GRADUATE PROGRAM IN
APPLIED PHYSICS

2021 Overview*

Northwestern

*as of Oct. 2021
Northwestern
Applied Physics

Affiliation:
2 Schools and 7 Departments

Physics & Astronomy
Chemistry
Earth & Planetary Sciences

Northwestern
Applied Physics

Engineering Sciences and Applied Mathematics

Materials Science
Electrical and Computer Engineering
Biomedical Engineering
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Northwestern
Applied Physics

Core Disciplines

Applied Quantum Physics
Interface Science
Soft Condensed Matter
Magnetism
Structure and Self-Organization of Biological Molecules
Mineral Physics
Photonics

Northwestern
Applied Physics
Why become an AP student at NU?

We need you:
your skills and talent, your unique ideas and perspective

Unique Research Opportunities
- interdisciplinary, multiple departments
- many faculty members (experiment, theory)
- new QIS centers

Start your own research early (second quarter!)
interact with AP students and faculty doing research in a variety of disciplines
Applying to NU Applied Physics: Timeline

- **12/15/21**: Applications will receive priority review
- **12/31/21**: Application deadline
- **First admission decisions and offer letters to accepted students**: Offers starting late Jan. 2022
- **04/15/2022**: Prospective student decision deadline
Applying to NU Applied Physics: Application

Content of your application

- statement of purpose
- diversity statement (optional)
- transcripts
- holistic review
- 3 recommendation letters
- [GRE / GRE Physics] (Both optional but recommended for GRE Physics*)

*For applications submitted in 2021 for fall 2022 enrollment
Applying to NU Applied Physics: Statement of Purpose

Tell your story!
The admissions committee and faculty want to get to know you.

Why Applied Physics?

What inspires you? What drives you? What makes you different?

Mention faculty you might be interested in working with.

If applicable, mention any research experience.

Mention obstacles you faced, and how you managed to overcome them. Resilience and determination are strengths!
Program Components & Goals

enable you to become an independent researcher

provide you with a solid foundation in physics

prepare you for and assist you in planning and realizing your career plans
Northwestern Applied Physics

PhD Timeline: 5-year program

1. Spring Yr 1
   Oral Qualifying Exam

2. Research

3. Spring Yr 3
   Thesis Proposal

4. Yr 2 - 4
   Teaching Assistantship

5. Yr 3 - 5
   AP Research Seminar

PhD Defense

10 required classes
Northwestern
Applied Physics

THE GRADUATE SCHOOL

Home > Professional Development

Professional Development

Career Exploration
Leadership and Management
Speaking and Presenting
Teaching
Writing and Research

The Graduate School at Northwestern University (TGS) offers a variety of resources and programming to contribute to the professional development of our graduate students and postdoctoral fellows.

In addition to providing direct services (such as workshops and speakers), TGS serves as a gateway to programming and resources across campus. TGS partners with several University offices to provide skill acquisition in five major Core Competencies. In addition, students are encouraged to explore the Career Pathways, where professional development opportunities and resources are organized by career path, in a timeline format. Finally, TGS offers
Northwestern
Applied Physics Faculty

~ 50 faculty members in:
- Biomedical Engineering
- Chemistry
- Earth and Planetary Sciences
- Electrical and Computer Engineering
- Engineering Sciences and Applied Mathematics
- Materials Science and Engineering
- Physics and Astronomy

* As of Sept. 2021
# Northwestern
## Applied Physics

### Courses

#### First Year

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<th>Fall</th>
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| **MAT SCI 401**: Chemical & Statistical Thermodynamics of Materials  
or **PHYS 416**: Introduction to Statistical Mechanics (Winter Yr1) |
| **PHYS 412-1**: Quantum Mechanics |
| **PHYS 411-1**: Methods of Theoretical Physics |
| **GEN ENG 519**: Responsible Conduct of Research Training |

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<th>Winter</th>
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<tr>
<td><strong>PHYS 412-2</strong>: Quantum Mechanics</td>
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<tr>
<td><strong>PHYS 414-1</strong>: Electrodynamics</td>
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| **PHYS 416-0**: Introduction to Statistical Mechanics  
or **MAT SCI 401**: Chemical & Statistical Thermodynamics of Materials (Fall Yr1) |

### Second Year or later

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| **PHYS 422-1**: Condensed Matter Physics  
or **MAT SCI 405**: Physics of Solids (Spring Yr1) |

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| **Computational Methods of Applied Physics**  
**Experimental Methods of Applied Physics**  
2 Electives |

### Start your own research

**Courses**
- Second Year or later
- Start your own research

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Northwestern
Northwestern
Applied Physics

Graduate Students

* As of Sept. 2021
As of Sept. 2021
Where do our Alumni work?

- ACADEMIA
- NATIONAL LABS
- INDUSTRY
- FINANCE
Where do our Alumni work?
Examples

- Argonne National Laboratory
- UCLA
- Intel
- Citi
- BCG
- Dupont Nutrition & Biosciences
- Cornell University
- Stanford University
- SLAC National Accelerator Laboratory
- ETH Zurich
- NIST (National Institute of Standards and Technology)
- The University of Chicago
City of Evanston
- Population of ~75,000.
- Convenient, quiet.
- Quick and easy connections to downtown Chicago.
  (Metra: ~20 mins)

City of Chicago
- Population of 2.7M
- Great museums, restaurants, sports, culture,...
- And beaches!