



IUP Graduate Handbook

Professional Science Master's (PSM) Degree in
Nano-Science for Industrial Materials

Department of Physics

2020-2021 Academic Year (Revised 2 August 2020)

Professional Science Master's (PSM) Degree
Nano-Science for Industrial Materials

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INTRODUCTION

Welcome to the Department of Physics at IUP and congratulations on choosing IUP's Professional Science Masters (PSM) program in Nano-science for Industrial Materials.

This graduate handbook will serve as your resource to the University, the Physics Department and as a guide to the Physics PSM program requirements and department policies during your stay at IUP.

Indiana University of Pennsylvania

The Indiana University of Pennsylvania is a public research university in Indiana, Pennsylvania. We are one of 14 Universities of the Pennsylvania State System of Higher Educations (PASSHE) and the home of some 10,000 graduate and undergraduate students

IUP's Civility Statement

As a university of different peoples and perspectives, IUP aspires to promote the growth of all people in their academic, professional, social, and personal lives. Students, faculty, and staff join together to create a community where people exchange ideas, listen to one another with consideration and respect, and are committed to fostering civility through university structures, policies, and procedures. We, as members of the university, strive to achieve the following individual commitments:

To strengthen the university for academic success, I will act honestly, take responsibility for my behavior and continuous learning, and respect the freedom of others to express their views.

To foster an environment for personal growth, I will honor and take care of my body, mind, and character. I will be helpful to others and respect their rights. I will discourage intolerance, hatred, and injustice, and promote constructive resolution of conflict.

To contribute to the future, I will strive for the betterment of the community; myself, my university, the nation, and the world.

Affirmative Action

Indiana University of Pennsylvania is committed to provide leadership in taking affirmative action to assure equal education and employment rights for all persons without regard to race, color, sex, religion, national origin, sexual orientation, age, disability, or veterans' status. We believe that respect for the individual in the academic community must not be abused. Harassment or disregard of a person based on any of these characteristics is particularly intolerable on the university campus.

The university will take affirmative action to ensure the implementation of this policy in

employment and admissions. This policy and the obligation to provide equal opportunity include the following commitment:

1. To recruit, hire, train, and promote persons for all job classifications and to admit and educate students without regard to race, color, sex, religion, national origin, sexual orientation, age, disability, or veterans' status.
2. To base decisions on selection, employment practices, employee utilization, job training, career mobility, promotion, program operation, and services provided in observance of the principles of equal employment opportunity and affirmative action.
3. To assure that all other personnel actions, such as compensation, benefits, transfers, furloughs, returns from furlough, agency-sponsored training, educational benefits, tuition assistance, social and recreational programs, etc., are administered in keeping with the policy, strategies, objectives, goals, and timetables of the Equal Opportunity Act and the Affirmative Action Plan of the university.
4. To create and maintain a workplace and educational climate that is free from discrimination and harassment, including sexual harassment, of any employee or student.
5. To make every effort to increase employment and educational opportunities for qualified disabled applicants and employees with disabilities.
6. To assure that, in offering employment or promotion to persons with disabilities, no reduction in compensation would result because of disability income or other benefits.
7. To assure that reasonable accommodations will be made for the physical disabilities of an applicant or student.

As an equal opportunity/affirmative action institution, the IUP Affirmative Action Plan is applicable to employees/enrollees of Indiana University of Pennsylvania under provisions of federal and state laws including Titles VI and VII of the Civil Rights Act of 1964, Title IX of the Educational Amendments of 1972, Sections 503 and 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1990, and the Civil Rights Act of 1991, as well as all federal and state executive orders. This policy extends to disabled veterans and veterans of the Vietnam era.

The IUP Affirmative Action Plan supersedes the Affirmative Action Plan of 1995–96; the 1983 IUP Plan; the August 8, 1975, Affirmative Action Plan adopted by the Board of Trustees; and the March 31, 1982, Affirmative Action Plan submitted to the U.S. Office for Civil Rights.

Title IX Reporting Requirement

Indiana University of Pennsylvania and its faculty are committed to assuring a safe and productive educational environment for all students. In order to meet this commitment and to comply with Title IX of the Education Amendments of 1972 and guidance from the Office for Civil Rights, the university requires faculty members to report incidents of sexual violence shared by students to the University's Title IX Coordinator. The only exceptions to the faculty member's reporting obligation are when incidents of sexual violence are communicated by a student during a classroom discussion, in a writing assignment for a class, or as part of a

university-approved research project.

Faculty members are obligated to report sexual violence or any other abuse of a student who was, or is, a child (a person under 18 years of age) when the abuse allegedly occurred to the Department of Human Services, at 1-800-932-0313, and University Police, at 724-357-2141.

Information regarding the reporting of sexual violence and the resources that are available to victims of sexual violence is set forth at: www.iup.edu/social-equity/policies/title-ix

Specific inquiries regarding Title IX should be directed to:
Social Equity and Title IX Office
Delaney Hall, Suite B17
920 Grant Street
Indiana, PA 15705
Telephone: 724-357-3402

The university publishes an online student handbook, The Source: A Student Policy Guide, which is a companion to this catalog. The handbook contains detailed information on the policies mentioned on this page. It is accessible to all enrolled students at: www.iup.edu/studentconduct/thesource.

Questions regarding the Sexual Discrimination/Misconduct Policy or complaint procedures, should be directed to:

Elise Glenn
Chief Diversity and Inclusion Officer/Title IX Coordinator
ADA/Section 504 Coordinator
Social Equity and Title IX Office
Delaney Hall, Suite B17
Indiana, PA 15705
Telephone: 724-357-3402.

The IUP Sexual Discrimination/Misconduct Policy is accessible at the website: iup.edu/social-equity/policies/sexual-harassment-and-sexual-violence/.

Student Conduct and Student Rights

As a community, the University has developed a code of standards and expectations that are consistent with its purpose as an educational institution. The Student Conduct Policies and Procedures articulate these standards, and can be found at: www.iup.edu/studentconduct/. The Office of Student Conduct supports the academic mission of the University by promoting the development of a campus community characterized by reasonable safety and security, responsible behavior, civility, and respect. Also see: www.iup.edu/studentconduct/policies/.

Through enforcement of university policies and regulations, the office challenges students to take responsibility for their actions; demonstrate respect for themselves, property, and other individuals; and develop skills that will enhance lifelong problem solving, communication, and decision-making abilities. The Office of Student Conduct can be reached at 724-357-1264, and is located in Suite G-11 Ruddock Hall.

Student Rights/Directory Information

The following information is considered directory information under the Family Educational Rights and Privacy Act and may be released without the student's permission: name, address, telephone number, dates and status of attendance (enrolled, part-time/full-time) and previous institutions attended, degrees conferred, major field of study and class, awards and honors, past and present participation in officially recognized sports and activities as well as physical factors of athletes (such as height and weight), and e-mail username.

Students may request that directory information not be publicly released by completing a nondisclosure request, available in the Office of the Registrar, Clark Hall. This will result in the student's directory information being re-moved from the "Find People" on-line directory on the IUP website. Upon receipt of this signed form in the Office of the Registrar, all information will be withheld, even beyond graduation, unless the student requests in writing that this nondisclosure request be rescinded.

Department of Physics

The goal of the Department of Physics is to prepare students for productive careers in physics. Two undergraduate degree programs are offered: a bachelor of science degree program in physics and a bachelor of science in education degree program in physics education. There are three tracks in the BS Physics program: Nanotechnology Manufacturing, Pre-engineering, and Applied Physics. The department offers one graduate program: a Professional Science Master's (PSM) degree. The concentration of the PSM degree is in Nano-science for Industrial Materials.

Your Resources in the Physics Department

Dr. John Bradshaw is the current graduate coordinator. He will serve as your primary academic advisor while you are in the PSM degree program and will provide you with accurate and timely information about academic requirements and academic evaluation. As academic advisor, Dr. Bradshaw will guide you in your selection of graduate classes and provide necessary class registration information, such as the required PIN for registration each semester.

The Physics department faculty are here to teach and support you through your graduate experience here at IUP. During your first week here, you should take the time to introduce yourself to department faculty.

A research advisor is someone who will provide advice and guidance on attaining career goals and assist you in your pursuit of scholarly and professional experiences such as lab-based research, independent study, internships, and attendance at professional meetings. Your choice of research advisor is a mutual, informal agreement between yourself and the professor.

The Internship committee usually consists of an industrial advisor, a faculty advisor, and the department chairman. This is the committee that will guide you through your internship experience, PHYS 799.

Ms. Sarah Richards is the physics department secretary and can be found in the Physics Department main office, room 56 Weyandt Hall.

Mission Statement and Program Objectives

The Professional Science Master's degree is for the students interested in broadening their skills in physical science and adding a professional component from the business school. As of 2012, IUP is one of the few programs in the nation to provide a physics-oriented professional science master's degree program for those students who intend to go into government, management, or industrial careers which require an advanced understanding of physical science. The program is designed to provide students with the background and skills to advance their career along with an internship experience in their area of interest. The internship experience will not only provide an atmosphere for students to grow by utilizing their skills but will also provide potential employers the opportunity to assess a student's capability.

The pedagogical goals of the physics PSM program are:

- The program will emphasize effective written and verbal communication, leadership, and team-building skills required in professional settings.
- The program will emphasize ethical and professional workplace behavior.
- The program will provide rigorous, broad, and current knowledge in nano-science and technology.
- The program will provide understanding and appreciation for business concepts through coursework in business, management, communications, or related fields.
- The program will provide students with connections to potential employers through internship experience.

Faculty and Staff

Name	Rank	Highest Degree	Area of Expertise	Office, Phone
Bradshaw, John	Assoc. Professor	PhD	Experimental Solid State	40 Weyandt, (724) 357-7731
Haija, A. J.	Professor	PhD	Experimental Solid State	39 Weyandt, (724) 357-4589
Hamidi, Sajad	Assoc. Professor	PhD	Environmental Engineering	57 Weyandt, (724) 357-7871
Karimi Majid	Professor	PhD	Computational Physics	335 Weyandt, (724) 357-2339
Kenning, Gregory	Professor	PhD	Condensed Matter Physics	45 Weyandt, (724) 357-2192
Numan Muhammad	Professor	PhD	Experimental Solid State	56B Weyandt, (724) 357-2371
Sobolewski Stanley	Assoc. Professor	PhD	Physics Education	345A Weyandt, (724) 357-4590
Zhou, Feng (Andy)	Professor	PhD	Optics, Laser Technology	53 Weyandt, (724) 357-4593

Admission

Admission into the PSM program is a two-step process. The first step is the formal review of completed applications to the graduate school. For information on the application and admission process, follow this link:

Graduate Admissions: www.iup.edu/admissions/graduate/

The second part of the admission process is the department review. The department review is conducted by the graduate coordinator for the physics department. This is an informal process and the result is communicated back to the graduate school. After the successful candidate has passed the departmental review, he or she is then notified by the graduate school. The only official notice of acceptance into the PSM program is the formal letter from the graduate school.

International students have different deadlines for application to the graduate school and as well as different requirements in the application process. For information on the application and admission process for international students, follow this link:

International Graduate Admissions: www.iup.edu/admissions/international/requirements/graduate/

Additionally, international students may be admitted provisionally into the physics PSM program if their Test of English as a Foreign Language (TOEFL) score or International English Language Testing System (IELTS) score does not meet the minimum requirement for the graduate school. Provisional admission is granted contingent upon successful completion of an intensive English language course at IUP's American Language Institute (ALI). Follow the link above for information on provisional admission and the link below for information on the ALI.

American Language Institute: www.iup.edu/ali/

For more information regarding Admission Classification and Provisional Admission for International Graduate Application, view the Graduate Catalog: www.iup.edu/gradcatalog

Financial Assistance

In addition to federal and private grant and loan programs, the physics department has a very limited number of awards to assist qualified students.

Graduate Assistantships

Each Academic year, the physics department may have a very limited number of Graduate Assistantship (GA) awards, a 20-hour GA, a 10-hour GA or an 8-hour GA award, for highly qualified students. The awards require the student to work with a department-assigned adviser for 20, 10 or 8 hours a week, respectively, and are awarded competitively. Additionally, the student must also be registered for a full-time course load (9 credit hours) and be on good academic standing (cumulative graduate GPA 3.0 or better) to be eligible for a GA. The awards have a tuition remission component and a stipend component. The awards are made by the department after a student has been admitted into the PSM program, usually during the summer prior to the fall semester.

For general information on graduate assistantships at IUP, follow this link:

www.iup.edu/admissions/graduate/financialaid/assistantships-and-scholarships/

Research Assistantships

Individual professors who have a research or service grant or contract may have funds to hire and help support students. These funds are may be different from graduate assistantships in that there may not be a tuition remission or stipend. The work may be paid at an hourly rate. Contact the department graduate coordinator for information regarding funded research programs in the physics department.

For additional information regarding financial assistance, follow this link: www.iup.edu/financialaid/

Departmental Awards

Each year, the physics department may have a limited number of academic awards, usually in the \$500 range, and depending on availability to award to graduate or undergraduate students on a competitive and need basic.

Academic Advisement

All graduate students in the PSM program are assigned an academic advisor. The current graduate adviser is Dr. John Bradshaw. Dr. Bradshaw will serve as your primary academic advisor while you are in the PSM degree program and will provide you with accurate and timely information about academic requirements and academic evaluation. The graduate adviser will guide also you in your selection of graduate classes and provide necessary class registration information, such as the required PIN for registration each semester.

Campus Resources & Student Support

Please take the time to look at the links below to get an idea of the campus resources and student support programs that are available at the university. Your academic advisor will speak with you about these resources at your introduction and orientation meeting.

The School of Graduate Studies and Research: www.iup.edu/graduatestudies/

Graduate Catalog: www.iup.edu/gradcatalog

Office of the Bursar: www.iup.edu/bursar/

Office of the Registrar: www.iup.edu/registrar/

Disability Support Services: www.iup.edu/disabilitysupport/

Office of Social Equity: www.iup.edu/socialequity/

IUP Campus Library www.iup.edu/library/

MyIUP: www.iup.edu/myiup/

IT Support Center: www.iup.edu/itsupportcenter/

Veterans and Service Members: www.iup.edu/veterans/resource-center/

IUP Writing Center: www.iup.edu/writingcenter/

IUP Career and Professional Development Center: www.iup.edu/career/

IUP Parking Services and Visitor Center <http://www.iup.edu/parking/>

University Police <http://www.iup.edu/police/> | 724-357-2141

Crisis Intervention 24/7 Hotline: 1-877-333-2470

Student Registration: www.iup.edu/registrar/students/registration/

Title IX, Abuse and Sexual Violence: www.iup.edu/socialequity/policies/title-ix/

IUP Email

IUP offers an email account to all active students. **Your IUP email address is the primary means by which the university will contact you with official information and you should use for all IUP official communications. It is your responsibility to check your IUP email regularly.** Visit www.iup.edu/itsupportcenter/howTo.aspx?id=23401 to learn more about setting up this account if you don't have one already. For more information regarding University policy on email communication, view the Graduate Catalog: www.iup.edu/gradcatalog

Graduate Student Assembly

The Graduate Student Assembly (GSA) represents the graduate student body's interests at IUP and within the Indiana community. The GSA makes recommendations related University-wide and graduate-specific policies and in areas of concern in the cultural, intellectual, and social life of the part- and full-time graduate student. Visit www.iup.edu/graduatestudies/gsa for more information.

Programs and Degrees

Professional Science Master's Program

The physics PSM degree is designed to offer the student flexibility in their graduate experience. Students are encouraged to take elective graduate courses in affiliated departments such as Mathematics, Biology, Business, Chemistry and Mathematics. However, 30 graduate credits and a minimum GPA of 3.0/4.0 is required for graduation. The course sequence stated below is a representative full-time schedule broken down by semester. Some courses are offered every other year and so the sequence of courses can change order. Additionally, the physics department offers other 500- and 600-level courses that may be substituted for the physics courses below. See the graduate catalog www.iup.edu/graduatestudies/catalog/course-descriptions/ for more information.

1st Semester

PHYS 531 Modern Physics 3 cr
 PHYS 658 Industrial Materials 3 cr
 MGMT 613 Organizational Analysis 3 cr
 Or MKTG 603 Marketing Management

2nd Semester

PHYS 657 Solid State Theory 3 cr
 PHYS 551 Electricity and Magnetism 3 cr
 MGMT 637 Operations Management 3 cr

3rd Semester

PHYS 520 Advanced Laboratory 3 cr
 PHYS 561 Quantum Mechanics I 3 cr
 Elective 3 cr

4th Semester

PHYS 600 Methods of Research 2 cr
 PHYS 799 Internship Experience 4 cr

Note that PHYS 600, PHYS 799 and two courses from the business school are required as part of the program.

Internship (PHYS 799): The internship is your opportunity to get real industrial or other professional experience on your resume. However, the internship can be taken internally within in the department. We highly recommend pursuing an external internship. The final assessment for the internship course is an oral presentation with a record of the presentation, such as a PowerPoint file. The example course

sequence above shows the internship in the fourth semester. However, it is common for many internships to be taken in the summer.

How do I get an external Internship? The faculty within the department and your graduate advisor can provide advice and guidance in securing an external internship. But most of the research and legwork needs to be done by the student. It is best to start early, at least in November or December for an internship starting in May or June. One good place to start is by looking at the hundreds of previous internships that other IUP students have had with nearby (and not-so-nearby) companies, nonprofits, and government organizations. To find these agreements, first go here: <https://www.iup.edu/extended/internship-externship-and-clinical-agreements/>. Then click on the “WIKI FOR FACTS, TEMPLATES,..” link at the top of that page. Then click on the “documents” link at the left of the next page. Finally, click on the “Currently Fully Executed Agreements...” link to open an excel spreadsheet of recently executed internship agreements.

Note that a fully executed internship agreement must be signed by both IUP and the company or other organization representative before you can start the internship.

Course Descriptions

To see the current graduate course descriptions, follow this link: www.iup.edu/gradcatalog

Evaluation of Students

Completion of the PSM degree requires successful completion of the 30 graduate credits in the program. **There is currently no candidacy exam, qualifier exam, or comprehensive exam.** The student must complete the necessary courses with a minimum graduate GPA of 3.0/4.0.

For more information regarding the School of Graduate Studies and Research Policy on grading and to see the current course requirements for the physics PSM degree, view the Graduate Catalog: www.iup.edu/gradcatalog

Degree Completion

At the beginning of the semester that the student registers for their final courses to complete the required 30 credits for the PSM degree, the student should confer with their graduate advisor. Once the graduate adviser has reviewed the students’ progress and agrees that the PSM requirements will be satisfied upon satisfactory completion of the remaining courses, then the student should apply for graduation. There are deadlines associated with applying for graduation and it is the student’s responsibility to meet those deadlines.

To see the application process to apply for graduation, follow this link: <http://www.iup.edu/commencement/graduate/how-to-apply-for-graduation/>

For more information, view the view the Graduate Catalog: www.iup.edu/gradcatalog

To access forms processed through the School of Graduate Studies and Research, click on *Current Students* at: <http://www.iup.edu/graduatestudies/>

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University Policies and Procedures

University policy is the baseline policy. Programs may have policy that is more stringent than the University baseline policy; however, not less stringent than the University baseline policy. For questions regarding this statement, please contact [Program Coordinator] or the School of Graduate Studies and Research.

Academic Calendar

View the IUP Academic Calendar: www.iup.edu/news-events/calendar/academic/

The following University and SGSR policies can be found at www.iup.edu/gradcatalog

Academic Good Standing

www.iup.edu/gradcatalog

Academic Integrity

www.iup.edu/gradcatalog

The Source: A Student Policy Guide: www.iup.edu/studentconduct/thefsource/

Bereavement-Related Class Absences

www.iup.edu/gradcatalog

Grade Appeal Policy

www.iup.edu/gradcatalog

Graduate Fresh Start Policy

www.iup.edu/gradcatalog

Graduate Residency Requirement

www.iup.edu/gradcatalog

Leave of Absence Policy

www.iup.edu/gradcatalog

Time Limitations

www.iup.edu/gradcatalog

Time-to-Degree Masters/Doctoral Dismissal Appeal Policy

www.iup.edu/gradcatalog

Time-to-Degree Extension for Master's Thesis and Doctoral Dissertationwww.iup.edu/gradcatalog**Transfer of Credits Policy**www.iup.edu/gradcatalog**Research**

Students can pursue research interests within the framework of the PSM program several different ways. The internship (PHYS 799) requirement and independent study (PHYS 699) are two course-credit options for research. The student should consult with their advisor and individual faculty regarding research opportunities. The student is encouraged to consider research opportunities outside of the physics department as well. Additionally, it is also possible to be hired for hourly work on a research or service contract of a faculty member.

Related links for information on research opportunities are:

For more information, visit the website of the School of Graduate Studies and Research, click on *Research*: www.iup.edu/graduatestudies/. Also see: www.iup.edu/research/.

Signature Page

My signature below indicates that I am responsible for reading and understanding the information provided and referenced in this department/program student handbook.

_____ [please initial] I understand my program coordinator may share this document with the School of Graduate Studies and Research.

Print Name

Signature

Date

Submit to Dr. John Bradshaw by 24 August 2020.

The physics department will keep this signed document on file.