Physicists study the properties and behavior of matter and energy in a wide variety of contexts, ranging from the submicroscopic particles from which all ordinary matter is made (particle physics) to the behavior of the Universe as a whole (cosmology). Physics primarily is the science that deals with exploring the rules of nature and the fundamental understanding of nature that comes from the study of physics is central to all the natural sciences, applied sciences and technology, and thus profoundly affects the life of every human along with his or her environment.

The department of Physics at Saint Joseph's has developed a research-oriented culture for both its faculty and students. It is expected that most students will be involved with some sort of research activity over their four-year development in the discipline of physics. The ability to put into practice what is learned in the classroom is paramount to your growth as a young scientist. In the research laboratory, you will learn to ask appropriate questions, design and perform experiments to answer those questions, analyze data using computational methods, and draw appropriate conclusions. Students will also be exposed to the interfaces of physics and biology, and physics and chemistry, exposing them to how the methods of physics are central to addressing key problems in other disciplines. Saint Joseph's University has received a Noyce Scholars grant from the National Science Foundation to provide summer internships and scholarships for students interested in secondary education programs in Physics.

**LEARN MORE ABOUT THE PHYSICS MAJOR:**

- Visit the Physics Department Website: [www.sju.edu/academics/cas/physics](http://www.sju.edu/academics/cas/physics)
- Visit the College of Arts and Sciences Advising Support Center, located in Barbelin 12
- Contact the Physics Department to schedule a meeting with a faculty member by calling 610-660-1810
- Speak with current students in the major
- Schedule an appointment with the Career Development Center 610-660-3100

**WHAT CAN I DO WITH A MAJOR IN PHYSICS?**

Whatever you put your mind to! You can learn much more at [www.onetonline.org](http://www.onetonline.org). Following are descriptions of just a few of the careers you might pursue:

**Natural Sciences Manager:** Plans, directs, or coordinates activities in such fields as life sciences, physical sciences, mathematics, statistics, and research and development in these fields.

**Nuclear Monitoring Technician:** Collects and tests samples to monitor results of nuclear experiments and contamination of humans, facilities, and environment.

**Occupational Health and Safety Specialist:** Reviews, evaluates, and analyzes work environments and designs programs to control, and prevent disease or injury caused by chemical, physical, and biological agents or ergonomic factors.
Physicist: Conducts research into the phases of physical phenomena, develops theories and laws on the basis of observation and experiments, and devises methods to apply laws and theories to industry and other fields.

Postsecondary Physics Teacher: Teaches courses pertaining to the laws of matter and energy. Includes both teachers primarily engaged in teaching and those who do a combination of both teaching and research.

**HOW CAN I ENGAGE MY INTEREST IN PHYSICS OUTSIDE OF THE CLASSROOM?**

Summer Scholars Program
Society of Physics Students

**A CLOSER LOOK AT GRADUATES WITH DEGREES IN PHYSICS:**

As depicted in the chart below, recent graduates have started their careers in a variety of industries, technology/science being the most popular. (Data from Saint Joseph’s University Career Development Center’s Post-Graduation Survey, 2005 – 2012.)

<table>
<thead>
<tr>
<th>Physics' Majors Chosen Industries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology/Science</td>
</tr>
<tr>
<td>40%</td>
</tr>
</tbody>
</table>

Here is a sampling of positions our graduates have accepted:

Financial Analyst
Project Engineer
Second Lieutenant

Here is a sampling of additional job titles:

- Computer Programmer
- Environmental Specialist
- Manufacturer’s Representative
- Research Assistant
- Systems Engineer
- Computer Software Specialist
- Geophysical Data Technician
- Meteorologist
- Salesperson, Scientific Equipment
- Technical Consultant
- Engineering Technician
- Laboratory Technician
- Quality Assurance Specialist
- Stress Analyst
- Technical Writer/Editor

Some of the organizations that have hired our graduates:

- Coventry First
- Neptune Chemical Pump Company
- United States Air Force

Sample work settings that hire Physics majors include:
<table>
<thead>
<tr>
<th>Chemical Companies</th>
<th>Computer/Software Firms</th>
<th>Educational Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical Equipment Companies</td>
<td>Energy/Utility Companies</td>
<td>Engineering Firms</td>
</tr>
<tr>
<td>Federal Agencies</td>
<td>Federal Government</td>
<td>Hospitals</td>
</tr>
<tr>
<td>Information Technology Companies</td>
<td>Laboratories</td>
<td>Museums</td>
</tr>
<tr>
<td>Nonprofit Research Groups</td>
<td>Oil &amp; Gas Companies</td>
<td>Power Plants</td>
</tr>
<tr>
<td>Research &amp; Development Firms</td>
<td>State &amp; Local Governments</td>
<td>Technical Consulting Firms</td>
</tr>
</tbody>
</table>

Some of the graduate schools in which our students have continued their education, in programs including Medicine & Health Care, Law, Business and the Physical/Life Sciences:

- Drexel University
- Harvard University
- Ohio University
- Temple University
- University of Chicago
- University of Delaware
- University of Florida
- University of New Hampshire
- University of Pennsylvania

**FURTHER ASSISTANCE WITH YOUR MAJOR AND CAREER OPTIONS**

The Career Development Center can help you with the process of choosing a major and exploring your career options. For assistance, please call 610-660-3100 to schedule an appointment to meet with a Career Counselor.
GETTING THE JOB: PHYSICS RESUME SAMPLE:

Pat Physics
25 Geophysics Drive Philadelphia, PA 19131
Cell: (610) 500-1212 • patphysics13@gmail.com

OBJECTIVE: Experienced physics graduate of 2013 seeking full-time employment in an engineering or physics related position, harboring strengths in laboratory operations, teaching, leadership, and communication, while eager to contribute to a company that will further advance the industrial world through technology and scientific research.

EDUCATION
Saint Joseph’s University, Philadelphia, PA
Bachelor of Science: Physics, Concentration in Materials Science: May 2013
Cumulative GPA: 3.57

HONORS, ACHIEVEMENTS, MEMBERSHIPS
2011 – Present: Member of the Saint Joseph’s University Phi Sigma Pi National Honors Fraternity
2011 – Present: Member of Saint Joseph's University Society of Physics Students
2009 – Present: Saint Joseph's University Academic Scholarship
2011-2012: President of Saint Joseph’s University Society of Physics Students
2012: Co-Author of Focusing on the Hard Parts: A Biomechanics Laboratory Exercise
• To be published in a forthcoming issue of Bioscience.

EXPERIENCE
Saint Joseph’s University, Philadelphia, Pennsylvania
Resident Assistant, August 2011 – Present
• Responsible for over 40 students living in an on-campus residence hall
• Help students immerse themselves in the school community through programming on and off campus, as well as with administrators and faculty
Teacher’s Assistant, August 2010 – Present
• Assisted Professors with University and General Physics Labs
• Graded laboratory reports and taught students on introductory materials
• Set up and cleaned up laboratory experiments and materials
Summer Scholars Program Research Assistant, May – August 2011, May – August 2012
• Experimentally investigated the glass transition using colloidal suspension of n-isopropylacrylamide (Nipa) particles
• Developed an introductory laboratory that explored ways in which organisms maximize bone strength while minimizing energetic costs
• Investigated spin systems of radiation –induced free radicals using Electron Paramagnetic Resonance (EPR)
Tutor, August 2011 – May 2012
• Helped walk-in group tutees with introductory physics class material

RELEVANT COURSES TO MAJOR
Physics: Electricity and Magnetism, Waves and Optics, Biomechanics, Survey of Nanotechnology, Physics of Fluids, Classical Mechanics, Thermal Physics, Quantum Mechanics
Laboratory: Advanced Laboratory in Physics I & II
Chemistry: General Chemistry I

RELEVANT SKILLS
Computer: Working knowledge of IDL, Maple, KaleidaGraph, Microsoft Office, Adobe Photoshop, AutoCAD
Experimental: Manipulation of colloidal suspensions (e.g. dyeing particles, preparing samples, etc.), Confocal and fluorescent microscopy techniques. EPR Spectroscopy. Experience with a Klystron and an EPR Spectrometer.