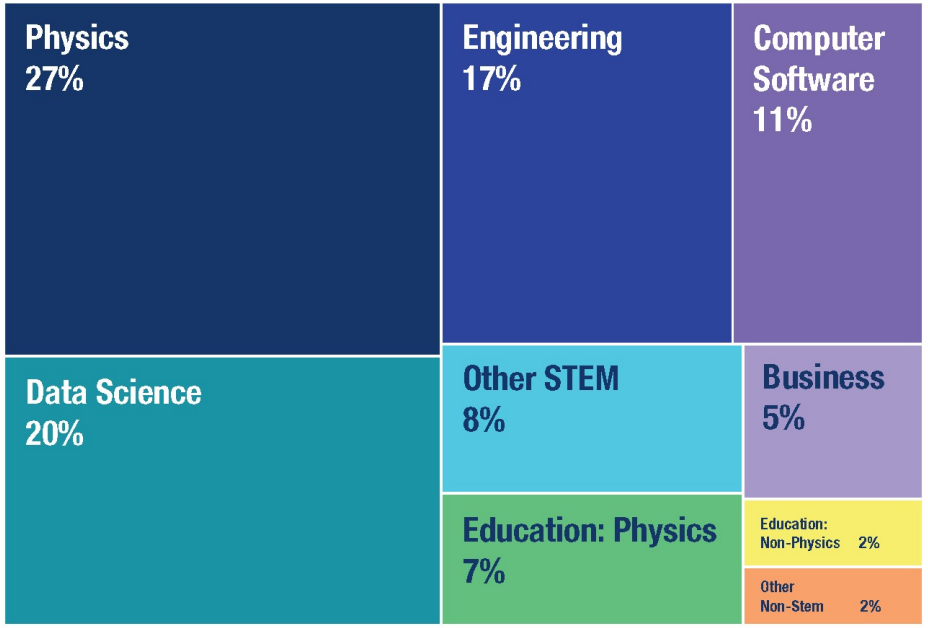


Figure includes only US educated doctorates from the classes of 2019 and 2020 combined that were in full-time, newly accepted positions in the US. The box represents the middle 50% (25th to 75th percentile) of the salaries. The full starting salary range, excluding outliers, is represented by the lines extending to each side of the box. The vertical line within the box represents the median salary. The dots outside the lines are statistical outliers but actual salaries.
UARI: University Affiliated Research Institute

AIP PHYSICS TRENDS

Spring 2026

Field of Employment for New Physics PhDs



(Employed in potentially permanent positions, academic years 2019-20 through 2023-24)

Who's Hiring Physics PhDs

Scan the QR code to view listings of employers that recently hired new PhDs by their primary field of employment. Also see starting salaries, job titles and more.

https://www.aip.org/statistics/whos-hiring-physics-phds

WVU PHD STUDENTS JOBS

First Job	
Postdoc WVU	Postdoc at CSIRO, Sydney
Data Scientist at Afiniti, Hagerstown, MD	Assistant Professor, Rochester University
Principal Data Scientist at Capital One	Phase Four in California (a startup company building new plasma rocket engines)
Postdoc at University of Wisconsin Milwaukee	Physics Lab Supervisor, SUNY Brockport
WVU Mechanical and Aerospace	Experimental Scientist, Rogue Space Systems Corporation
Postdoc, Green Bank Observatory	Data Scientist at GCP Applied Technologies
Postdoc physics, University of Pittsburgh	Postdoc Michigan State University

HOW DO YOU GET THAT JOB?

Why Are Physics Grads Valuable to Industry?

Employers in STEM fields value physics graduates in their companies as members of interdisciplinary teams

- Standard physics curriculum creates familiarity with technologies commonly used in STEM workforce
  - Programming languages (e.g. C++, Fortran)
  - Circuit design and diagnostics (e.g. oscilloscopes, soldering)
  - Mathematical proficiency (e.g. differential equations, linear algebra)
  - Fabrication (e.g. lathes, bandsaws, screws)
- Language of Job Descriptions[3]
  - Common job titles across STEM recruitments (including physics), e.g. “analyst,” “engineer,” “developer,” etc.
  - Common skills listed in recruitments for physics and engineering graduates:

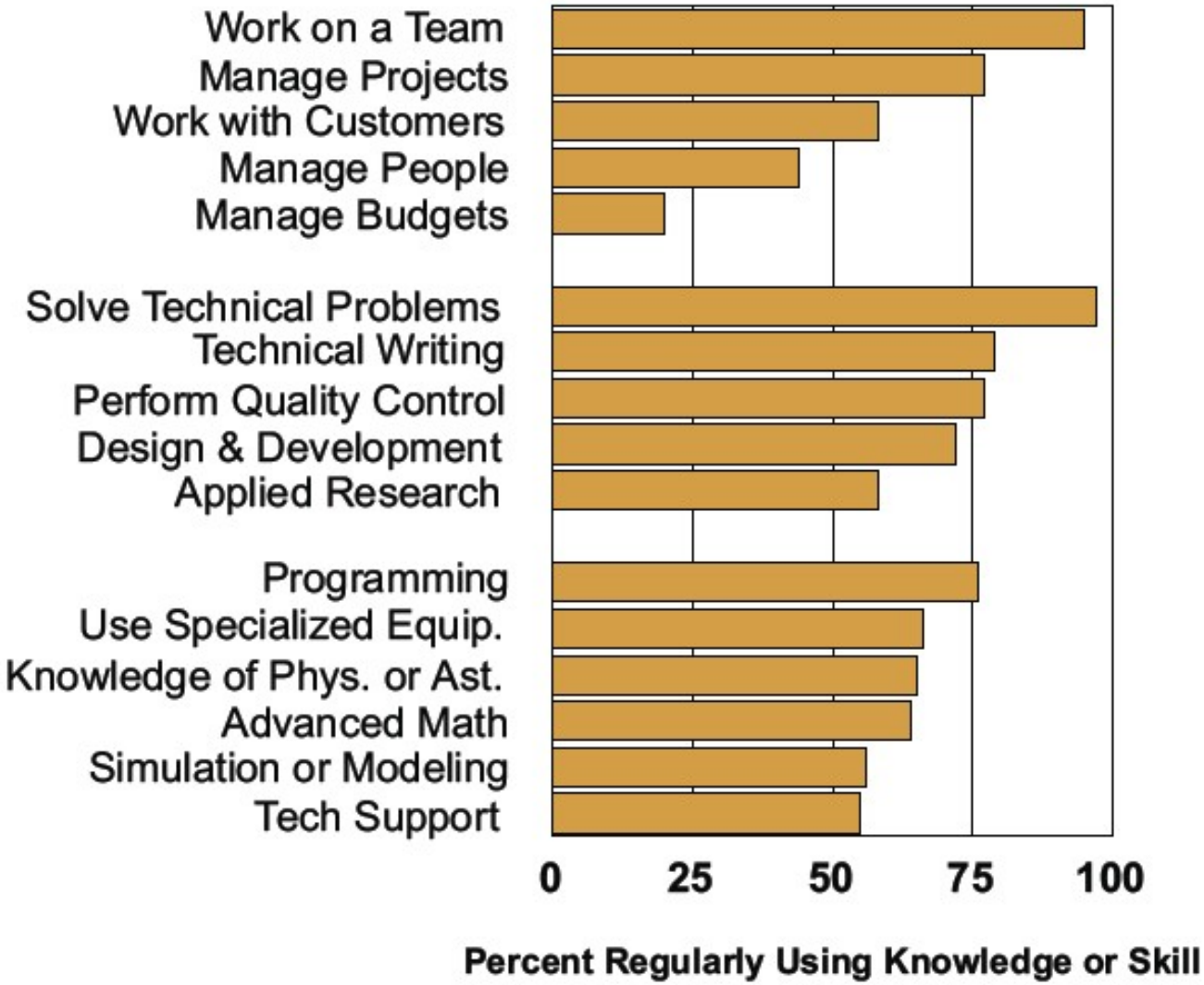
    perform testing/analysis
    develop/design
    implement
    run queries and reports

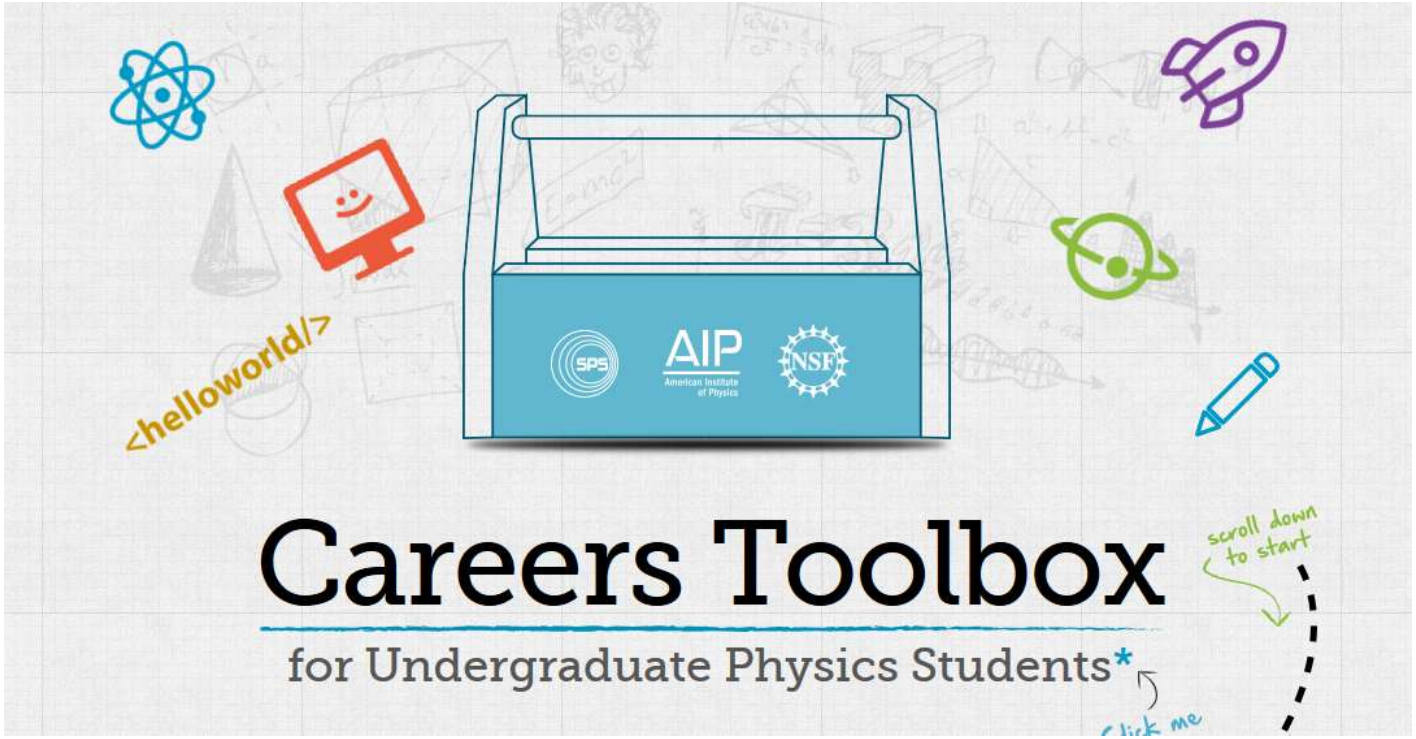
[3]APS Job Board search, 4-year degree job postings

bailey@aps.org

Skills Used Regularly

New Physics Bachelors Employed in STEM Fields



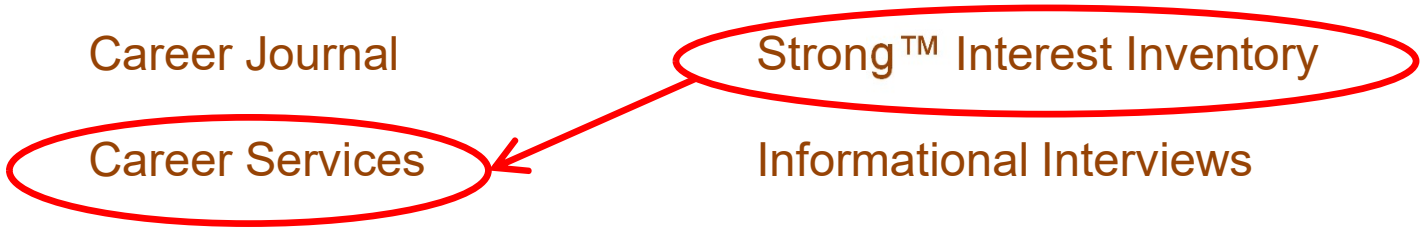


http://www.spsnational.org/careerstoolbox/

What Can You Do?

Career Planning and Self-Assessment

- Successful career fits students' skills, interest, AND VALUES!
- Self-assessment crucial for understanding what those are
- Keeping a career journal, an organized catalog of your skills and experiences is a crucial step to successfully finding a job.



APS Professional Development Guidebook – Chapter on Self-Assessment
www.aps.org/careers/guidance/development/selfassessment.cfm

CAREER JOURNAL

- Document experiences that could in the future be used to as part of a resume.
- Specific accomplishments or skills developed in your research group.
- Substantial class or lab projects that required either computation, invention, analysis, or trouble shooting.
- Presentations or awards.
- Public outreach events.
- Leadership roles (SPS etc.)

RESUME

- A one (sometimes two) page description of experiences and skills specific tailored to a specific job.
- Drawn from your career journal.

SAMPLE RESUME FROM TOOLBOX

Caroline Quark
1234 Neutron Dr. Apt 314, Sacramento, CA 98436
(990) 555-4567 caroline.quark@gmail.com

Education

California State University, Sacramento (CSU-Sacramento) — Sacramento, CA
BS in Physics, Minor: Computer Science — Expected Graduation: May 2019
Cumulative GPA: 3.68 Major GPA: 3.86

Skills

Programming: Python (experienced), Java (proficient), C (proficient), C++ (limited)
Software: Microsoft Office, LabVIEW, gnuplot, Verilog
Hardware: Advanced electronics, analog and digital device design, machining tools
Analysis: Electronic noise, Electromagnetic field simulation of devices
Languages: Conversational Spanish

SAMPLE RESUME FROM TOOLBOX

Professional Experience

Logic Design Intern — May – August 2017
Intel Corporation — San Jose, CA

- Designed and implemented high speed memory interface IPs for low power applications
- Validated designs using standard test protocols
- Reduced error rates by 20% between test phases
- Developed advanced abilities in debugging using Verilog simulation tools

Undergraduate Research Assistant — June 2016 - Present
CSU-Sacramento, Dept. of Physics & Astronomy, Advisor: Dr. Isaac Newton — Sacramento, CA

- Built a temperature controller using a Programmable System on a Chip (PSoC)
- Programmed a PID controller system using C with a wide range of inputs
- Conducted extensive literature reviews and a patent search on comparable devices
- Strong familiarity with electronics, analog/digital electronic devices, and machining tools

SAMPLE RESUME FROM TOOLBOX

Leadership

President, Society of Physics Students, CSU-Sacramento Chapter — August 2016 – May 2017

- Conducted 12 science outreach events for local elementary and high schools
- Organized 20 students to attend 2016 Physics Congress (PhysCon) in San Francisco, CA

Resident Advisor, CSU-Sacramento — August 2016 – Present

- Mentored and counseled 45 first-year students
- Developed programming covering conflict resolution, sustainability, and study habits

Awards and Honors

Sigma Pi Sigma Physics Honor Society — May 2017 – Present

Maxwell Physics Scholarship — August 2015 – Present

Presentations (Poster unless noted)

Low-temperature PID characterization of LaB6 crystals — November 2016

2016 Physics Congress (PhysCon), San Francisco, CA

Characterization of LaB6 devices in UHV — August 2016

CA Space Grant Symposium, San Francisco, CA

CAREER SERVICES

- WVU Career Services can offer help with resumes, searching for jobs, and interviews.
- https://careerservices.wvu.edu/
- You will have to educate them on the kinds of careers open to physics majors for them to been effective. Communicating the list of potential job titles is a good start.

Take Advantage of APS Resources!!

APS Online Professional Guidebook

- Detailed advice on key aspects of career development.
- Features 5-minute "webinette" clips from the top APS careers webinars
  - APS webinar *"Putting Your Science to Work,"* with Peter Fiske
  - APS webinar *"Career Self-Advocacy: How I Got A Six Figure Job in the Private Sector,"* with Meghan Anzelc
- Topics include self-assessment, networking, interviewing and negotiation strategies, and more.

go.aps.org/physicspdguide

APS Careers Website

- APS Job Board
- Physicist Profiles and Job Prospects pages
- Employment and Salary Information
- APS Webinars archive

www.aps.org/careers

OTHER TOOLBOX TOPICS – FOR EARLY AND MIDDLE CAREER PHYSICS STUDENTS

OTHER TOOLBOX TOPICS – FOR STUDENTS SEARCHING FOR JOBS

BUT I LOVE LEARNING AND TALKING PHYSICS, BUT DON'T LIKE RESEARCH

Consider Teaching

HIGH SCHOOL TEACHER

- If you want a job that allows you to make a difference in peoples lives, gives you personal flexibility, is secure, and lets you live where you want, consider high school teaching.
- To become a high school teacher at a public school, you need a teaching certification.
- Physics is consistently a high shortage area for every state (high demand, live where you want).

MAYBE A LITTLE MORE SCHOOL IF THE MONEY IS GOOD

Professional School

MEDICAL/PROFESSIONAL SCHOOL

- Doctor, dentist, physical therapist, lawyer.
- Each profession will have some additional requirements (OChem) and probably additional standardized tests (MCAT/LSAT). There will be specific advisers who can help you.
- You have to pay for this

WVU MEDICAL ADMISSION REQUIREMENTS

M.D. ADMISSIONS

Admissions Requirements

Mission

Our mission is to improve the health and well-being of everyone we serve.

The Committee on Admissions (COA) must select students who provide evidence that they will fulfill the mission of the WVU SoM. Applicants must have strong experiences in patient care (including MD shadowing), roles as educator and leader, research, and service to the state of West Virginia and beyond.

The COA practices a holistic review of each applicant, including the incorporation of competency-based admissions. Although WVU SoM no longer requires specific coursework, all applicants must be able to provide evidence of a strong scientific fund of knowledge and strong social/interpersonal skills.

Required Core Competencies for Entering Medical Students

Please review the required core competencies on the AAMC website through the link below.

AAMC Competencies for Entering Medical Students

Mastery of competencies can be demonstrated by successful completion of coursework, strong performance on the MCAT, and specialized experiences that have developed the required knowledge base such as research, employment, military courses, and self-study. Letters of recommendation and the interview can also help demonstrate interpersonal, intrapersonal, and communication competencies.

Applicants will have the opportunity to describe how they have met the required competencies on the secondary application.

WVU MEDICAL ADMISSION REQUIREMENTS

Academic Experience

- A minimum of 90 credit hours (at the undergraduate or graduate level) from an accredited US or Canadian academic institution is required by matriculation
- A minimum of three years of higher education or employment post-high school is required before matriculation
- We do not require prerequisite coursework
- Successfully completing coursework is the most common way applicants can demonstrate science competency
- Examples of coursework that can demonstrate science competency may include some of the following:
  - Biochemistry
  - Biological Sciences
  - Chemistry
  - Engineering Sciences
  - Laboratory Sciences
  - Mathematics/Statistics
  - Organic Chemistry
  - Physics

Medical College Admissions Test (MCAT)

- All applicants are required to take the MCAT
  - Scores will be accepted from exams taken between **September 2023** and **September 2026** for Regular Decision Applicants
  - The most recent MCAT total and sub-section scores are reported to the committee, while all scores are reviewed
  - If you are taking the MCAT this cycle, please wait to submit the secondary application until that score is released
  - To identify what scores may be competitive for the regular decision program, please refer to our **Class Profile** for more information

WVU MEDICAL ADMISSION REQUIREMENTS

Letters of Recommendation

- One letter of recommendation of your choice
- Or a committee letter from your undergraduate academic institution
- MD/PhD applicants are required to submit an additional letter of recommendation from a Research Principal Investigator/Mentor
- Letters of recommendation should focus on the applicant's core competencies as listed through the AAMC
- Letters of recommendation should be uploaded into AMCAS at least two weeks prior to your interview
- Letters will only be considered when submitted through AMCAS
- Additional letters will not increase an applicant's competitiveness

Secondary Application

All AMCAS-verified applicants will have the opportunity to complete a secondary application. Applicants will be notified via email with instructions on how to submit the secondary application. Please refer to the **Admissions Timeline** for important deadlines for the secondary application. **Do NOT** submit your secondary application until your most recent MCAT score is available.

Once we receive the completed secondary application, the applicant will then be placed on a roster to be holistically reviewed.

Interview

Strong interview skills will be one way for an applicant to provide evidence of interpersonal and communication competencies.

Applicants will be notified via email if offered an interview. As there are a limited number of interview slots, some applicants may be placed on a waitlist for an interview and could potentially be invited for an interview if slots become available during the admissions cycle. Applicants are encouraged to continue to update their applications as this may help increase the chances of being offered an interview slot.

SOMETHING A BIT DIFFERENT

MILITARY


NUCLEAR PROPULSION OFFICER CANDIDATE
ABOUT NUPOC
The Naval Nuclear Propulsion Officer Candidate (NUPOC) Program is a collegiate program for students interested in engineering to join the U.S. Navy as an officer in the Nuclear Propulsion Program while enrolled in a full-time college degree program. While in school, those in the NUPOC program will receive a full-time paid salary in order to focus on their education while reducing concerns of financial obligations.

Nuclear Propulsion Officer (NUPOC)

Site Navigation

Navy Cyberspace
Enlisted Navy Jobs
Naval Officer Jobs
MEPS Applicant Processing
U.S. Military Pay History
Navy Congressional History
Navy Recruiting Blog

Navy Unrestricted Line

Explosive Ordnance Disposal
Naval Aviator
Naval Flight Officer
Surface Warfare Officer
Nuclear Propulsion
Navy SEAL Officer

Nuclear Propulsion Officer Candidate Program

The basic requirements for selection to the Nuclear Propulsion Officer Candidate program for eligible college students and graduates. Program leads to an appointment on active duty as an Ensign in the unrestricted line of the U.S. Navy. Nuclear Propulsion Officers serve their duty on a nuclear-powered submarine or surface ship.

Those selected will attend the 12 week Officer Candidate School (OCS) located in Newport, Rhode Island when eligible.

Following OCS, those who select surface ships (aircraft carriers) will complete their Surface Warfare qualification during a division officer tour aboard a non-nuclear ship before moving on to Nuke School. For those who volunteer submarines, they move directly to Nuclear Power School (Nuke School).

The initial Nuke School is 24 weeks of classroom based courses and is located in Charleston, South Carolina. The classroom portion of Nuke School is followed by 26 weeks of hands-on training at one of the Navy's two prototype reactors located in either Charleston, SC, or Ballston Spa, NY.