

Reactor Thermal Engineering 3

ENU 4134 Section 221E

Class Periods & Location: MF 1500-1550 (UF “Period” 8) in Turlington Hall 2322 and W 1500-1655 (UF “Periods” 8-9) in Turlington Hall 2349

Academic Term: Fall 2025

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

Instructor:

DuWayne Schubring, Ph.D., Instructional Professor

317A Materials Engineering Building (MAE, not MAE-A, MAE-B, or MAE-C)

352-294-7870

dlschubring@ufl.edu (This is the best way to reach me. The Canvas “Inbox” feature is not real e-mail. Messages sent via that system will not be acknowledged.)

No Teaching Assistant, Grader, etc.

Office Hours: M 1245-1345; T 1315-1415; WRF 1255-1415

Office hours are held in a hybrid format, with online availability via the following Zoom link:

<https://ufl.zoom.us/j/9057355922>

For Zoom attendees: if you are in a private space (e.g.; your own house or apartment, a dorm room, etc.), please turn your camera off. If you are in a public space (e.g.; unused classroom, outdoors at UF), your camera status is at your discretion.

At the beginning of an office hour block, all those in line in person at the start of the office hour block will be addressed first, followed by those on Zoom who have been there since the start of the office hour block. If there is a line, visits are limited to 10 minutes per student or group. If you have further questions, you may go to the back of line and potentially return. Once both lines are cleared, I will continue on a first-come, first-served basis with no preference for in-person vs. Zoom.

End times of office hours will be enforced strictly, even if students are still waiting, as I have other engagements (including teaching class) immediately after each office hour block.

There are no office hours on days when no UF classes are held, including reading days and finals week.

Course Description

Covers two-phase flow and heat transfer topics for the analysis and design of light water reactors, single-channel analysis, boiling water reactors, steam generators, natural circulation, and accident scenarios in nuclear fission energy systems. (4 credits)

Course Pre-Requisites / Co-Requisites

Change in progress. From: EML 4140 + (EGN 3353C or ENU 4133) to ENU 4133 or (EML 4140 + EGN 3353C)

Course Objectives

- Students will develop an understanding of two-phase flow and phase-change heat transfer and demonstrate the ability to analyze these phenomena, including their applications to reactor systems. (Modules 49 through 59, Exams 1-2, HW 1-6).
- Students will produce a code in a scripting or compiled language to perform single-channel analysis of a light water reactor system. (Module 60, Project 1)

- Students will demonstrate understanding of existing boiling water reactor systems and of current and future light water reactor systems. (Modules 61-67, HW 7, Exam 3)
- Students will demonstrate knowledge of the types of light water reactor accidents and accident progressions, including the chronology and root causes of such accidents. (Modules 68-72, HW 8, Exam 3, Project 2)

No Materials and Supply Fees

Relation to Program Outcomes (ABET):

Outcome	Coverage*
1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	High
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	Medium
3. An ability to communicate effectively with a range of audiences	Medium
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
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative environment, establish goals, plan tasks, and meet objectives	Medium
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	Low
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies	Low

Required Textbooks and Software

Nuclear Systems I: Thermal Hydraulic Fundamentals, N.E. Todreas and M.S. Kazimi, 2011 (2nd edition). (ISBN: 9781439808870). This text ("T&K") may be useful as a reference for this course, ENU 4191/4192, and your future career and may be worth purchasing. However, you can complete this course without it. I do not recommend renting the book or buying it with intent to sell it back at the end of the term.

Notes are also provided on Canvas.

To complete some of the homework and projects in this course, access to a programming or scripting language such as MATLAB, Python, FORTRAN, C, C++ (etc.) and a spreadsheet application, will be required. The department also has a license for Engineering Equation Solver (EES). This program can iteratively solve large systems of non-linear equations, enable efficient parametric studies and optimizations, and produce high-quality plots. It also includes thermodynamic and transport property look-ups. These capabilities will make some homework problems easier to solve, but use of EES will not be required in this course.

Recommended Materials

N/A

Required Computer

Recommended Computer Specifications: <https://it.ufl.edu/get-help/student-computer-recommendations/HWCOE> Computer Requirements: <https://www.eng.ufl.edu/students/advising/fall-semester-checklist/computer-requirements/>

Course Outline and Schedule

The course is divided into 24 modules, with the first being Module 49 (continuing the numbering from ENU 3132/4133). The modules are not equally long, whether measured slide count, page count in the text or in supplemental materials on Canvas, time spent in class, or student effort. Each module is supported by online lecture notes; Modules 49-59 also have relevant content in T&K. The notes for Modules 49-61 are complete on Canvas as of the first day of class; the remaining modules will be added during the term and you will be advised as each folder is finalized. Since T&K is primarily a graduate-level textbook and is not written in the same order as this course is taught, these notes are intended to distill the key points of the modules for use in this course

- 49. Averaging in Two-Phase Flow [T&K, Sections 5.1 through 5.4]
- 50. Transport in Two-Phase Flow [T&K, Sections 5.5 through 5.7]
- 51. Homogeneous Equilibrium Model [T&K, Sections 11.1 through 11.4, 11.5.2]
- 52. Separated Flow Model and Void Fraction Correlations [T&K, Section 11.5]
- 53. Pressure Loss in Two-Phase Flow [T&K, Section 11.6]
- 54. Flow Regimes in Two-Phase Flow [T&K, Section 11.2]
- 55. Boiling Heat Transfer -- Fundamentals [T&K, Sections 12.1 through 12.5, 13.1, 13.2]
- 56. Boiling Heat Transfer -- Correlations [T&K, Section 13.3]
- 57. Boiling Heat Transfer -- Critical Heat Flux [T&K, Section 13.4]
- 58. Condensation Heat Transfer [T&K, Section 12.7]
- 59. Single Channel Analysis (SCA) Methods [T&K, Chapter 14]
- 60. Critical Flow [T&K, Section 11.7]
- 61. Steam Generators
- 62. Thermal Design Principles
- 63. BWR -- Introduction
- 64. BWR -- Core
- 65. BWR -- Primary Systems
- 66. BWR -- Stability
- 67. BWR -- Auxiliary Systems and Accident Mitigation Equipment
- 68. General Approach to Nuclear Accidents
- 69. The Three Mile Island Accident
- 70. The Fukushima Accident
- 71. Generation III and III+ Light Water Reactors
- 72. Small Modular (Light Water) Reactors

Week	Day	Date	Due	Material
1	F	22 Aug		M49 – Averaging in Two Phase Flow
2	M	25 Aug		M49 – Averaging in Two Phase Flow
2	W	27 Aug		M49 – Averaging in Two Phase Flow & M50 – Transport in Two-Phase Flow
2	F	29 Aug	HW 1	M50 – Transport in Two-Phase Flow
3	M	1 Sep		NO CLASS (UF HOLIDAY)
3	W	3 Sep		M51 – Homogeneous Equilibrium Model

3	F	5 Sep	HW 2	M52 – Separated Flow Model and Void Fraction Corr.
4	M	8 Sep		M52 – Separated Flow Model and Void Fraction Corr.
4	W	10 Sep		M53 – Pressure Loss in Two-Phase Flow
4	F	12 Sep	HW 3	M54 – Flow Regimes in Two-Phase Flow
5	M	15 Sep		M54 – Flow Regimes in Two-Phase Flow
5	W	17 Sep	Exam 1	Exam 1
5	F	19 Sep		M55 – Boiling Heat Transfer – Fundamentals
6	M	22 Sep		M55 – Boiling Heat Transfer – Fundamentals
6	W	24 Sep		M55 – Boiling Heat Transfer – Fundamentals & M56 – Boiling Heat Transfer – Correlations
6	F	26 Sep	HW 4	M56 – Boiling Heat Transfer – Correlations
7	M	29 Sep		M56 – Boiling Heat Transfer – Correlations
7	W	1 Oct		M57 – Boiling Heat Transfer – Critical Heat Flux
7	F	3 Oct	HW 5	M58 – Condensation
8	M	6 Oct		M59 – Critical Flow
8	W	8 Oct		M59 – Critical Flow & M60 – Single Channel Analysis
8	F	10 Oct	HW 6	M60 – Single Channel Analysis
9	M	13 Oct		M61 – Steam Generators
9	W	15 Oct		M62 – Thermal Design Principles
9	F	17 Oct		NO CLASS (UF HOLIDAY)
10	M	20 Oct		M63 – BWR – Introduction
10	W	22 Oct	Exam 2	Exam 2
10	F	24 Oct		M64 – BWR – Core
11	M	27 Oct		M65 – BWR – Primary Systems
11	W	29 Oct		M65 – BWR – Primary Systems & M66 – BWR – Stability
11	F	31 Oct	Project 1A	M67 – BWR Auxiliary Systems & Accident Mitigation
12	M	3 Nov		M67 – BWR Auxiliary Systems & Accident Mitigation
12	W	5 Nov		M68 – General Approach to Nuclear Accidents

12	F	7 Nov	HW 7	M68 – General Approach to Nuclear Accidents
13	M	10 Nov		M69 – Three Mile Island Accident
13	W	12 Nov		M70 – Fukushima Accident
13	F	14 Nov	Project 1B	M71 – Generation III/III+ LWRs
14	M	17 Nov		M71 – Generation III/III+ LWRs
14	W	19 Nov		M71 – Generation III/III+ LWRs & M72 – Small Modular LWRs
14	F	21 Nov	HW 8	M72 – Small Modular LWRs
15				NO CLASS (Thanksgiving Week)
16	M	1 Dec		Project 2 Presentations
16	W	3 Dec	Project 2	Project 2 Presentations
17	F	12 Dec	Exam 4	Exam 4 (Take Home, Due at 1231)

Important Dates

See schedule above for all due dates. (What qualifies as “important” will depend on each individual student’s grade goal and other goals for the course.)

Grading

There are 1000 total points in the course. These points are equally valuable.

- Exams (425 points total)
 - Exam 1 – 135 Points – Covers Modules 49-54
 - Exam 2 – 150 Points – Covers Modules 55-62
 - Exam 3 – 140 Points – Covers Modules 63-72
- Project 1: Single Channel Analysis (SCA) Code Development and Use for Thermal Design (200 points total)
 - Part A – Code: 50 points
 - Part B – Report: 150 points
- Project 2: Analysis of a Specific Reactor Accident (125 points)
- Homework (250 points total – values by assignment below)
 - Module 49 (25)
 - Modules 50-51 (25)
 - Modules 52-53 (45)
 - Module 55 (25)
 - Modules 56-57 (45)
 - Modules 58-59 (30)
 - Modules 63-67 (25)
 - Modules 68, 71, and 72 (30)

Grading Scale

Percent	Grade	Grade Points
87 - 100	A	4.00
85 - 86.99	A-	3.67
83 - 84.99	B+	3.33

75 - 82.99	B	3.00
66 - 74.99	C	2.00
0 - 65.99	E	0.00

Grading Notes

- 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.
- Exam 1 and Exam 2 are individually curved. The details of this curve are included as part of the Exam Previews.
- No single item exceeds 15% of your course grade. This emphasizes consistent performance in this course and limits the deleterious effect on your grade of a single poor exam.
- Except on the Projects (Project 1A – Code & the document professionalism line-items of Project 1B and Project 2), grading in this course is plus-based. That is, I award you points based on correct steps, rather than deducting points for errors. As a result, a question such as, “Dr. Schubring, why did you take off 2 points here?” is both presumptuous and nonsensical, since you never had the points.
- There is no general protection against double jeopardy. Points are often allocated, particularly on exams, to each specific step and to obtaining the final, correct answer in each problem -- a single error will prevent you from earning points at that step and for the final answer.
- Per UF policy, grades are entered into Canvas to enable you to look up grades quickly. These grades are manually copied from other documents. I reserve the right to correct data-entry errors, as well as other errors, until finalization of grades with the registrar.

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.

It is inevitable that scoring of essay answers is somewhat subjective; a margin of error of one point per line-item is applied for this reason. That is: if you receive a grade of 7/10 on an essay-like question, only those appeals that propose a grade of 9/10 or better will be considered.

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 (a) “ENU 4134” and (b) “Grade Appeal” in the subject line.

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

If I believe you are not acting in a good faith belief that more points are deserved, I will deem the appeal frivolous. Requests to change an essay-like line-item by only one point will also be considered 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.

Canvas and Electronic Communication

The Canvas platform will be used for file storage and for posting assignments and grades. I take no responsibility for downtime of this service, nor for actions of University of Florida staff that affect the website (including Canvas upgrades).

Within the files on Canvas is a folder called “Old Course Materials”. All files in the folder are provided on an as-is basis, with no guarantee of relevance or applicability to this Fall 2025 run of ENU 4134. This folder includes selected content from ENU 3132 (Fall 2024) and ENU 4133 (Spring 2025), as well as ENU 4134 (Fall 2024) and

ENU 4144 (Spring 2024). Regarding the latter pair of courses, a guide to which old 4134/4144 content corresponds to which modules and work in this semester's ENU 4134 is provided.

As discussed on the first page, do not use the Canvas Inbox feature to contact me. I only access Canvas when needed and therefore cannot guarantee rapid replies. Therefore, to avoid inconsistent responsiveness, I do not use Canvas's pseudo-e-mail at all. Instead, use real e-mail (address in that same section), which I check frequently. The primary means of communication to the class outside of class time will be e-mail listserv. This listserv will send to your @ufl.edu address only. Any inquiries regarding grading will be directed towards your @ufl.edu address only, per FERPA.

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, particularly EES 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.)

Homework and Projects

Projects must be submitted electronically (via Canvas). HW may be submitted electronically (via Canvas) or in hard copy. The Canvas deadline will usually be at 2359, with the hard copy deadline at an earlier time that day (usually beginning of class or end of office hours if there is no ENU 4134 that day).

The following restrictions apply for electronic submissions:

- Submissions may include multiple files, but only files with the following extensions will be accepted: pdf, xls, xlsx, ods, numbers, ees, txt, and (for the Projects only) zip. This zip archive may not contain any ppt, pptx, doc, or docx files. Such files will be ignored for the purposes of grading.
- If a hard copy and electronic submission are provided on a homework, the hard copy will take precedence. (Only it will be read, reviewed, and graded.) You may not submit parts of the assignment electronically and parts in hard copy.
- If multiple students in a Project group independently submit to the same deadline, the submission by the student whose name is listed earlier on the assignment that I post to Canvas will take precedence. (One student must submit the entire project -- different students submitting the project narrative and supporting zip archive is not allowed.)

The onus is on you to submit the solutions in the documents or files presented. In the case of EES files, I will only use Solve, Min/Max, and Evaluate Parametric Table functions. You may not have a single file to solve multiple problems with instructions for all but one problem commented out, with a list of instructions to complete a scavenger hunt for the remaining problems.

The projects must be written using word processing or typesetting software. Professional document and figure standards will be enforced the project. The onus is on you to figure out how to meet these standards in whatever programs you use to write the document and make figures. I have exactly zero sympathy for those who select a word processor without knowing how to format their text using it – complaints that the standards are not the same as a particular piece of software's defaults will not lead to a revision of requirements or grading.

The following restrictions apply for hard-copy submissions as well as electronic submissions of scanned handwritten work:

- Use pencil or black/dark-blue ink and either white paper (lined or not) or engineering paper.

- Use a one-column layout. Each problem should appear beneath the previous or on a new sheet of paper, not next to other problems.
- Submissions, or any part thereof, that are unreadable will earn zero credit.
- Submissions that are only readable with unusual effort, difficulty, or unpleasantness (e.g.; text too small to read comfortably, writing too light to see with normal indoor illumination, poor penmanship, etc.) and those that violate the first and/or second bullet point in this list will be subject to a 10% deduction for the first instance, followed by a 30% deduction for the second, and zero credit for the third and further instances. These progressive penalties apply to these issues as a set. For example, a 10% penalty for a multi-column layout will be followed by a 30% penalty for homework submitted on bright orange paper.

Many assignments require the use of fluid properties. Use only those properties from EES, including from the tabular listing provided on the course website. No points will be awarded on problems solved with any other set of properties, including those in the back of T&K.

Collaboration

Projects will be done in groups. I will assign the groups. A peer review system is in place with a goal of equal workload among students in each group. In the event the workload is significantly unequal, I reserve the right to adjust individual grades to accurately reflect contributions to the work.

The ground rules for collaboration should be decided by each group through compromise and consensus. However, regardless of the preferences of the group as a whole, each of you retains the individual right to privacy and to maintain good mental and physical health. To this end, no one shall be compelled:

- To join a real-name social networking site or modify their existing use of such a site, or
- To accept a 24/7 or other onerous on-call policy.

That is: each member holds a unilateral veto on using Facebook (or some such) for your group's work or for being contacted at all hours of the day and night.

Inter-personal issues within your group stemming from deciding group rules must be brought to me promptly for arbitration. This arbitration will focus on the guidelines above with a goal of equal marginal/new inconvenience among group members and not on determining whose activities outside this course (including personal pursuits, situations, and choices) are more meritorious.

No collaboration is permitted between groups on Projects.

Attendance and Make-Up Work Policies

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.

Skip at your peril. Attendance is not directly considered in the grade. I reserve the right to take attendance to prioritize e-mail assistance.

Late-work excuses/extensions and excused absences from exams 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 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.

All requests for extensions, including excused absences from exams, must be submitted in writing, preferably via e-mail.

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.

One UF-allowed personal reason for absence or extension is serious accidents or emergencies affecting the student, their roommates, or their family. The word roommates is ambiguous between those with whom a student shares a residence (housemate or flatmate) and only those with whom a student shares a bedroom. For the purposes of this course, roommates shall be taken to mean those with whom a student shares a residence. Further, no definition of family is provided. Therefore, the following people shall be taken as included as family for the purposes of this course:

- Spouse, domestic partner, great-grandparent, grandparent, parent, brother, sister, child, grandchild, or the grandparent, parent, brother, sister, child, grandchild, or great-grandchild of the student's spouse or domestic partner, or the spouse or domestic partner of any of them. This also includes individuals for whom the student is the current legal guardian. These are based on the UF definition of immediate family, which can be accessed at: http://benefits.hr.ufl.edu/wp-content/uploads/sites/3/2018/05/immediate_family_defs.pdf. Note that the term domestic partner does not apply automatically to any partner with whom you cohabitate (formal registration with UF is required). That is, if you have not registered with UF, an accident involving your partner would count, but not one involving your partner's parent, child, etc.
- Your own aunt/uncle, great-aunt/uncle, nibling (niece or nephew), or great-nibling.

More distant relatives (a cousin, your spouse's nibling, etc.), partners (excluding spouses or those with whom you cohabitate), friends (other than roommates), 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 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 8 and 13, inclusive, that are connected to the 2025 ANS Winter Conference and Expo will be taken as related to those professional activities and potentially grounds for extensions.

Further, be advised that any approved reasons for extensions do not reduce the amount of work you are required 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.

Unexcused Late Work Policy

Unexcused late HW and Project 1 submissions are accepted until 2359 on the following Sunday, with a penalty of 1/3 of earned points for HW or Project 1A and a flat 25 point penalty for Project 1B.

- All reduced-credit, unexcused-late submission must be via Canvas.

- On-time submissions generally take precedence over those in the reduced-credit, unexcused-late period. Exception: if I review an on-time submission and determine that it is not responsive (e.g.; file cannot be opened, file is for the wrong assignment or wrong class), you may be offered the opportunity to submit during the reduced-credit period. This is not to be taken as a guarantee that I will always perform this review prior to Sunday at 2359.
- A late Project also permits late peer reviews, with the same 2359 Sunday deadline. (On-time Projects do not permit for late peer reviews at reduced value.)
- Instructor availability and e-mail responsiveness are not guaranteed after the end of that week's office hours.
- In the event that lecture coverage falls behind such that a full-class extension is offered, that extension will generally be until 2359 the following Sunday. In this case, there will no late submissions accepted.

Except as stated in this section and the previous, no late work is permitted.

Examinations

For each exam, you will receive an Exam Preview, intended to prepare you for taking the exam (both technically and procedurally). Detailed policies (including grading/curving) are included on this document. The preview will also include the specific topics addressed by the problem (for most problems), the way points are distributed among problems, and a brief list of topics within the scope of the exam.

Exam 1 and Exam 2 are due at the end of the examination period. No collaboration is permitted during examinations, although you may prepare for these however you choose. The criteria for make-up exams are the same as for extensions to other assignments. All make-up exams will be held after the regular exam, as organized with me. Conflicts in my proposed make-up times with your personal business will not, in general, be accommodated.

In the event that UF requires that any scheduled exam day(s) are done online, all reasonable efforts will be made to ensure that privacy-violating proctoring software is not required. These efforts include, but are not limited to, switching to have more exams of lower point value each (percent of course grade each) to stay below a mandatory-proctoring threshold.

Exam 3 (the Final Exam) will be a take-home exam, due one minute into our assigned period (since this course has drawn the very last exam period). If you are unable to complete the exam by this time and are on pace to pass the course, you will receive a grade of I (Incomplete). If you are unable to complete the exam by this time and are on pace to fail the course, UF policy requires that I assign a failing grade with the notation that you stopped participating before the end of the term. This may have implications on financial aid beyond a simple E grade.

Letters of Recommendation

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 your 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>.

Letters are typically filed once per week. For those of you whom I know only through coursework, my letter typically focuses on an estimate of their rank-in-class and on their performance on projects and challenging problems.

I will only file one batch of letters for each of you during the term. (This policy is designed to keep me from looking up slight changes in your rank/performance multiple times for multiple batches of letters.) I recommend that this batch occur as late as possible in the term to allow me sufficient information (sample size) on your performance to write a useful letter.

I reserve the right to refuse to provide a letter for anyone and am not obligated to provide a reason for such refusal.

Ph.D. Applications – The first duty of every Ph.D. holder is to the truth, whether it is scientific truth or historical truth or personal truth! It is the guiding principle on which inquiry is based, and if you can't find it within yourself to stand up and tell the truth about what happened, you don't deserve to have that degree! (adapted from Captain Picard). If I have {ever caught you in a lie, no matter how small, do not presume that I will write you a letter of recommendation for Ph.D. programs until we have discussed your transgression.

The remaining sections are Syllabus Boilerplate and were written by people other than your instructor. Questions on these items will usually be referred to the responsible level/office within the university, which will take longer than for the sections written by your instructor

Academic Policies & Resources

To support consistent and accessible communication of university-wide student resources, instructors must include this link to academic policies and campus resources: <https://go.ufl.edu/syllabuspolicies>. Instructor-specific guidelines for courses must accommodate these policies.

Commitment to a Positive Learning Environment

The Herbert Wertheim College of Engineering values varied perspectives and lived experiences within our community and is committed to supporting the University's core values.

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

- Your academic advisor or Undergraduate Coordinator
- HWC OE Human Resources, 352-392-0904, student-support-hr@eng.ufl.edu
- Pam Dickrell, Associate Dean of Student Affairs, 352-392-2177, pld@ufl.edu