UF Herbert Wertheim College of Engineering
UNIVERSITY of FLORIDA

Fall 2025 – Nuclear Engineering Undergraduate Open House

Dr. DuWayne Schubring, Undergraduate Coordinator
Dr. Nathalie Wall, Interim NE Program Director
Tahara Franklin, Allyson Beatty, and Nabby Rivera
Advising Office

POWERING THE NEW ENGINEER TO TRANSFORM THE FUTURE

Welcome back for the Fall 2025 semester

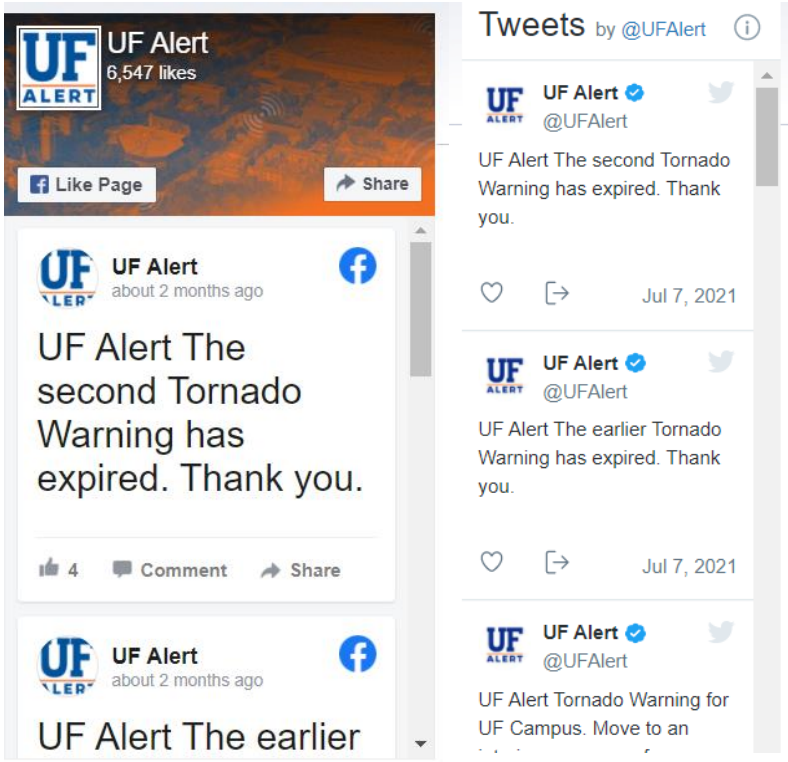
Undergraduate coordinator for the NE Program

- Duties include:
  - To be an advisor to all UF NE undergraduate students, particularly as relates to linking UF coursework to specific career goals
  - To represent the interests of the undergraduate program in the program/department
  - To approve transfer credits and internship credit
  - To work with the students and faculty to improve the NE undergraduate program
- Contact information
  - Email: dlschubring@ufl.edu
  - Office hours: M 1245-1345; T 1315-1415; WRF 1255-1415
  - Zoom: https://ufl.zoom.us/j/9057355922
  - Office: 317A MAE (Materials Engineering, not MAE-A, MAE-B, or MAE-C)
- Undergraduate Coordinator role will transition to Dr. Ira Harkness in summer 2026 (likely in May)

NE Program Director

- Role (select):
  - Provide leadership to the NE faculty
  - Performing course scheduling and assignments in coordination with the Academic Services Office and the MSE Department Chair
  - Meeting with NE students and participating in NE student and technical society events, graduate recruiting weekend, and graduation.
  - Responsible for overseeing, organizing, and managing NE program accreditation and External Advisory Board, Participation in the Nuclear Engineering Department Head Organization (NEDHO)
  - **"Manage and oversee any other tasks associated with the NE Program."** (read: Come to me for whatever reason)
- Contact information
  - Email: nathalie.wall@ufl.edu
  - Office hours: Rhines 100D; Tuesdays 5:10 – 6:00 pm
    - available in-office or virtual meetings at other times by contact, Front office staff can help schedule if needed (office@mse.ufl.edu)

UF Alert system



- In the event of an emergency, whether a natural or man-made occurrence, UF & UFPD have preparedness plans in place
- The UF Alert is a notification system that all students are registered for. These notifications will provide them with information needed during an emergency situation or an event which needs attention for safety purposes
- Notifications are in the form of emails and/or text messages, social media, and speakers inside and outside of UF buildings
- For more information visit: ufalert.ufl.edu

GATORSAFE mobile safety app

Download for free

Available on the App Store **NOW** GET IT ON Google play

- View local crime happening around the UF Campus
- Report a crime tip to UF Police (even anonymously) attaching pictures, and video
- Trigger Mobile BlueLight to simultaneously send your location and call UFPD.
- Use the Personal Safety Toolbox which contains a Flashlight, Loud Alarm, Ability to Send Your Location and other tools.
- And more…

The Academic Services Office is another great resource

- 108 Rhines Hall, (352) 846-3312
- advising@mse.ufl.edu / advisingforms@mse.ufl.edu

Tahara Franklin
Academic Advisor III

Allyson Beatty
Academic Advisor II

Nabby Rivera
Academic Assistant II

- Walk-in Hours: Monday and Tuesday from 11 am – 12pm
  Wednesday and Thursday from 2 pm – 3 pm
- Make an appointment via email, QR or phone

The College of Engineering also has great Career Services resources

- Top 4 things you should know:
- Services are available with both virtual and in person options. Schedule an appointment via Gator CareerLink: https://careerhub.ufl.edu/resources/drop-in-career-planning/ .
- UF C3 Express drop-in services:
  - Hours: 1:00pm-4:00pm | Students can join anytime between 1:00-3:45pm
  - Monday, Tuesday, Wednesday, Friday – **In Person**
  - Thursday- **Virtual**
- The UF Career Connection Center (C3) offers students, in all stages of their education, career options exploration, self-assessments, professional document review and critique, professional development advice and workshops, job search advice and more.
- C3 is located on the first floor of Reitz Union.

Undergraduate Handbook: #1 Most Important Resource

- https://mse.ufl.edu/academics/handbooks/

- Unlike for the undergraduate catalog, there is no need to search for “your” handbook. The most current NE handbook is the most up-to-date resource for all enrolled students, with differences among catalog years indicated.

- Most current undergraduate nuclear engineering students are on the 2022 through 2025 catalog. This slide deck is designed for these students.

Student Responsibility and Exceptions/Petitions

- UF holds the *you* (not staff or faculty) responsible for completing degree requirements
- Review your degree audit once per term to ensure errors have not been made (and to correct them while there's still time)

- At UF, literally *anything* can be petitioned (that doesn't mean it will be allowed, but it means you can ask)
- To pursue an exception
  - Meet with ASO staff (and, if needed, the UG coordinator) to determine if you are covered under an existing ("blanket") petition or via precedent
  - If not, fill out the petition form at https://mse.ufl.edu/academics/forms/
  - E-mail form to advisingforms@mse.ufl.edu

Information for 1st Years & Sophomores

- ENU 1000 – Introduction to Nuclear Engineering
  - Provides introduction to major, introduction to field, some initial technical information and career development
  - Best taken in your fourth-to-last Fall (usually 1st Fall)
  - See Section 3.1.7/3.2.7 in the UG handbook for available substitutions
- Sophomore Seminar – ENU 2002
  - Best taken in your third-to-last Fall and prior to ENU 4605
  - Course in two parts: (1) introduction to radiation interactions & reactors and (2) career development
- Spring Sophomore
  - ENU 4001 – this course will provide the additional layer of mathematical foundation necessary to handle reactor physics, thermal hydraulics, and other future courses
  - Elective course – this should ordinarily be a course outside the NE program

Advice for 1st Years & Sophomores

- Aim to establish community among your nuclear engineering classmates
  - American Nuclear Society and other student organization meetings
  - Aim to stay on the recommended course plan when possible; this will maximize the number of classes you have with other nuclear students
  - Form study groups with other nukes when possible – these groups will be very helpful for you in 1-3 years when you are taking upper-division/ENU courses
- Effective study groups
  - Range of abilities, though every student should benefit (a study group is not a way to get [whomever you consider to be] top NE students as unpaid personal tutors)
  - Range of strengths – someone good at calc/diff-eq, someone good at physics, someone good at communication, etc.
- The summers following your 1st & 2nd years are the best doing the UF Summer credit requirement and, should your circumstances permit, a fun summer.

Student groups for Undergraduate Students

- Student groups for MSE and NE are listed on the MSE website: https://mse.ufl.edu/about/societies/
- The primary nuclear engineering society is the **American Nuclear Society (ANS)**. Other opportunities are listed on: https://www.eng.ufl.edu/students/students/engineering-student-organizations/
  - Benton Engineering Council
  - Engineering Ambassadors
  - Institute of Nuclear Materials Management
  - National Society of Black Engineers
  - Society of Asian Scientists and Engineers
  - Society of Hispanic Professional Engineers
  - Society of Women Engineers
  - Tau Beta Pi
  - Women in Science and Engineering

ANS Discord

- You can join multiple student organizations – at least one should be technical.

Undergraduate Research

- Benefits
  - Many opportunities are paid ($15 per hour typical)
  - Improve graduate school/scholarship applications
  - Determine if graduate school, esp. PhD, is for you
  - Expand knowledge in area of interest
- Drawbacks
  - Time-consuming
  - Minimal value for terminal B.S. – industry/military
- https://www.eng.ufl.edu/graduate/about-us/undergraduate-research/
- Requirement:
  - Obtain agreement of faculty member to serve as research mentor via:
  - https://www.eng.ufl.edu/graduate/wp-content/uploads/sites/44/2017/01/EGN-4912-Syllabus-and-Registration-Form.pdf

Undergraduate Research

- A strong majority (80%?) of tenure-track faculty are willing to mentor students & most (60%?) have a student each Fall/Spring term
- Formal process:
- https://www.eng.ufl.edu/graduate/current-students/undergraduate-research/research-projects/
  - 2-month lead time for spring, up to 5 for fall
- Informal Process:
  - Attend office hours (posted on course syllabi: https://mse.ufl.edu/academics/syllabi/ or make an appointment via e-mail
- Posted projects for NE (not reliably kept up to date):
  - https://www.eng.ufl.edu/graduate/about-us/undergraduate-research/research-projects/nuclear-engineering-sciences/
- Nuclear medicine and medical physics projects – search under BME

Information for Juniors

- This Fall represents your first major batch of NE coursework
  - ENU 3132 Reactor Thermal Engineering 1 – this course begins a three-course sequence that has replaced thermo/fluids/HT and the nuclear systems course, discussing reactors as thermal systems
  - ENU 4003 Nuclear Engineering Analysis 2 – continuation of ENU 4001
  - ENU 4605 Radiation Sources and Interactions – an applied nuclear physics course that will instruct you on the scientific material unique to the NE field, including an introduction to nuclear and radiological applications
- Spring
  - ENU 4103 – reactor physics (the science and application of particle transport)
  - ENU 4133 – reactor thermal engineering 2
  - ENU 4800 – an introduction to materials science for nuclear systems
  - Two elective courses – recall 9 out of 12 credits total must be nuclear

Advice for Juniors

- ***The time is now*** to start seriously planning and laying the foundation for what you plan to do after your senior year.
- Having a professionally-valuable Summer experience between Junior and Senior years is now nearly mandatory to successfully transition.
  - Internships (industry or labs), research experiences at UF, etc.
  - If you are not sure between going directly to employment or graduate school – do either internship or research (a tangential internship is better than nothing)
  - Knock-on effect to 1st Years and Sophomores – again: if you're planning on a "fun summer" (travel, etc.) during college, do it *before your junior year*
- With graduate school deadlines now before your Senior Fall semester ends, ***the grades that you earn your junior year are the most important in your applications to graduate schools.*** With the GRE deemphasized relative to 5-10 years ago, there is precious little quantitative information upon which schools can make admission/funding decisions.
- Consider Graduating with Honors, Dual Degree, and Elective Plans this fall

Graduating with Honors

- Students can graduate cum laude (with honors) if they have a major GPA of 3.30.
- Students can graduate magna cum laude (with high honors) or summa cum laude (with highest honors) if they fulfill the following two requirements:
  - Have an upper division GPA of 3.50 or higher for magna cum laude and 3.80 or higher for summa cum laude.
  - Complete and defend a thesis
- To complete and defend a thesis, you will
  - Complete new research or original work
  - Write a thesis and send it to your committee
    - (2 NE + 1 non-NE faculty)
  - Present your work to your committee

https://xkcd.com/1403

Dual Degree (BS/MS or 4/1) Program

- UF policy permits students who are interested in an MS degree to double-count up to 12 credits of courses for both degree
- NE substitutions for Catalog Years 2021 and earlier:
  - ENU 6135 for ENU 4134 (Thermal Hydraulics) – 4 credits
  - ENU 5142 for ENU 4145 (PRA) – 3 credits
  - Up to 5 credits of ENU electives (often, one 3-credit course)
- Catalog Year 2022-2024 students:
  - ENU 5142 for ENU 4145 (PRA/Engineering Economy) – 3 credits
  - ENU 5185 for ENU 4180 (fuel cycles) – 3 credits
  - Up to 6 credits of ENU electives
- Recommendations for Catalog Year 2022: in late Fall of your junior year, meet (1) with the ASO to ensure eligibility and (2) with the UG coordinator to discuss plans and available elective options

Planned ENU Electives

- Most undergraduate electives are offered in the spring. This year, we expect to offer (subject to change):
  - Plasma/fusion (Dr. McDevitt)
  - Advanced Fission Reactors (Dr. Schubring)
  - Summer (probable) – Societal aspects of NE (Dr. Harkness)
- Catalog Years 2018-2021 – 9 technical elective credits, 6 of which must be nuclear (see handbook for the handful of “honorary nuclear” courses)
- Catalog Years 2022 – 12 TE credits, 9 same ”honorary nuclear” options.
  - You should take one 3-credit class this spring, most likely counting for the 3 not-necessarily-nuclear credits.
- If you wish to discuss which electives are appropriate for you, contact Dr. Schubring or other NE faculty

Information for Seniors

- ENU 4630 (Shielding/Fall) – introduction to the principles and design of radiation shielding systems to protect people/ property from radiation
- ENU 4104 (Neutrons 2/Fall) – reactor physics, focus: time-varying phenomena
- ENU 4134 (Thermal Engineering 3/Fall) – fluid flow and heat transfer in nuclear reactors and systems, including computation techniques for pressure loss and temperature estimation. Focus on two-phase flow and boiling.
- ENU 4145 (PRA/Economics) – probabilistic analysis of reactor safety and nuclear economics.
- ENU 4191 and 4192 (Senior Design/both semesters) – coverage of engineering design techniques, reactors, and communication/team skills via a large project.
- ENU 4180 (Fuel Cycles/Spring) – mining, fuel fabrication, and waste handling
- ENU 4612 and 4612L (Detection/Fall and ENU 4505L (senior lab/Spring) – lecture and laboratory experiences in the various forms of instrumentation used to detect ionizing radiation, reactor physics, and non-destructive testing

Financial Aid and Awards:

- For more information, see https://mse.ufl.edu/academics/funding-and-awards/
- **Our Department offers professional development funds for co-curricular activities (up to $500).**
- The Department offers several NE-specific scholarships. Applications opens Oct 1st and are due by Oct. 31st.
- New opportunity 2024-2026: NRC scholarships (comes with required service agreement but awards up to $10k/student/year.)
  - Same application process.

Fall 2025 MSE Calendar

- 8/27: Drop/add and late registration deadline
- 9/5: Fee payments deadline (3:30PM)
- 9/29-10/3: UF Career Week
- 10/1: MSE-NE Career Fair (9:00AM – 11:30AM) & Career Showcase Technical Day (9:00AM – 3:00PM) – O'Connell Center
- 11/27: Drop deadline
- 12/3: Honors Thesis Due to ASO
- 12/3: Last day of class
- 12/4-5: Reading days
- 12/6-12/12: Finals Week

Calendar: https://catalog.ufl.edu/UGRD/dates-deadlines/2025-2026/#fall25text
UF Career Showcase: https://career.ufl.edu/events-and-programs/career-fairs/career-showcase/
MSE-NE Career Fair: https://mse.ufl.edu/mse-ne-career-fair/

Nuclear Reactor Facility

- UF Training Reactor
- Constructed in 1959, the UF Training Reactor (UFTR) was one of the first nuclear reactors on a university campus. Today, it is one of fewer than 30 such reactors used for education, training, research, and testing at colleges and universities around the United States.
- The Herbert Wertheim College of Engineering uses the reactor to train students to operate reactors and for laboratory courses in nuclear engineering, physics, chemistry, geology, and environmental engineering. The reactor also serves as a radiation/neutron source for various research programs and experiments, such as trace element analysis of ocean sediments, soil sediments, plants, and biological materials.

Reactor type: Heterogeneous ARGONAUT type

Experiments: Neutron irradiations; neutron activation analysis; neutron radiography, including real-time radiography; detection system use

https://mse.ufl.edu/research/facilities/

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