



Indiana University of Pennsylvania

Graduate Program Handbook

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

Department of Physics



2017-2018 Academic Year (Revised 24 July 2017)

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

Department of Physics
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Program Website: www.iup.edu/physics/grad/physics-psm/

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WELCOME

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

This graduate handbook will serve as your resource to the University and the Department, and as a guide to the Physics PSM program requirements and department policies important during your stay here 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 13,000 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.

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

PSM 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	Assist. 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
Talwar Devki	Professor	PhD	Solid State Physics	53 Weyandt, (724) 357-4591
Zhou, Feng (Andy)	Professor	PhD	Optics, Laser Technology	46 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 applicant 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/graduatestudies/catalog/

Financial Assistance

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

Graduate Assistantships

For the 2017-2018 Academic year, the physics department has two part-time Graduate Assistantship (GA) awards, a 10-hour GA and an 8-hour GA. The awards require the student to work with a department-assigned adviser for 10 or 8 hours a week, respectively, and are awarded competitively. 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:

Graduate Assistantships:

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 different from graduate assistantships in that there is not a tuition remission or stipend. The work is usually 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/

Academic Advisement

All graduate students in the PSM program are assigned an academic advisor. The current graduate adviser is Dr. John Bradshaw. 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. 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.

Campus Resources & Student Support

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

Graduate Catalog: www.iup.edu/graduatestudies/catalog/

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

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

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

IUP Campus Library www.iup.edu/library/

MyIUP: www.iup.edu/myiup/

Applied Research Lab: www.iup.edu/arl/

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

Veterans and Service Members: www.iup.edu/itsupportcenter/

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

IUP Career and Professional Development Center <http://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

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.

For more information regarding University policy on email communication, view the Graduate Catalog:

www.iup.edu/graduatestudies/catalog/

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 typical full-time schedule broken down by semester. Some courses are offered every other year and so the sequence of courses can change order.

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 written 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 to [this page](#). Then click on the “WIKI FOR FACTS, TEMPLATES,...” link at the top of that page. Then click of the “documents” link on the left of the next page. Finally, click of 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/graduatestudies/catalog/course-descriptions/

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 School of Graduate Studies and Research Policy on grading, view the Graduate Catalog: www.iup.edu/graduatestudies/catalog/

To see the course current requirements for the physics PSM degree, follow this link:

www.iup.edu/graduatestudies/catalog/course-descriptions/masters/ms/professional-science-masters-in-physics---nano-science-for-industrial-materials/

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 advisor 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/graduatestudies/catalog/

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

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

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

University Policy and Procedure

The links provided below are the University's stated policies and procedures and also represent the physics department policies in these areas. See the graduate catalog:

www.iup.edu/graduatestudies/catalog/

Academic Calendar

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

Academic Grade Appeal Policy

For Information regarding the Grade Appeal policy, view the Graduate Catalog:

www.iup.edu/graduatestudies/catalog/

Academic Integrity

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

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

Academic Status and Satisfactory Academic Progress

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

Affirmative Action

Indiana University of Pennsylvania is committed to providing leadership in taking affirmative action to attain equal educational and employment rights for all persons, without regard to race, religion, national origin, ancestry, sex, physical handicap, or affectional or lifestyle orientation. This policy is placed in this document in accordance with state and federal 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 as well as federal and state executive orders. This policy extends to disabled veterans and veterans of the Vietnam era. Please direct inquiries concerning equal opportunity to: Office of the Provost, 205 Sutton Hall, 1011 South Drive, IUP, Indiana, PA 15705-1046 U.S.A.

Bereavement-Related Class Absences

For Information regarding the Bereavement-Related Class Absences policy, view the Graduate Catalog:

www.iup.edu/graduatestudies/catalog/

Graduate Fresh Start Policy

A graduate student who has been separated from the university as a result of academic dismissal, including time-to-degree dismissal, may only apply for readmission to the University if the student has been separated from the university, for a minimum of two calendar years (24 consecutive months) from the date of dismissal. The request to be considered for readmission to the University must be into a graduate program, and readmission to the program from which the student was dismissed may not be sought. A student dismissed as a result of an academic integrity violation is barred from utilizing the Graduate Fresh Start Policy to request readmission.

Conditions for a Graduate Fresh Start Application

A graduate student may apply for a Graduate Fresh Start only if he/she meets all of the following conditions:

- he/she was academically dismissed, including time-to-degree dismissal from an IUP graduate program;
- he/she has been separated from the university for a minimum of two calendar years (24 consecutive months);
- he/she applies for readmission consideration to a graduate program at IUP, excluding the program from which the student was academically dismissed.

The graduate student must apply to the desired program through the standard Admissions process. Having reviewed the prior and intervening factors for evidence of potential for improved academic success, the program coordinator, after departmental review, may recommend to the Dean of Graduate Studies and Research that the student be readmitted to the University and admitted to the program. The Dean's decision is final and is not subject to appeal.

Conditions for a Graduate Fresh Start Record

All credits and grades for IUP course work taken before readmission under this Graduate Fresh Start Policy shall remain on the transcript. Upon readmission, a new cumulative (GPA) is established based on credits and grades earned from the date of readmission. Individuals may seek readmission to the University through the provisions of this policy only once.

Prior Record

The student's graduate record will be identified as a Graduate Fresh Start. No graduate credits earned from the program in which the student was dismissed are permitted to be transferred to the Graduate Fresh Start sought degree. Any other transfer credits must meet the IUP Transfer Credit Policy.

Students seeking a degree under the Graduate Fresh Start are not permitted to repeat a previously taken course from the program in which the student was dismissed and have it count towards improving the previous CGPA that was prior to readmission. Any course repeat(s) will be counted as a course taken under the Graduate Fresh Start and applied solely to the new degree sought and new cumulative GPA.

Academic Standards

A student who is readmitted under the provisions of the Graduate Fresh Start Policy shall be required to meet current degree requirements. He/she shall be academically reviewed under the policies published in the academic catalog at the time of re-matriculation. Students readmitted to the University under this policy and who were dismissed initially by exceeded time-to-degree requirements may not be granted extensions of time-to-degree requirements.

Graduation Graduate Residency Requirement Policy

For master's students, at least 2/3 of the credits meeting program requirements must be taken from the University offering the degree.

Note that these set the minimum number of credits that must be taken "in residence" and that universities can limit the number of hours that will be allowed to transfer into a graduate program.

Active-duty service members who are graduate students will be handled on a case by case basis.

Exceptions are to be approved by the Office of the Chancellor's Division of Academic and Student Affairs.

Program Level Exams Appeal Policy

Appeals for Program Level Exams such as, candidacy, comprehensive, or qualifying examinations, are made to the Dean of the School of Graduate Studies and Research (SGSR) based on policy and/or procedural violations. The physics PSM program does not require candidacy, comprehensive or qualifying examinations, so this policy is not relevant to physics PSM candidates.

Registration

<http://www.iup.edu/registrar/students/registration/>

For more information regarding registration and tuition billing, please contact the Office of the Bursar: www.iup.edu/bursar/

Social Equity

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

For more information regarding University policy, view the Graduate Catalog: www.iup.edu/graduatestudies/catalog/

Student Conduct

Policies from the Office of Student Conduct: www.iup.edu/studentconduct/policies/
(*IUP Email Communication Policy, Student Behavior Regulations, The Source, Student Rights and Responsibilities, etc.*)

Time Limitations

Masters students must complete degree requirements no later than five years from the date of earning or transferring credit, unless the period is extended through student petition. Petitions are approved by the student's department and the dean of the School of Graduate Studies and Research.

For more information regarding School of Graduate Studies and Research policy on registration, view the Graduate Catalog: www.iup.edu/graduatestudies/catalog/

Time-to-Degree Masters Dismissal Appeal Policy

A student dismissed from a program because of time-to-degree expiration (see Time Limitations policy) can appeal the decision to the Dean of the School of Graduate Studies and Research (SGSR), based on policy and/or procedural violations. The appeal can be based only on policy/procedural violations.

The appeal must be made in writing to the Dean of the School of Graduate Studies and Research. Documentation of the policy(ies)/procedures in question must be provided, along with a detailed description of the alleged violation(s). All evidence supporting the alleged violation should also be provided. The student must submit the written appeal to the Dean of the SGSR **within 30 days** of receipt of the dismissal letter.

Upon receipt of the written appeal to the Dean of the SGSR will conduct an investigation of the allegation, review the documentation and render a final decision **which completes the appeal process. The final decision rendered by the Dean of the SGSR may not be appealed.**

If it is found that policy/and/or procedure has been violated, the Dean of the SGSR will rescind the dismissal.

Masters student time limitation (see Time Limitations policy) may be extended through student petition to the Assistant Dean of the SGSR. The program coordinator on behalf of the student, no later than the first day of the month of the student's time-to-degree expiration date, makes the request to the Dean (or designee) of the SGSR. The request must include justification for the extension. Official documentation to justify the request for the extension and the amount of time will be required by the Dean (or designee) of SGSR to support the request.

Title IX Reporting Requirement

For more information regarding Title IX Reporting Requirement policy, view the Graduate Catalog: www.iup.edu/graduatestudies/catalog/

Transfer of Credits Policy

A student may transfer graduate credits from another institution, with Department approval, up to one third (**1/3**) of the required credits for the graduate student's program at IUP. These graduate courses must have been taken from a regionally accredited institution, within the past five years, and the grade earned must be a "B" or its equivalent or better. The time limitation rule and residency requirements pertain without modification to transfer credits.

Up to one third (**1/3**) graduate credits originally earned in one graduate program at IUP may be applied toward a different graduate program if: 1) the receiving department and 2) the School of Graduate Studies and Research both approve the credits as meeting degree requirements. These courses must have been completed within the past five years, and the grade earned must be a "B" or its equivalent or better.

The combination of transfer graduate credits earned at another institution and those earned at IUP may not exceed one third (**1/3**) of the total required graduate credits for the program.

To request transfer credits, the student must complete the Request for Graduate Transfer Credit Review

form and follow the instructions listed on the form. A catalog course description or course syllabus must accompany the request. An official graduate transcript showing the earned graduate credits must be provided by the school at which the credits were taken. To be considered official, the transcript must arrive in a sealed envelope bearing the official seal of the issuing institution. The request is reviewed in the School of Graduate Studies and Research and the academic department. After review, the student's program coordinator and the student are notified of the transfer decision.

It is strongly recommended that students seeking to transfer graduate credits from another institution while enrolled at IUP receive advance written authorization for credit acceptance from the School of Graduate Studies and Research and the academic department prior to enrolling in that course.

If graduate credits earned at another institution are approved for transfer, only the credit, not the grade or accompanying quality points, will appear on the student's IUP transcript.

Graduate credits earned at IUP that are approved for transfer to a second program will not be posted to the transcript a second time.

For more information regarding School of Graduate Studies and Research policy on transfer credits, view the Graduate Catalog: www.iup.edu/graduatestudies/catalog/
Access forms processed through the School of Graduate Studies and Research, click on *Current Students*: <http://www.iup.edu/graduatestudies/>

Research

Students can pursue research interests within the framework of the PSM program a number of 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:

Applied Research Lab: www.iup.edu/ar/

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

Student Rights and Responsibilities

For more information regarding student rights and responsibilities, view the Graduate Catalog: www.iup.edu/graduatestudies/catalog/

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 this signed Signature Page to the physics graduate coordinator prior to the first day of classes of the first semester of the PSM program.

The physics department will keep this signed document on file.