



MASTER OF SCIENCE  
**APPLIED PHYSICS**

**PURDUE UNIVERSITY**  
**FORT WAYNE**

Office of  
Graduate Studies

[PFW.EDU/GRADUATE](http://PFW.EDU/GRADUATE)

# A MESSAGE FROM THE DIRECTOR

Physics is an incredible, mind-challenging field that allows one to understand the universe from the subatomic to the astronomical scale. It is a powerful way of thinking about how the universe operates. Physics provides tools for investigating complex problems, regardless of the domain, using the same tools we use to explore the universe: Critical Thinking, Problem Solving, Experimentation, Analysis, Understanding and Insight, Mathematics.

Physics is tied to “real-world” observations. Sometimes, people think that Physics is too esoteric. But many practical inventions have come from physics laboratories. For example, Einstein had a patent for a refrigerator, and a physicist invented the StopSaw™.

Physicists can apply physics (optics, electricity and magnetism, thermodynamics, mechanics, experimental techniques, analysis techniques) to solve practical problems. Our faculty and students have worked with industry to come up with solutions to their problems, which has led to positive outcomes for our students.

To support our students’ success, the physics department has developed a unique educational environment, implementing research-based pedagogical techniques to help students gain deep insights into physics and learn how to apply it. These techniques, combined with research opportunities in fields such as acoustics, electro-optics, lasers, materials, optics, and nonlinear optics, and spectroscopy, have enabled students to pursue careers with industry leaders such as: Boeing, Fort Wayne Metals, L3 Harris, Northrup Grumman, and Zimmer.



**Mark Masters, PH.D**

Physics Graduate Program Director  
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# FACULTY



Scan code for faculty  
contact information



**Dr. Timothy Grove**

grovet@pfw.edu

Atomic, Molecular, and Optical Physics,  
Spectroscopy, Acoustics, and Advanced  
Undergraduate Educational Lab



**Dr. Mark Masters**

mmasters@pfw.edu

Applied Physics, Atomic, Molecular,  
and Optical Physics,  
LASERS, Quantum Optics, Electro-Optics,  
Materials (aerogels in particular),  
Imaging (especially medical), and Acoustics



**Dr. Salam Mikhail**

mikhails@pfw.edu

Nonlinear Dynamics and Fluids



**Dr. S M Shah Riyadh**

sriyadh@pfw.edu

Atomic and Molecular Physics, Lasers and  
Optics, and Materials Science



**Dr. Eugenio Ursino**

ursinoe@pfw.edu

Astrophysics, Diffuse X-ray Background, and  
Large Scale Structure



**Dr. Noha Waly**

walyn@pfw.edu

Synthesis of Metal Nanoparticles, and  
Control of their Optical Properties



**Dr. Gang Wang**

wangg@pfw.edu

Optics/Optical Science, Optical Physics  
and Materials Science, Nonlinear Optical  
Materials, Laser Physics, Optically Assisted  
Assembly of Nanomaterials, Microscopy,  
Nonlinear Optical Thin Films,  
and Colloidal materials

# BENEFITS

## ACHIEVE YOUR ACADEMIC AND PROFESSIONAL GOALS

The Master of Science in Applied Physics equips graduates with the knowledge and skills to excel in professional careers or pursue further doctoral studies. The curriculum builds on core principles in physics, materials science, optics, and engineering while integrating advanced experimental and computational techniques.

Students have the flexibility to tailor their studies through a thesis or nonthesis option and can specialize in research areas such as optoelectronics, materials science, and acoustics. The program strengthens students' ability to develop quantitative models and apply scientific tools to solve real-world industrial and research challenges.

## THE PURDUE FORT WAYNE DIFFERENCE

Stand out with a graduate degree that enhances your qualifications through:

- Small class sizes
- Personal attention from dedicated faculty
- Course offerings designed for working adults
- Internationally recognized degree at a fraction of the cost

## DEVELOP SKILLS FOR THE FUTURE

Graduates of the Master of Science in Applied Physics program develop expertise in:

- Designing and conducting experiments, analyzing data, and utilizing computational tools for modeling and simulation
- Developing and applying mathematical models to solve realworld physics and engineering problems
- Understanding advanced materials, optoelectronics, and photonics
- Conducting independent research, interpreting scientific literature, and contributing to advancements in applied physics
- Presenting research findings effectively through reports, publications, and presentations
- Staying ahead of advancements in physics, engineering, and computational science

# COURSES

## MASTER OF SCIENCE IN APPLIED PHYSICS (30 CREDIT HOURS)

The student's plan of study is variable and determined by the student and their committee to ensure students develop the skills and tools necessary to advance their careers. Students may pursue a non-thesis or a thesis option.

## AREAS OF STUDY

### CORE REQUIREMENTS (9-10 CREDITS)

Students must take at least 3 of the following core requirements:

- PHYS 51000 Physical Mechanics
- PHYS 51500 Thermal and Statistical Physics
- PHYS 53000 Electricity & Magnetism
- PHYS 55000 Introduction to Quantum Mechanics

### ELECTIVES (15 CREDITS)

Students may choose any combination of the following courses to fulfill the 15-credit requirement:

- PHYS 51100 Laser Physics
- PHYS 52000 Mathematical Physics
- PHYS 52200 Coherent Optics & Quantum Electronics
- PHYS 52400 Physical Optics and Experimental Spectroscopy
- PHYS 52500 Fundamental Application of Neural Networks
- PHYS 53600 Electronic Techniques for Research
- PHYS 54500 Solid State Physics
- PHYS 55000 Introduction to Quantum Mechanics
- PHYS 57000 Selected Topics in Physics
- PHYS 59000 Reading and Research (Up to 3 additional credits allowed)

### RESEARCH (6 CREDITS)

Students may choose to take the Thesis or Non-Thesis option:

- PHYS 69800 Thesis Research (Thesis Option)
- PHYS 59000 Reading and Research (Non-Thesis Option)

### NON-THESIS OPTION

The non-thesis option is for students who want to complete the program without completing a written thesis.

### THESIS OPTION

The thesis option is for students who are interested in preparing a written thesis for their area of research.

# APPLICATION DEADLINES

## FALL

**FEB 15**

U.S. Citizen and International student seeking financial support

**MAY 1**

International

**JUL 15**

U.S. Citizen

## SPRING

**AUG 15**

U.S. Citizen and International student seeking financial support

**NOV 1**

International

**DEC 1**

U.S. Citizen

## STEPS TO APPLY

**Application:** To begin your application create an account through the portal at [pfw.edu/grad-apply](http://pfw.edu/grad-apply). Applicants can make and save changes before submitting by logging in with the username and password used to create the account.

**Application Fee:** The Graduate School application fee is \$60 (U.S. dollars) for domestic applicants and \$75 (U.S. dollars) for international applicants. Your application will not be processed until your nonrefundable application fee has been paid.

**Transcripts:** Through the application portal, you must upload transcript(s) and/or academic document(s) for every institution of higher education you attended regardless of whether or not a degree was received. If a degree was received then it must be printed on the transcripts. If no degree conferral is printed on the transcripts then a copy of the original diploma (degree certificate) is needed. If the documents are not in English, you must upload an English translation certified by the college or university that issued it. For those who have completed degrees in the People's Republic of China, you will also be required to submit the Graduation Certificate.

### Statement of Purpose:

The Academic Statement of Purpose is typically a 500-word statement that outlines:

- Your academic and professional background, detailing how your experiences have prepared you for graduate study in this field.
- Your career goals and how a graduate degree from Purdue Fort Wayne will help you achieve them.

Focus on demonstrating how you fit with the program by discussing faculty members you want to work with, the program's qualities, or specific research or career opportunities.

### Personal History Statement:

Approximately 500 words, highlights your unique experiences, challenges, and achievements that have shaped who you are today. This is your chance to share:

- Your personal background, such as your upbringing or life events that influenced your perspective.
- Why you're a good fit for Purdue Fort Wayne's program beyond academics, emphasizing personal qualities like resilience, leadership, or community engagement.

This statement is your opportunity to stand out and present a compelling narrative about your journey and why you want to earn your graduate degree at Purdue Fort Wayne.

### Recommendations:

Submit names of at least two individuals who are qualified to evaluate your academic or on-the-job performance who can attest to your ability to pursue a graduate degree. In the online application to the Purdue Graduate School, once you click "Send to Recommender," each individual will receive an email with instructions for submitting their recommendation online. Once submitted, the graduate program to which you applied will have access to view your recommendation(s).

# INTERNATIONAL APPLICANTS

All international applicants must also submit the following items to be considered for admission:

## English Proficiency Scores:

(For exams taken before January 21, 2026)

### TOEFL iBT

Overall Score: 80 with the following minimum section requirements:

Reading: 19  
Listening: 14  
Speaking: 18  
Writing: 18

### TOEFL Essentials

Overall Score: 8 with the following minimum section requirements:

Reading: 8  
Listening: 8  
Speaking: 8  
Writing: 8

(For exams taken after January 21, 2026)

### TOEFL iBT

Overall Score: 4.0 with the following minimum section requirements:

Reading: 4.0  
Listening: 3.5  
Speaking: 3.5  
Writing: 4.0

### TOEFL Essentials

Overall Score: 8 with the following minimum section requirements:

Reading: 8  
Listening: 8  
Speaking: 8  
Writing: 8

### IELTS

Overall Score: 6.5 with the following minimum section requirements:

Reading: 6.5  
Listening: 6.0  
Speaking: 6.0  
Writing: 5.5

### Duolingo English Test

Overall Score: 115 with the following minimum section requirements:

Literacy: 115  
Comprehension: 115  
Conversation: 115  
Production: 115

### ELS- Certificate

Level 112

## Waiver of English Proficiency Scores

Routine waivers of an English Proficiency exam are granted for applicants that meet an alternate criterion:

- Earned a Baccalaureate, graduate, or professional degree within the last 36 months prior to the time of recommendation for admission - from a school where English is the primary language of instruction, in a country where English is the native language.
- Citizen of official English-speaking country

Note: Some graduate programs may still require a test of English proficiency, please confirm the acceptance of the waiver with your department.

## OFFICIAL TRANSCRIPTS

You must provide official transcripts and/or academic records at the request of the graduate program or if you are admitted and choose to enroll. An official transcript bears the original signature of the registrar and/or the original seal of the issuing institution. An unofficial transcript printed from your current/previous institution(s) student system is not an acceptable document. Official documents should be submitted to:

**Purdue University Fort Wayne**  
Office of Graduate Studies  
Doermer School of Business Room 304  
2101 E. Coliseum Blvd.  
Fort Wayne, IN 46805-1499, USA  
[graduate@pfw.edu](mailto:graduate@pfw.edu)

Domestic transcripts must be sent directly from a Registrar's office to the Office of Graduate Admissions via mail or email. If you mail them yourself, it must be in an envelope sealed by the registrar.

# PURDUE UNIVERSITY<sup>®</sup> FORT WAYNE



**PFW.EDU/GRAD-INFO**  
**260-481-6111**  
**EA/EOU**

