Careers with BS in Physics

Jobs and Skills

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# Common Jobs for Physics Majors

<table>
<thead>
<tr>
<th>Engineering</th>
<th>Research &amp; Technical</th>
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<tbody>
<tr>
<td>Systems Engineer</td>
<td>Research Assistant</td>
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<tr>
<td>Electrical Engineer</td>
<td>Research Associate</td>
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<td>Design Engineer</td>
<td>Research Technician</td>
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<td>Mechanical Engineer</td>
<td>Lab Technician</td>
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<td>Project Engineer</td>
<td>Lab Assistant</td>
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<td>Optical Engineer</td>
<td>Accelerator Operator</td>
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<tr>
<td>Manufacturing Engineer</td>
<td>Physical Sciences Technician</td>
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<td>Manufacturing Technician</td>
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<td>Laser Engineer</td>
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<td>Associate Engineer</td>
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<td>Technical Services Engineer</td>
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<td>Application Engineer</td>
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<td>Development Engineer</td>
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<td>Engineering Technician</td>
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<td>Field Engineer</td>
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<td>Process Engineer</td>
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<td>Process Technician</td>
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<td>Product Engineer</td>
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<td>Product Manager</td>
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<td>Research Engineer</td>
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<td>Test Engineer</td>
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<td>General Engineer</td>
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<thead>
<tr>
<th>Education</th>
<th>Computer Hardware / Software</th>
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<tbody>
<tr>
<td>High School Physics Teacher</td>
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<tr>
<td>High School Science Teacher</td>
<td>Programmer</td>
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<tr>
<td>Middle School Science Teacher</td>
<td>Web Developer</td>
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<tr>
<td>Substitute Science Teacher</td>
<td>IT Consultant</td>
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<td></td>
<td>Systems Analyst</td>
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<td>Technical Support Staff</td>
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<td>Analyst</td>
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Entry Level Jobs for Physics Majors

• **Research Assistant**: Undergraduate physics majors can work as research assistants in academic or industrial research labs. These positions may involve assisting with experiments, collecting data, and analyzing results.

• **Technical Writer**: Many physics majors have strong communication skills and may be able to work as technical writers for science publications, scientific journals, or technical documentation for scientific equipment.

• **Software Engineer**: Physics majors often have strong programming skills and can work as software engineers, developing and testing software for a variety of industries.

• **Data Analyst**: Physics majors may have experience in data analysis and statistics, making them well-suited for data analyst roles in a variety of industries. You can use your analytical skills to analyze large data sets in fields such as finance, healthcare, or technology.

-(ChatGPT, 2023)
Additional Jobs for Physics Majors

• **Science Educator**: Many physics majors have a passion for teaching and can work as science educators, either in a classroom or as a science communicator for museums or other educational institutions.

• **Patent Attorney**: Physics majors may be well-suited for a career in patent law, where they can use their scientific knowledge to help companies protect their intellectual property.

• **Engineer**: You can work as an engineer in fields such as aerospace, electronics, materials science, or mechanical engineering.

• **Medical Physicist**: You can work in healthcare, applying physics principles to diagnose and treat patients with radiology.

• **Science Communicator**: You can work in science communication, helping to translate scientific concepts for the public through writing, editing, or multimedia production.

• Source: ChatGPT, 2023
Physic Majors Statistics

- About **55%** of physics BS recipients in the US find employment in a physics-related field **within 6 months** of graduation.
  - research and development, education, and technical services
- **12%** of physics bachelor's degree recipients find employment in other fields
  - finance or engineering
- **About 42%** of physics bachelor's degree recipients in the United States go on to **earn a higher degree**, such as a master's or doctorate.
  - Of those who pursue advanced degrees, about **76%** earn a master's degree and about **44%** earn a doctorate.

American Institute of Physics, [https://www.aip.org/](https://www.aip.org/)
Physics Bachelors 1 Year Later
9,250 Recent Degree Recipients

**Workforce**
- 52%

**Graduate Study in Astronomy or Physics**
- 31%

**Graduate Study in Other Fields**
- 17%

Note: Data in this figure are from the AIP Statistical Research Center's annual Bachelors Follow-up Survey, classes of 2019 and 2020 combined. The 9,250 degree recipients represent the average of these two classes. Two percent of respondents to the survey indicated that they had left the US to pursue employment or graduate study and are not included in the figure.
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.
Entry Level Salary for Undergrad Physics Majors in Boston

Here are some average entry-level salaries for common job titles that physics majors may pursue in Boston:

1. Research Assistant: $40,000 to $60,000 per year
2. Data Analyst: $50,000 to $70,000 per year
3. Software Engineer: $60,000 to $80,000 per year
4. Medical Physicist: $70,000 to $90,000 per year
5. Radiation Therapist: $70,000 to $90,000 per year
6. Engineer: $80,000 to $100,000 per year

- Salary varies depending on factors such as industry, job title, and level of experience.
- According to data from the US Bureau of Labor Statistics, the median annual wage for all physicists and astronomers in the Boston-Cambridge-Nashua metropolitan area was $119,690 as of May 2020.

- Source: Chat GPT
Major Employers of Entry Level Physics Majors

1. **National Aeronautics and Space Administration (NASA):** NASA is a federal agency that conducts research and development in aerospace technology and space exploration. Physics undergraduate majors can work as engineers, researchers, or data analysts in fields such as astrophysics, atmospheric science, and spacecraft design.

2. **Department of Energy (DOE):** The Department of Energy is a federal agency that is responsible for energy policy and research. Physics undergraduate majors can work as research scientists, engineers, or data analysts in fields such as nuclear energy, energy storage, and renewable energy.

3. **Defense contractors:** Defense contractors such as Raytheon, Lockheed Martin, and Boeing hire physics undergraduate majors for roles in research and development, engineering, and data analysis. They work on a variety of projects related to national security and defense.

4. **National Laboratories:** The US government operates several national laboratories, including Los Alamos National Laboratory, Argonne National Laboratory, and Lawrence Livermore National Laboratory. Physics undergraduate majors can work as researchers or engineers in fields such as nuclear physics, materials science, and high-performance computing.

5. **Healthcare industry:** Physics undergraduate majors can work in the healthcare industry as medical physicists, radiation therapists, or imaging specialists. They work in hospitals, clinics, and research laboratories to develop and use advanced technologies for diagnosis and treatment.

6. **Technology industry:** Companies in the technology industry such as Google, Amazon, and Apple hire physics undergraduate majors for roles in software development, data analysis, and research and development. They work on a variety of projects related to artificial intelligence, machine learning, and data science.

From Chat GPT

Massachusetts employers who recently hired new physics Bachelor of Science recipients: [https://www.aip.org/statistics/massachusetts](https://www.aip.org/statistics/massachusetts)
AIP, 2020
Boston Major Companies Hiring Physics Majors

1. **Massachusetts General Hospital** (MGH): MGH is a leading healthcare institution in Boston that employs physicists in its radiation oncology and imaging departments. Physics majors can work as medical physicists or radiation therapists.

2. **Draper**: Draper is an engineering firm that specializes in developing advanced technologies for government and commercial clients. Physics majors can work as engineers in fields such as aerospace, defense, and biomedical engineering.

3. **Amazon Robotics**: Amazon Robotics is a division of Amazon that develops robotics and automation technologies for its warehouses and fulfillment centers. Physics majors can work as robotics engineers, data analysts, or software developers.

4. **Raytheon**: Raytheon is a defense contractor that develops advanced technologies for the military and other government agencies. Physics majors can work as engineers, scientists, or data analysts in fields such as missile defense, cybersecurity, and intelligence.

5. **Bose Corporation**: Bose is a consumer electronics company that specializes in audio equipment and noise-canceling technologies. Physics majors can work as research scientists, engineers, or data analysts in areas such as acoustics, signal processing, and machine learning.

6. **Vertex Pharmaceuticals**: Vertex is a biotech company that specializes in developing treatments for serious diseases such as cystic fibrosis. Physics majors can work as research scientists or data analysts in areas such as drug discovery, protein engineering, and computational biology.

7. **Analogic Corporation**: Analogic is a leading technology company that specializes in medical imaging and security systems. They have previously hired physics majors for various roles such as design engineering, product development, and software engineering.

8. **Ginkgo Bioworks**: Ginkgo Bioworks is a biotechnology company that specializes in synthetic biology. They have previously hired physics majors for roles such as research and development, data analysis, and software engineering.

Source: Chat GPT

775 MA companies hiring Physics majors:  [https://www.buzzfile.com/Major/Physics/MA](https://www.buzzfile.com/Major/Physics/MA)
Challenges to Getting Physics Entry Jobs

• Although there are many jobs for physics bachelor’s degree recipients, very few have the word “physics” in the title
• Hiring professionals and professors may not understand what a physics student actually knows or is capable of doing outside of academia
• Students may lack self-awareness of or have difficulty articulating their strengths and capabilities
• Underdeveloped interpersonal communication skills may be a barrier to students in the job search
# UMB Alumni Physics BS Job Titles

<table>
<thead>
<tr>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Field engineer</td>
<td>HS Teacher</td>
<td>New Product Developer</td>
<td>Auditor</td>
</tr>
<tr>
<td>Software engineer</td>
<td>Lecturer –College level</td>
<td>Machinist</td>
<td>Sales Executive</td>
</tr>
<tr>
<td>Application engineer</td>
<td>Professor</td>
<td>Radiation Physicist</td>
<td>Medical Dosimetrist</td>
</tr>
<tr>
<td>Research engineer</td>
<td>Research Scientist</td>
<td>Sr. Systems Administrator</td>
<td>Marketing Director</td>
</tr>
<tr>
<td>QA engineer</td>
<td>Computer Science Engineer</td>
<td>Lab supervisor</td>
<td>Staff scientist</td>
</tr>
<tr>
<td>Source: BeaconConnect</td>
<td>Development Project Manager</td>
<td>Patent Examiner</td>
<td>Physicist</td>
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</tbody>
</table>
# UMB Alumni BS Physics Places of Work

<table>
<thead>
<tr>
<th>A-B Lasers Inc.</th>
<th>Bose</th>
<th>General Electric</th>
<th>Goodrich</th>
<th>Hughes Electronics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accenter</td>
<td>LSM Consulting</td>
<td>Entegris, Inc.</td>
<td>General Electric</td>
<td>Goodrich</td>
</tr>
<tr>
<td>Air Force</td>
<td>Commonwealth Care Alliance</td>
<td>Cubic Transportation System</td>
<td>Granite Telecommunications</td>
<td>Joint Center for Radiation Therapy</td>
</tr>
<tr>
<td>High Schools</td>
<td>Dotmatics Inc.</td>
<td>Franklin Institute</td>
<td>Holometrix Inc</td>
<td>Maine Medical Center</td>
</tr>
<tr>
<td>Polaroid Corp.</td>
<td>Radiation Monitoring Devices, Inc.</td>
<td>Raytheon</td>
<td>Renesys Corp.</td>
<td>The Mitre Corp.</td>
</tr>
<tr>
<td>Verizon Corp.</td>
<td>Vistaprint</td>
<td>Wire Technology</td>
<td>US Customs</td>
<td>N &amp; K Technology, Inc.</td>
</tr>
<tr>
<td>Source: BeaconConnect</td>
<td>AER, Inc.</td>
<td>Analytical Power Corp.</td>
<td>Monitronics</td>
<td>QC Optical</td>
</tr>
</tbody>
</table>

Some Possible Skills for Physics Major Resume

• Physics
• Mathematical Modeling
• Data Analysis
• Laboratory Techniques
• Experimental Design
• Computer Programming (e.g., Python, MATLAB, C++)
• Scientific Research
• Technical Writing
• Critical Thinking
• Problem-solving
• Creative Thinking
• Attention to Detail

• Communication Skills
• Quantum Mechanics
• Thermodynamics
• Electromagnetism
• Classical Mechanics
• Statistical Mechanics
• Astrophysics
• Nuclear Physics
• Particle Physics
• Condensed Matter Physics
• Optics
• Computational Physics

• Radiation
• Analytical skills
• Presentation skills
• Teamwork/collaboration
• Mathematical proficiency
• Research and Development
Sample Entry Level Physics Job Descriptions

- https://g.co/kgs/nVpJz1
- https://g.co/kgs/XJDLLb
- https://g.co/kgs/rKhvXi
- https://g.co/kgs/Z3ioYt
Physics Job Search Resources

• Massachusetts employers who recently hired new physics bachelor recipients: https://www.aip.org/statistics/massachusetts
• Society of Physics Students Toolbox: https://www.spsnational.org/sites/all/careerstoolbox/
  • https://www.spsnational.org/career-resources
  • https://www.spsnational.org/career-resources/physicist-profiles
• https://www.aps.org/careers/physicists/profiles/
• https://www.aip.org/diversity-initiatives/team-up-task-force
ACES: Academic & Career Engagement and Success

- Campus Center, first floor, suite 1300
- careers@umb.edu | 617-287-5500
- Drop-ins during the academic year
- Schedule an appointment here: https://www.umb.edu/academics/ypass/aces
- Office is open all year round

ACES offers: Resume/cover letter reviews, job/internship searches/ interviewing skills, major selection and career paths, networking, Career Expos and workshops and more

We look forward to working with you!

The ACES Team