

NUCLEAR ENGINEER GRADUATE STUDEN

Fall 2021

August 16, 2021

Nuclear Engineering

Overview

- Welcome to Nuclear Engineering
- Introductions
- Faculty and Staff
- Support Services on Campus
- Policies, Procedures and Deadlines
- Graduate Manual
- Choosing an advisor (and committee)
- Making a plan of study
- Registration
- Student Organizations for Nuclear Engineering

Nuclear Engineering

Welcome to Nuclear Engineering at Purdue University

<https://engineering.purdue.edu/NE>

516 Northwestern Ave. Room # 4025
West Lafayette, IN 47906
Phone: (765) 494-5739
ne@purdue.edu

Student Services Office:

516 Northwestern Ave., Room #4026
Phone: (765) 494-5749
nuclss@purdue.edu

Nuclear Engineering

Graduate Program



Dr. Seungjin Kim
Capt. James F. McCarthy, Jr.
and Cheryl E. McCarthy Head
and Professor



Dr. Shripad T. Revankar
Graduate Program Chair
Professor

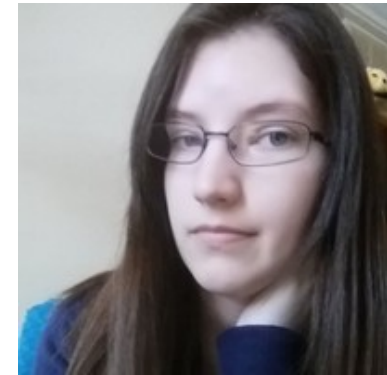
Nuclear Engineering Staff



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Nuclear Engineering Staff



Marketing &
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Jill Stacey
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Nuclear Engineering Faculty



Dr. Hany Abdelkhalik
Associate Professor

Research Interests

- Computational Reactor Physics
- Reduced Order Modeling and Complexity Reduction
- Uncertainty Quantification and Sensitivity Analysis
- Data Assimilation and Model Calibration



Dr. Stylianos Chatzidakis

Assistant Professor, Associate Reactor Director and
Director of Nuclear Engineering Radiation
Laboratory

- Computational radiation imaging and cosmic ray muon tomography
- Embedded sensors and nuclear sensing
- Aerosol jet printing and functional metamaterials
- Quantum key distribution
- Instrumentation and control
- Spent nuclear fuel storage, transportation, and disposal
- Scientific machine learning, convolutional neural networks, Bayesian learning theory

Nuclear Engineering Faculty



Dr. Chan Choi
Professor

Research Interests

- Thermonuclear Fusion Plasma Engineering
- Compact Tori Plasma / Reactor Studies
- Inertial Confinement Fusion Beam Target Stability
- Fusion Space Propulsion
- Direct Energy Conversion
- Nuclear Nonproliferation Enabling Capabilities



Dr. Allen Garner
Associate Professor
Undergraduate Program Chair

Research Interests

- Biomedical Applications of Pulsed Power and Plasmas
- Plasma Physics
- Pulsed Power
- High Power Microwaves
- Theoretical Biophysics

Nuclear Engineering Faculty



Dr. Ahmed Hassanein
Paul L. Wattelet Distinguished Professor

Research Interests

- Plasma Material Interactions
- Magnetic and Inertial Fusion Research
- Computational Physics and Hydrodynamics
- Extreme Ultraviolet Lithography
- Laser and Discharge Produced Plasma
- Radiation and Particle Transport in Materials
- Biomedical Engineering Applications



Dr. Mamoru Ishii
Walter Zinn Distinguished Professor

Research Interests

- Two-phased Flow Experiments and Modeling Research
- 3-D Two-fluid Model and Interfacial Area Transport Equation Development
- Advanced Light Water Reactor Safety Code Development
- LWR and LMFBR Safety Analysis
- Severe Accident Analysis

Nuclear Engineering Faculty



Dr. Seungjin Kim
Capt. James F. McCarthy, Jr. and Cheryl E. McCarthy
Head Professor

Research Interests

- Experimental Two-Phase Flow
- Thermal Hydraulics and Reactor Safety
- Multiphase Instrumentation



Dr. Martin Lopez-De-Bertodano
Associate Professor

Research Interests

- Experimental Two-Phase Flow
- Computational Fluid Dynamics
- Turbulence
- Thermal Hydraulics and Reactor Safety
- Nuclear Systems Simulation

Nuclear Engineering Faculty



Dr. Shripad Revankar, Professor
Graduate Program Chair
Research Interests

- Two-Phase Flow and Heat Transfer
- Advance Reactor Design and Testing
- Advanced Nuclear Fuel Development
- Reactor Safety and Thermal Hydraulics
- Severe Accident Analysis
- Nuclear Hydrogen Generation
- Fuel Cell, Hydrogen Systems, Renewable Energy



Dr. Rusi Taleyarkhan
Professor

Research Interests

- Nano-to-Macro Scale Applications of Nuclear Science
- Nuclear Reactor Thermal-Hydraulics
- Acoustic Inertial Confinement Fusion Materials and Radiation Dosimetry
- Metastable Fluid
- Radiation Interactions with Matter and Surface Modifications
- Materials Synthesis and Transmutation
- Controlled Hydrogen Production

Nuclear Engineering Faculty



Dr. Lefteri Tsoukalas
Professor

Research Interests

- Neurofuzzy Methodologies for Complex Power Systems Modeling, Diagnostics and Control.
- Intelligent Instrumentation Systems and Sensors
- Man-Machine Interface
- Autonomous Systems and Robotics



Dr. Yi Xie
Assistant Professor

Research Interests

- Corrosion in extreme environment
- Advanced nuclear fuel
- Sensor and sensor material
- Advanced sintering technology
- Geological repositories of radioactive waste

Nuclear Engineering Faculty



Dr. Yunlin Xu
Assistant Professor

Research Interests

- Reactor Physics
- Nuclear Reactor Design
- Advanced Nuclear Fuel Cells
- Homeland Security

INTRODUCTIONS

- Name
- Where are you from?
- What are your favorite things to do?
- What are your research area(s) of interest?

Review of Additional Information

GRADUATE SCHOOL

www.purdue.edu/gradschool

Young Hall, Room 170

765-494-2600

- Manage Transcripts
- Assist with Late Registration
- Process Grade Changes

REGISTRAR

www.purdue.edu/registrar

Hovde Hall, First Floor

765-494-8581

- Manage Transcripts
- Assist with Late Registration
- Process Grade Changes

BURSAR

www.purdue.edu/bursar

Hovde Hall, Room 9

765-494-7570

- Pay fees
(<http://mypurdue.purdue.edu>)
- Applies Financial Aid to Student Accounts
- Administers Deferred Fee Billing Plans

Nuclear Engineering

Responsible Conduct of Research (RCR) Training

- Every graduate student in the School of Nuclear Engineering is required to complete the on-line Collaborative Institutional Training Initiative's (CITI) Responsible Conduct of Research (RCR) training program within 60 days of starting a graduate program and every five (5) years thereafter.
- Details on the CITI training can be found at: <https://about.citiprogram.org/en/series/responsible-conduct-of-research-rcr/>.
- Each graduate student must submit a certificate of completion for the CITI training to the Student Services Office by the last day of classes in their first semester in order to receive a grade of "Satisfactory" for the seminar course. The certificate of completion will be retained in the student's file.

Nuclear Engineering

Graduate Staff Employment

- Governed by
Graduate Staff Employment Manual
Updated: May 20, 2020

<https://www.purdue.edu/gradschool/documents/gpo/graduate-student-employment-manual.pdf>

Nuclear Engineering

FERPA Certification

- Family Education Rights and Privacy Act
- If you are a grader and/or a TA at any point, you **MUST** be FERPA certified
- http://www.purdue.edu/policies/pages/records/c_51.html
- Permission to Transmit Information Form
www.purdue.edu/registrar
- 765-494-8219

Nuclear Engineering

ORAL ENGLISH PROFICIENCY TEST (OEPT)

- Before being appointed to a teaching assistant position, a student must be certified by one of the accepted methods (Oral English Proficiency Test or performance in ENGL 62000)
- Students should work with Student Service Office (nucless@purdue.edu) to register and prepare for the OEPT and, if necessary, enroll in ENGL 62000.
- ENGL 62000 is an English as a second language course in oral communication exclusively for non-native, English-speaking TA's.
- The OPET is a computerbased test used by the OEPP to screen prospective TAs for English language proficiency. While taking the test, candidates respond to a variety of questions, present information and speak extemporaneously on a range of topics. The responses are recorded and evaluated by at least two trained raters.
- A score of 50 or higher is required for certification.

Nuclear Engineering

OEPT: Certification Methods

Test	Minimum Scores Accepted for Oral English Certification
Oral English Proficiency Test	50
TOEFLiBT (speaking sub-score)	27
IELTS (speakingband score)	8.0
PTE (speaking sub-score)	76
TOEFL (computer or paper based test)	Not Accepted for Oral English certification
Test of Written English	Not Accepted for Oral English certification
SPEAK (from other institutions)	Not Accepted for Oral English certification

Nuclear Engineering

REGISTERING for OEPT

If your major professor asks that you TA for a course or be a grader, and you are not automatically certified from your TOEFL or IELTS scores, please:

- Visit the OEPP website (www.purdue.edu/oepp)
- Find 2 exam time periods that work for you
- Email Student Service Office (nuclss@purdue.edu) with the exam dates
- Take the practice exam

REQUIREMENTS for the PROGRAM

Graduate Manual, Plan of Study and Registration

Nuclear Engineering

NE Graduate Manual

July 2020 Edition

- Contains supplementary regulations and procedures that are specific to the School of Nuclear Engineering.
- It is not intended to replace information, regulations, or procedures contained in the Graduate School's "Policies and Procedures Manual for Administering Graduate Student Programs" or other University or Graduate School publications.
- In the event of conflict, the Graduate School and/or University regulations shall prevail over School policies.

Nuclear Engineering

CHOOSING an ADVISOR (and Committee)

- A person who can guide your research
- Usually the person providing funding
- Often determined before you arrive – if not, conduct a careful search
- Work with your advisor to choose your committee
- For additional information or questions - Grad Chair (Prof. Revankar Email/ meet /appointment)
- If there is a certain faculty member you want to meet with, e-mail them to make appointment

Nuclear Engineering

PLAN of STUDY:

Master's Students and PhD Students

Directions are in your supplied material for how to complete the Plan of Study

- Purdue University Graduate School
www.purdue.edu/GradSchool
- NE Graduate Manual

[https://engineering.purdue.edu/NE/for you/graduate/NE%20Graduate%20Manual%20Fall%202020](https://engineering.purdue.edu/NE/for%20you/graduate/NE%20Graduate%20Manual%20Fall%202020)

Nuclear Engineering

CORE CURRICULUM Master's Students

Nuclear Engineering Graduate Manual

- 5 Core Courses (3 credits each) : NUCL 501 (Intro), NUCL 504 (Radiation), NUCL 510 (Reactor Physics), NUCL 520 (Reactor Materials) and NUCL 551 (Thermal Hydraulics)
- 2 additional courses (3 credits each) of Math or Computer Science or other approved computational course
- Students who have not received a Bachelor of Science in Nuclear Engineering at Purdue **MUST** take NUCL 501
- Student who did not get an Undergraduate BSNE from Purdue **MUST** take NUCL 504
- Total 30 Credits hours are required
 - Thesis Based: 24 course credit hours (500 or 600 level) + 6 credit hours research
 - Course Based (non-thesis) : 30 total course credit hours

Nuclear Engineering

CORE CURRICULUM PhD Students

Nuclear Engineering Graduate Manual

- Core Courses: NUCL 501 (Intro), NUCL 504 (Radiation), NUCL 510 (Reactor Physics), NUCL 520 (Reactor Materials) and NUCL 551 (Thermal Hydraulics)
- 2 additional courses (3 credits each) of Math or Computer Science or other approved computational course
- Students who have not received a Bachelor of Science in Nuclear Engineering at Purdue **MUST** take NUCL 501
- Student who did not get an Undergraduate BSNE from Purdue **MUST** take NUCL 504
- 90 total credit hours are required to graduate
 - 48 credits hours of graduate coursework (500 and 600 level courses)
 - Minimum 3 courses 600 level
 - 42 credits hours of research

Nuclear Engineering

REGISTRATION FORM 23 (schedule Revision Request)

1. PUID
2. Name
3. Term (Fall 2020)
4. College (College of Engineering or CoE)
5. Program (Nuclear Engineering or NE)
6. Classification (Graduate Student or GR)
7. Add (A); Drop (D); Modify (M)
8. CRN (Course Request Number / 5 digit number)
9. Subject (NUCL)
10. Course Number
11. Credits
12. Faculty Advisor Signature
13. Student Signature

- ❖ Complete Form 23 found in MyPurdue
- ❖ Submit the Form 23 to Nuclear Grad student service office: nuclss@purdue.edu
- ❖ Once you are registered, you will receive an email to review your registration

Nuclear Engineering

Fall 2020 REGISTRATION CALENDAR August 24, 2021 – First Day of Class

Calendar for course add or modify, and drop
<https://www.purdue.edu/registrar/calendars/>

TO ADD OR MODIFY A COURSE

16 Weeks	1 st 8 Weeks	2 nd 8 Weeks	AUTHORIZATIONS REQUIRED
Aug 23 – Aug 29 Week 1	Aug 23 – Aug 24	Oct 20 – Oct 22	(COURSE SPACE AVAILABILITY REQUIRED) Students may add courses via Scheduling Assistant
Aug 30 – Sep 20 Week 2 - 4	Aug 25 – Sep 3	Oct 25 – Nov 2	Advisor and Instructor Submit request via the Scheduling Assistant
Sep 3	Aug 27	Oct 26	Last day to audit a course, submit change of grade mode to Audit after officially enrolled
Sep 21 – Oct 26 Week 5 - 9	Sep 7 – Sep 22	Nov 3 – Nov 19	Advisor, Instructor, and Head of Department in which the course is listed. Submit via the Scheduling Assistant

TO DROP A COURSE

16 Weeks	1 st 8 Weeks	2 nd 8 Weeks	AUTHORIZATIONS REQUIRED
Aug 23 – Sep 6 Weeks 1 - 2	Aug 23 – Aug 27	Oct 20 – Oct 26	No signatures (Course not recorded) Students may drop courses via Scheduling Assistant
Sep 7 – Sep 20 Weeks 3 - 4	Aug 30 – Sep 3	Oct 27 – Nov 2	Advisor (Course recorded with a grade of "W") Submit request via Scheduling Assistant
Sep 21 – Oct 26 Weeks 5 - 9	Sep 7 – Sep 22	Nov 3 – Nov 19	Advisor. Instructor (Instructor shall indicate whether passing or failing.) Grades of "W", "WF", or "WN" will be recorded. Students with a semester classification of 1 or 2 do not require response from instructor; grades will be "W". Submit via Scheduling Assistant.

Questions

**Additional Presentations
are available at**
<https://engineering.purdue.edu/NE/foryou/graduate>

Nuclear Engineering

- Information and Library Search Skills
- Ethics, Responsible Conduct of Research and iThenticate Program
- Academic Integrity
- Business office-Student Payroll
- Student Organizations
 - Women in Engineering Programs (WIEP)
 - Women in Nuclear Engineering
 - Nuclear Engineering Graduate Organization
 - American Nuclear Society
 - Alpha Nu Sigma
 - Purdue Graduate Student Government (PGSG)

Nuclear Engineering

<https://engineering.purdue.edu/NE/foryou/graduate>

- **College of Engineering Information**
- [Welcome Letter for Orientation - Fall 2020 \(PDF\)](#)
- [Required: Graduate Student Responsible Conduct of Research \(RCR\) \(PDF\)](#)
- [Introduction to Funding \(PDF\)](#)
- [Apply for Fellowships & Scholarships \(PDF\)](#)
- [Mentoring: For Graduate School and Beyond \(PDF\)](#)
- [Engineering Academic Career Club \(EACC\) \(Image\)](#)
- [Graduate Mentoring Program from the Women in Engineering Program \(Video\)](#)
- **Presentation Slide Downloads**
- [New Graduate Student Orientation \(PDF\)](#)
- [Research Integrity Office \(PDF\)](#)
- [Academic Integrity & You: Graduate Edition \(PDF\)](#)
- [Orientation to the Purdue Libraries & School of Information Studies \(PDF\)](#)
- [ECN \(Engineering Computer Network\) \(PDF\)](#)
- Videos: Research Integrity Office and NEGO

THANK YOU