The Department of Physics at Duquesne University offers two degree programs in the major: Bachelor of Science (BS) and Bachelor of Arts (BA).

The Bachelor of Science combines a strong mathematical foundation with an intense physics curriculum comparable to that of major physics programs nationwide. In addition, our liberal arts identity emphasizes intellectual and ethical development through a carefully planned core of courses designed to prepare students to be responsible global citizens.

Students in the BS program opt among four tracks according to their career plans: broad scope, condensed matter concentration, astronomy concentration, and education. All options share as much as 90% of the 130 credits in the curriculum, so there is no pressure in the decision process. In addition, because of the strength of the mathematics component, BS students are able to double-major concurrently with a second degree in mathematics without any additional credit load — by appropriate choices of free electives. All tracks require a research project and prepare graduates competitively for

- Graduate studies in physics
- Graduate studies in fields other than physics (most commonly medicine, law, engineering, education)
- Professional employment as research personnel in science and technology businesses

The Bachelor of Arts consists of 120 credits of which 16% are free electives. This program is suitable for students with broad interests, and is very valuable as a second degree for mathematics majors. The bachelor of arts serves especially well

- as a pre-med degree,
- as the BA component of our 5-year dual-degree Physics Teacher program and
- as the BA component of our 5-year dual-degree Binary Engineering program.

In relation to bachelor programs housed in large graduate departments, our physics programs offer the advantages of a small student/faculty ratio and high standards of undergraduate education. A typically small enrollment allows us to offer opportunities of funded undergraduate research and employment as tutors, lab assistants or undergraduate teaching assistant to most students in the program.

If you are thinking about majoring in physics, consider the department of physics at Duquesne University: Chances are you’d get much more than you would’ve bargained for.
Physics Programs
Effective Fall 2007 (all incoming freshmen and transfers)

The department of physics offers two degrees: the bachelor of science and the bachelor of arts. These can be pursued in four different programs:

- Bachelor of Science program
- Bachelor of Arts program
- Physics Teacher program
- Binary Engineering program

All programs require a 15-credit basic physics sequence during the freshman and sophomore years consisting of two semesters of general physics, one semester of optics and one semester of modern physics (introduction to relativity, quantum mechanics and statistical mechanics). The bachelor of arts requires a minimum of 32 physics credits. The bachelor of science requires a minimum of 46 physics credits and a research experience. The mathematics, computer science and chemistry requirements are the same for all programs, as are the university core of general education requirements.

### Physics programs at a glance

<table>
<thead>
<tr>
<th></th>
<th>BS</th>
<th>BA</th>
<th>Physics Teacher</th>
<th>Binary Engineering</th>
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</thead>
<tbody>
<tr>
<td><strong>degree</strong></td>
<td>BS</td>
<td>BA</td>
<td>BA+MSEd (or BS+MSEd)</td>
<td>BA+BS Engineering</td>
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<tr>
<td><strong>duration</strong></td>
<td>4 years</td>
<td>4 years</td>
<td>5 years</td>
<td>5 years</td>
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<td>min undergraduate Duquesne credits</td>
<td>130</td>
<td>120</td>
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<td>min physics credits</td>
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<td>free elective credits</td>
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<td>min research requirement</td>
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<tr>
<td>general education credits</td>
<td>35</td>
<td>35</td>
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</tbody>
</table>

### Common requirements for all programs

#### Basic Physics Sequence
- PHYS 211 General Analytical Physics 1
- PHYS 211L General Analytical Physics 1 lab
- PHYS 212 General Analytical Physics 2
- PHYS 212L General Analytical Physics 2 lab
- PHYS 302 Optics
- PHYS 312 Optics lab
- PHYS 374 Modern Physics

#### Math and Computer science
- MATH 115 Calculus 1
- MATH 115 Calculus 2
- MATH 215 Calculus 3
- MATH 210 Matrix Algebra or MATH 310 Linear Algebra
- MATH 314 Differential Equations
- Elective math: numerical analysis or statistics
- Programming: C++ or Java

#### Chemistry
- CHEM 121 General Chemistry 1 (or honors)
- CHEM 121L General Chemistry 1 lab (or honors)
- CHEM 122 General Chemistry 2 (or honors)
- CHEM 122L General Chemistry 2 lab (or honors)

#### Bayer School Core
- ENLG 302W Science Writing
- HIST 307 History of Science or HIST 309 The Scientific Revolution
- SPRG 105 Career development seminar

#### University Core
- Information literacy, English 1, English 2, Ethics, Theology, Philosophy, Creative Arts, Social Justice, Global Diversity, Faith & Reason.

**Specific requirements:** Described in separate individual program documents.