

Fundamentals of Nuclear and Radiological Engineering, ENU 4934, Section 1738

Online Synchronous (this means you cannot complete the course without being available at the day/time below)

M 1250-1340 (UF “Period” 6)

No Final Exam

Changes to Syllabus

Changes to this syllabus will be provided via the Canvas platform. Such changes may include those required by policy changes, my travel, changes in the speed of course coverage, university closure, errors in previous syllabus versions, and other reasons.

Instructor

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352-294-7870

dlschubring@ufl.edu (This is the best way to reach me. The Canvas “conversations” feature *is not* e-mail and does not send a message to me until I happen to log into Canvas. Therefore, messages sent via that system will not be acknowledged.)

Office Hours (tentative)

M 1350-1450, T 1315-1445, W 1220-1450, F 1350-1450, and by appointment.

End times of M/T/W office hours will be enforced strictly, as I have other engagements (including teaching class) immediately afterwards. There are no office hours on days when no UF classes are held.

Zoom meetings will be provided for each of these. I will log on at the beginning of each period, but may not stay logged-on the entire time. (When I’m holding office hours and no student is around, I try to get some other work done. Some of this work is bandwidth-intensive.) However, if you notice I am not logged-on to an office hour Zoom meeting, please send me an e-mail. I will keep my e-mail auto-checking – I will log on to the Zoom meeting within 10 minutes (usually closer to 5).

Description

Presentations and discussions on topics of current and continuing interest in nuclear engineering sciences.

Prerequisites

None

Course Objectives

This course serves the following purposes: (1) provides an introduction to nuclear physics and nuclear reactors, (2) provides an introduction to career planning, including short-term (scholarships, internships, research) and long-term (employment following graduation), and (3) introduces students to areas of nuclear engineering and related fields through a short series of guest lectures.

Professional Component (ABET)

1 credit Engineering Topics

Program Outcomes (ABET)

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics (medium coverage)
2. n/a
3. an ability to communicate effectively with a range of audiences (low coverage)
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts (low coverage)
5. n/a
6. n/a
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies (low coverage)

Text

None

References

None

Course Schedule

Following the opening lecture, this course consists of two parts. The first is an introduction to nuclear physics (radiation interactions) and nuclear reactors. A total of six recorded lectures will be provided; in addition to office hours, this content will also be supported by optional Q&A sessions at class time. The second is an exploration of your professional futures – a live discussion of college and graduate school panning, a live discussion of career planning, and five “town hall” events, in which other faculty, alumni, and other guests will be available to discuss their areas of expertise and careers in that area.

Date	Due	Material
31 Aug		Introduction to Course, Syllabus Review
7 Sep		NO CLASS (UF HOLIDAY)
14 Sep		College and Graduate School Planning) Attendance Will Be Taken
21 Sep	HW 1 (Scholarship Essay)	Introduction to Radiation Interactions (1/3)
28 Sep	HW 2 (Essay Revision)	Introduction to Radiation Interactions (2/3)
5 Oct	HW 3 (Rad. Interact.)	Introduction to Radiation Interactions (3/3)
12 Oct		Town Hall – Radiation Detection and National Security Attendance Will Be Taken
19 Oct	HW 4 (Rad. Interact.)	Nuclear (Fission) Reactions/Reactors (1/3)
26 Oct		Nuclear (Fission) Reactions/Reactors (2/3)
2 Nov	HW 5 (Reactors)	Nuclear (Fission) Reactions/Reactors (3/3)
9 Nov		Town Hall – Nuclear (Fission) Reactors Attendance Will Be Taken
16 Nov	HW 6 (Reactors)	Career Planning Attendance Will Be Taken
23 Nov		Town Hall – Nuclear Materials Attendance Will Be Taken
30 Nov	HW 7 (Career Planning)	Town Hall – Subjects TBD Attendance Will Be Taken
7 Dec		Town Hall – Subjects TBD Attendance Will Be Taken
9 Dec	HW 8 (Career Planning)	Due Date Only – 11:59 pm

Grading

Grades will be assigned based on the following weighting

- Attendance and Participation (300 points)
- Homework (800 points – 8 assignments, 100 points each)

& the following scale

- A: 87%+
- A-: 85-86.99%
- B+: 83-84.99%
- B: 75-82.99%
- C: 66-74.99%
- E: < 66%

The gradebook on Canvas is used to enable you to look up grades quickly. Note that this gradebook is *not* official. I reserve the right to correct errors, including transcription errors, from the official (spreadsheet) gradebook, to which I alone have access, until finalization of grades with the registrar.

More information on UF grading policy may be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Grading Notes

1. I reserve the right to grant higher grades at the end of the course at my sole discretion, including the use of B- and C+. Under no circumstances will grades of C- or any flavor of D be used.
2. The gradebook on Canvas is used to enable you to look up grades quickly. Note that this gradebook is *not* official. I reserve the right to correct errors, including transcription errors, from the official (spreadsheet) gradebook, to which I alone have access, until finalization of grades with the registrar.
3. Under no circumstances will a homework be accepted after solutions have been released. If you have any form of excuse/accommodation that delays your due date until after the release of solutions, that will be taken as an excused homework for you. The weighting of your other homework will then be increased to ensure homework is 8/11 of your grade.

Grade Appeal

All appeals of grades, including those from clerical/grade-calculation errors, must be made within 1 week of return. (This may be modified for specific assignments near the end of the term. I will announce this via e-mail as needed.) Appeals will be considered for clerical errors, addition errors, and inconsistent scoring. Grade appeals will not be entertained if you simply do not like that (for example) Part 1 was worth only 2 points with Part 2 worth 5.

Grade appeals must be provided in the following format:

- Provide, in PDF format only, a written summary of which problem(s) or part(s) you believe were graded inaccurately. Be as specific as possible.
- Send your appeal in the form of an e-mail with “ENU 4934” and “Grade Appeal” in the subject line.

You will be informed of the result of your appeal via e-mail reply.

On very rare occasions, if I believe you are not acting in a good faith belief that more points are deserved, I will deem the appeal frivolous. Following two frivolous appeals, your grade appeal privilege through this method will be *revoked*. Further appeals must be done through the petitions process, which requires formal paperwork and department/program level involvement.

Course Policies

Attendance and Participation

There are seven sessions at which attendance will be taken for a grade (one “A/P mark” – attendance/participation mark – per session); this is noted in the schedule. Students logging on to Zoom after 1255 may not receive credit; those who leave early may also not be credited.

You are required to *actively* participate in class. Participation points may be earned by contribution to the discussion in these seven sessions, either verbally or via chat, or by sending questions for our town hall guest speakers to me prior to class. Any constructive participations will earn

an A/P mark; a second A/P mark may be awarded for particularly valuable contribution. (The instructor retains full discretion on what qualifies as “particularly valuable”.) You may not earn 3 A/P marks in a single day.

If there are 19 students or fewer as of September 14, the expected number of participations will be 4, the maximum number of A/P marks earned by participation will be 5, and each of the first 10 A/P marks is worth 30 course points.

If there are 20 students or more as of September 14, the expected number of participations will be 3, the maximum number of A/P marks earned by participation will be 4, and each of the first 9 A/P marks is worth 34 course points with the tenth worth 28.

It is possible to skip any one of the seven required sessions without penalty and possible to skip two by participating an “extra” time. Students who have two or more excused absences (see policy below) will have the value of their A/P marks increased to accommodate this issue. For example, if a student has three excused absences and the class size is 19 or fewer, that means attendance at four classes and four participations is expected; since $300/8$ is 37.5, this student would earn 38 points for each of their first seven A/P marks and 34 for the last.

Required COVID Statement

Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the “chat” feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

*The statement above is required by UF policy. However, the seven “attendance required” sessions will not be recorded for dissemination to the class – again, this is a **synchronous** online class.*

Decorum for Zoom Meetings/Synchronous Classes

The guiding principle is: *do not distract your instructor or classmates.*

- You are not required to turn on your video. If you are (1) using a busy internet connection, (2) are further than 300-350 miles from Gainesville (that is, beyond Miami or Atlanta or Pensacola), (3) multitasking in a way that may distract, or (4) likely to be interrupted, please leave it off except for (if you wish) when you actively conversing with a town hall guest.
- You should mute yourself unless actively speaking/conversing.

Excuse Absence and Late Work Policy

Excuses for absence and late work can be grouped into the categories of *professional*, *medical*, and *personal*.

Professional: Reasonable extensions for job/internship interviews, technical conferences, or other professional/career development reasons should be requested. Most requests are granted,

excluding those that provide a student or group of students an unfair advantage, cause significant disruption to the course or grading schedule, or violate some UF policy.

Medical: Extensions will also be granted for (your own) medical reasons – please do not come to class if you are ill. Per UF policy, in the case of medical issues that are frequent or suspiciously-timed (*e.g.*; you are repeatedly, suddenly ill at deadlines), I may request a signed note from a physician or similar professional practitioner.

Personal: In addition, UF policies require accommodation for several non-academic, non-medical reasons. Extensions for these personal issues are generally limited to those mandated by the letter of UF policies. The list of UF-approved personal reasons changes from time to time. If you have a question regarding your personal issue and if it qualifies under one of the excused absence/late-work policies, contact me in advance.

I reserve the right to grant extensions for other personal reasons as *rare exceptions to the rule* at my sole discretion – advance notice gives you the best chance at a favorable decision. The approval of an extension does not establish precedent for that student (notably, there are some scenarios that I may accommodate only once) or for other students with similar circumstances.

The 12-day rule will be enforced strictly. Note that the count of days is based on a per-student, not per-approved-activity basis.

For the purposes of this course, in the above-referenced list of approved absence (extension) reasons, the word “family” shall be taken to mean your parents, grandparents, great-grandparents (etc.); children, grandchildren (etc.); siblings; aunts/uncles; nieces/nephews; your spouse and the spouse of any of the above; and half- or step- “versions” of the above categories. More distant relatives (a cousin, your spouse’s sibling’s spouse, etc.), partners (excluding spouses), and pets are not included. Minor illnesses (guideline: anything meriting home care only or care at a walk-in clinic, as opposed to an ER) of family members, including minor children, do not count as serious family emergencies, nor do events such as birthdays, anniversaries, weddings, etc.

Political activities, including protests, demonstrations, and the like are considered personal matters and not generally permitted as reasons for extensions. This includes activities related to nuclear engineering or nuclear power. Exceptions: (1) if you are pursuing nuclear-related (whether pro- or anti-) politics as a career path, you may be granted extensions, at my discretion, on condition of providing evidence of *bona fide* efforts to secure a full-time position or to secure admission to a relevant, non-STEM degree-granting graduate program and (2) activities between November 13 and November 20, inclusive, that are connected to the 2020 ANS “Winter” Meeting will be taken as related to that professional activity and potentially grounds for extensions.

Further, be advised that any approved reasons for extensions do not reduce the amount of work you are expected to complete, but merely rearranges the timing. For those issues that are predictable (interview, holidays, etc.), you should work ahead to avoid disruption. In the case where your extension (or other accommodation) adversely affects a group project, I may modify the assignment and/or groups for those concerned to minimize the disruption of one student’s issues on other group members.

Pursuant to HWCoe policy, the following statement is required: Excused absences are consistent with university policies in the undergraduate catalog

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>
and require appropriate documentation.

Homework

Excluding the make-up work policies, above, no late homework will be accepted.

Homework must be submitted electronically (via Canvas). Submissions may include multiple files, but only files with the following extensions will be accepted: pdf, xls, xlsx, and txt. For handwritten homework, use pencil or black/dark-blue ink and either white paper (lined or not) or engineering paper. If you choose the combination of pencil and (yellow) engineering paper, write largely/clearly enough to be easily readable. Homework on other paper or with other writing instruments will be accepted, but you will earn no credit for homework that is not readable. Make sure the scan quality is sufficient to ensure readability.

Electronic Communication

The primary means of communication with the class outside of class time will be e-mail listserv. These listservs will send to your @ufl.edu address only. Any inquiries regarding grading will be directed towards your @ufl.edu address only, per FERPA.

You will receive an update e-mail on a weekly basis, usually on Friday. This will serve as a reminder of all synchronous sessions, recorded lectures to watch, and due dates for the next week. Relevant opportunities or items-of-interest may also be included.

Technical and procedural questions will be answered as a reply to whatever e-mail address you used to send them. If the entire class will benefit from the answer, I may send to the class list (either in lieu of or in addition to a direct reply to you, at my discretion). If you do not wish to have a specific e-mail to me regarding technical content or course procedures replied to through the class list, you must explicitly state this in that e-mail. In such a case, I will reply directly to you and send a general-purpose announcement to the class list, not indicating who caused me to send it.

When sending questions via e-mail, please make sure you provide all the information needed for me to produce an answer or solution. This includes any files on which you are working. (Note: I will not open files from you in the following formats: .ppt, .pptx, .doc, .docx; make a PDF and send that if needed.)

Letters of Recommendation/Evaluation Policy

To request a letter of recommendation/evaluation (for graduate school or otherwise), you must provide (all in a single e-mail):

- A copy of your UF transcript.
- A copy of a résumé (or CV).
- A copy of the following form with all four circles checked (requests with three or fewer circles checked will be denied):
<http://www.registrar.ufl.edu/pdf/ferparelease.pdf>.

Syllabus Boilerplate

Students Requiring Accommodations

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc>) by providing appropriate documen-

tation. Once registered, students will receive an accommodation letter which must be presented to me when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluations

The University of Florida expects students to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at: <https://gatorevals.aa.ufl.edu/students/>

Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>

Summaries of course evaluation results are available to students at: <https://gatorevals.aa.ufl.edu/public-results/>

University Honesty Policy

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code:

<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>

specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Commitment to a Safe and Inclusive Learning Environment

The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Undergraduate/Graduate Program Coordinator [for NE/NES students, these are both also your instructor]
- Robin Bielling, Director of Human Resources, 352-392-0903, rbielling@eng.ufl.edu
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, nishida@ufl.edu

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see:

<https://registrar.ufl.edu/ferpa.html>

Campus Resources

Health and Wellness

U Matter, We Care

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Counseling and Wellness Center:

<http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Discrimination, Harassment, Assault, or Violence

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the Office of Title IX Compliance, located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, title-ix@ufl.edu

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu

<https://lss.at.ufl.edu/help.shtml>

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling.

<https://www.crc.ufl.edu/>

Library Support, Various ways to receive assistance with respect to using the libraries or finding resources.

<http://cms.uflib.ufl.edu/ask>

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.

<https://teachingcenter.ufl.edu/>

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.

<https://writing.ufl.edu/writing-studio/>

Student Complaints Campus:

https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf

On-Line Students Complaints:

<http://www.distance.ufl.edu/student-complaint-process>