DESCRIPTION
Physicists explore and identify theories to explain the laws of nature and relationships between energy and matter. Physicists aspire to define how the world works in both tangible and intangible realms and investigate topics ranging from subatomic particles to black holes and the overall structure of the universe. Physicists often utilize mathematical formulas to explain theories and make predictions. Individuals interested in physics frequently pursue opportunities in physics-based research and development, which often requires a Ph.D.

SKILLS
Strong problem-solving skills
Ability to conduct research
Technical writing and research proposal abilities
Strong teamwork and communication skills

POSSIBLE FUTURE POSITIONS

- **Physicist**: Conduct research into the phases of physical phenomena, develops theories/laws on the basis of observation and experiments, and devises methods to apply laws/theories to industry and other fields.
- **Field test engineer**: Develop/upgrade instrumentation and software for control and analysis, document test procedures and experimental setups, and analyze and document the results of the tests.
- **Researcher**: Conducts experiments, analyzes findings, operates necessary equipment, develops and tests theories.
- **Data analyst**: Analyzes problems and comes up with creative solutions to a variety of problems in applications such as aerospace, sales, or inventory.

CAREER INDUSTRY EXAMPLES

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<th>Aerospace and defense</th>
<th>Computer hardware</th>
<th>Government</th>
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<td>Automotive</td>
<td>Computer software</td>
<td>Quantitative Analysis (Finance)</td>
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<td>Consulting</td>
<td>Communications</td>
<td>Trading</td>
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SAMPLE EMPLOYERS

| Benchling              | McMaster-Carr     | Sandia National Laboratory |
| Cool Composites        | Lincoln Laboratory | Warburg Pincus             |
| Factual                | Precision for Medicine |                         |
INSIDE COURSE 8

8 Physics Undergraduates: 208

DEPARTMENT FAVORITES

8.13 & 8.14 Experimental Physics I and II
Four fundamental laboratory experiments are carried out each term, covering most aspects of modern physics relating to names such as Rutherford, Franck-Hertz, Hall, Ramsauer, Doppler, Fraunhofer, Faraday, Mossbauer, Compton, and Stern-Gerlach. Stresses basic experimental techniques and data analysis, and written and oral presentation of experiment results.

8.21 Physics of Energy
A comprehensive introduction to the fundamental physics of energy systems that emphasizes quantitative analysis. Focuses on the fundamental physical principles underlying energy processes and on the application of these principles to practical calculations. Applies mechanics and electromagnetism to energy systems; introduces and applies basic ideas from thermodynamics, quantum mechanics, and nuclear physics. Examines energy sources, conversion, transport, losses, storage, conservation, and end uses. Analyzes the physics of side effects, such as global warming and radiation hazards.

8.370 Quantum Computation
Provides an introduction to the theory and practice of quantum computation: physics of information processing; quantum algorithms including the factoring algorithm and Grover's search algorithm; quantum error correction; quantum communication and cryptography.

COURSE 8-FRIENDLY LABS
Bates Linear Accelerator Center
Center for Theoretical Physics
Francis Bitter Magnet Laboratory
Plasma Science and Fusion Center
George R. Wallace Jr. Astrophysical Observatory

GET INVOLVED WITH COURSE 8
Society of Physics Students (SPS)
MIT Energy Club
Undergraduate Women in Physics (UWIP)
Diverse Physics Society (DPS)

UPOP is here to help you! Come talk to us in 1-123 or email us at upopstudentprogram@mit.edu