

This syllabus serves the following course sections:

1. **ENU 4134**
 Reactor Thermal Hydraulics, ENU 4134, Section 221E., Online Synchronous.
 MWF 1500-1550 (UF “Period” 8) and W 1605-1655 (UF “Period” 9)
 Final Exam: 1230-1430, Tuesday, December 15
2. **ENU 6135-Synch**
 Nuclear Thermal Hydraulics, ENU 6135, Section 1C40., Online Synchronous.
 MWF 1500-1550 (UF “Period” 8) and W 1605-1655 (UF “Period” 9)
 Final Exam: 1230-1430, Tuesday, December 15
3. **ENU 6135-Synch80**
 Nuclear Thermal Hydraulics, ENU 6135, Section OVER., Synchronous, 80-99% Online
 MWF 1500-1550 (UF “Period” 8) and W 1605-1655 (UF “Period” 9)
 Final Exam: 1230-1430, Tuesday, December 15
4. **ENU 6135-ASynch**
 Nuclear Thermal Hydraulics, ENU 6135, Sections 1FE2 and 2FED., Online Asynchronous.

The undergraduate (ENU 4134) and graduate (ENU 6135) courses share common lectures and a fraction of common coursework. Some course procedures will vary based on your registration, including differences between 4134 and 6135 and differences among the 6135 sections.. Any reference to “ENU 6135” or “6135” refer to all four of those sections. *You are subject to the procedures of the course and section for which you are registered – you may not mix and match!*

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

4134: Nuclear applications of fluid mechanics, heat transfer and thermodynamics. Two-phase flow and boiling heat transfer. Heat transfer mechanisms in reactor core and sub-channel thermal hydraulics. Steam generator, power cycles, balance of plant. Introduction to thermal design for reactors.

6135: Treatment of nuclear thermal sciences: thermodynamics, fluid mechanics, heat transfer, two-phase flow, boiling; sub-channel thermal hydraulics, steam generator design, balance of plant analysis.

Prerequisites

EML 4140 + (EGN 3353C or ENU 4133)

Course Objectives

This course serves the following purposes: (1) provides an introduction to two-phase flow and heat transfer, (2) covers nuclear applications of thermodynamics, fluid mechanics, and heat transfer, (3) provides an introduction to thermal design of reactors, and (4) reinforces teamwork, communication, and programming skills learned in junior courses.

Professional Component (ABET) – 4134 only

3 credits Engineering Topics

Program Outcomes (ABET) – 4134 only

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics (high coverage)
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 coverage)
3. an ability to communicate effectively with a range of audiences (medium 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. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives (medium coverage)
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions (low coverage)
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies (low coverage)

Text (Optional)

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 available on Canvas, as both a large number of small files and a single .pdf, suitable for printing.

To complete some of the homework and projects in this course, access to a programming or scripting language such as MATLAB, FORTRAN, C, C++ (etc.), a spreadsheet application, and Engineering Equation Solver (EES) will be required. EES will be made available, via departmental license, to all students in this course in time for HW 1.

References

1. *Nuclear Heat Transport*, M. M. El-Wakil, 1978 (1st edition). (ISBN: 0894480146). A second book on nuclear-specific thermal issues.
2. Any undergraduate textbooks (typically aimed at mechanical engineering students) on thermodynamics, fluid dynamics, and heat transfer.

Course Outline

The course is organized into 18 modules, Notes, examples, etc. for each module are in separate folders on the course website. (Any materials for Module 15 will be uploaded later in the term.)

1. Nuclear Applications of Fluid Mechanics and Heat Transfer [T&K, Sections 9.6, 10.5.1.1.3]
2. Averaging in Two-Phase Flow [T&K, Sections 5.1 through 5.4]
3. Transport in Two-Phase Flow [T&K, Sections 5.5 through 5.7]
4. Homogeneous Equilibrium Model [T&K, Sections 11.1 through 11.4, 11.5.2]
5. Separated Flow Model and Void Fraction Correlations [T&K, Section 11.5]
6. Pressure Loss in Two-Phase Flow [T&K, Section 11.6]
7. Flow Regimes in Two-Phase Flow [T&K, Section 11.2]
8. Boiling Heat Transfer – Fundamentals [T&K, Sections 12.1 through 12.5, 13.1, 13.2]
9. Boiling Heat Transfer – Correlations [T&K, Section 13.3]
10. Boiling Heat Transfer – Critical Heat Flux [T&K, Section 13.4]
11. Nuclear Heat Transport [T&K, Sections 3.1 through 3.6.1, 3.9, 8.1 through 8.3, 8.5, 8.7]
12. Single Channel Analysis (SCA) Methods [T&K, Chapter 14]
13. Critical Flow [T&K, Section 11.7]
14. Nuclear Power Cycles [T&K, Sections 6.1, 6.3 through 6.7]
15. Thermal Design Principles
16. Steam Generators
17. Natural Circulation
18. Condensation Heat Transfer [T&K, Section 12.7]

Modules 1-14 and 16-18 are supported by online lecture notes. 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. In the event that lecture coverage lags behind the schedule, Module 18 may be cancelled.

There will be two sorts of lectures/sessions in this course:

1. **Recorded Lectures:** The majority of scientific and technical information will be conveyed through a series of recorded lectures. Similar to the notes and example problems on Canvas, these recorded lectures will be designed to be concise and efficient. This also means that content will be covered *quickly* – these are not the sort of recorded lectures to be half-watched while multitasking, tired, etc. You should watch these before the corresponding synchronous class.
2. **Synchronous Classes:** These sessions serve two goals. First, these sessions will be the primary forum to discuss coursework – the exams, homework, and projects that you will actually need to do to complete the class. Second, each module will also be covered in one or more of these synchronous sessions. Each session will include Q&A on the relevant module; many will also include active learning activities. Unless ENU 6135-ASynch is cancelled due to zero enrollment, these sessions will also be recorded.

Course Schedule

Only those class days with either a synchronous class or a due date are shown. Currently, no Friday synchronous classes are planned. However, they may be added if necessary.

Week/Date	Due	Synchronous Session
1/M/31 Aug		Introduction
1/W/2 Sep		Module 1 – NE Application of Fluid Mech. & Heat Trans.
2/W/9 Sep	HW 1	Module 2 – Averaging in Two-Phase Flow
3/M/14 Sep		Module 3 – Transport in Two-Phase Flow
3/W/16 Sep	HW 2	Module 4 – HEM
4/M/21 Sep		Module 5 – SFM
4/W/23 Sep	HW 3	Module 6 – Pressure Drop in Two-Phase Flow
5/M/28 Sep		Module 7 – Flow Regimes (Part 1/2)
5/W/30 Sep	Exam 1	Exam 1
6/M/5 Oct		Module 7 – Flow Regimes (Part 2/2)
6/W/7 Oct	MP 1	Module 8 – Boiling Fundamentals
7/M/12 Oct		Module 9 – Boiling Correlations
7/W/14 Oct	HW 4 & HW 5	Module 10 – Boiling (CHF)
8/M/19 Oct		Module 11 – Nuclear Heat Transfer
8/W/21 Oct	Exam 2	Exam 2
9/M/26 Oct	HW 6	Module 12 – Single Channel Analysis
9/W/28 Oct	MP 2	Module 13 – Critical Flow

Week/Date	Due	Synchronous Session
10/M/2 Nov	HW 7	Module 14 – Power Cycles (Part 1/2)
10/W/4 Nov	Exam 3	Exam 3 (may be shifted to November 18)
11/M/9 Nov		Module 14 – Power Cycles (Part 2/2)
11/F/13 Nov	Project (Part A)	No Synchronous Class (Due Date Only)
12/M/16 Nov		Module 15 – Thermal Design
12/W/18 Nov		Module 16 – Steam Generators
14/M/23 Nov	HW 8	Project Q&A
14/M/30 Nov		Project Q&A
14/W/2 Dec		Module 17 – Natural Circulation
14/F/4 Nov	Project (Part B)	No Synchronous Class (Due Date Only)
15/M/7 Dec		Module 18 – Condensation
15/W/9 Dec		Course Review
16/T/15 Dec	Exam 4	Exam 4

Grading

There are 1000 total points in the course. These points are generally equally valuable (see the final Grading Note for an exception).

- Exams (125 points each) [50%]
 1. Modules 1 through 5
 2. Modules 6 through 9
 3. Modules 10 through 13
 4. Comprehensive, focus on Modules 14 and after
- Mini-Projects (50 points each) [10%]
 1. Separated Flow Model (Void Fraction Correlations) and Pressure Drop
 2. Nuclear Heat Transport
- Project: Single Channel Analysis (SCA) Code Development and Use for Thermal Design [20%]
 - Code: 50 points
 - Report: 150 points
- Homework (25 points each) [20%]
 1. Nuclear Applications of Fluid Mechanics and Heat Transfer
 2. Averaging in Two-Phase Flow and Transport in Two-Phase Flow
 3. Homogeneous Equilibrium Model
 4. Boiling Heat Transfer – Fundamentals
 5. Boiling Heat Transfer – Correlations
 6. Boiling Heat Transfer – Critical Heat Flux
 7. Critical Flow
 8. Nuclear Power Cycles

Grading Scale

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

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. Each exam is individually curved. The details of this curve are included as part of the Exam Previews.
3. 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.
4. Except on the Project (Code) and on Project/Mini-Project document professionalism, 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.
5. 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.
6. The grade cut-offs for A, B, and C are somewhat lower than the “high-school scale” (90, 80, 70, etc.) under which many UF courses operate. This is not to grant inflated letter grades but rather to account for the inherently challenging nature of two-phase flow and to appropriately award genuinely excellent performances.
7. 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.
8. 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 20% of your grade.

More information on UF grading policy may be found at:

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

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 4134” or “ENU 6135” (select the one corresponding to the class you are in) 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-Specific Policies

Attendance

For students in 4134, 6135-Synch, and 6135-Synch80: *Skip at your peril*. Attendance is not considered in the grade. However, I reserve the right to take attendance to prioritize e-mail assistance. Some materials in the course will not be covered in the textbook or in the notes provided online – only in class. Some example problems and complex figures (hard to digitize, easy to make on chalkboard) fall into this category. You are responsible for these materials, even in the case that 6135-ASynch does not run and no recordings are made.

For those students in 6135-ASynch: You are not allowed to attend live and therefore will be in the highest-priority bin with regard to e-mail assistance. All materials discussed in class will be available to you via recorded sessions.

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.

Make-Up Work Policies

Late-work excuses (extensions) 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 you (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.

Required COVID Statement for 6135-Synch80

*The following statement applies only to this one section. Our only face-to-face session will be Exam 1. Contrary to the following required statement, a classroom **has not yet** been assigned. If this section runs, I presume some appropriate space will be found.*

We will have face-to-face instructional sessions to accomplish the student learning objectives of this course. In response to COVID-19, the following policies and requirements are in place to maintain your learning environment and to enhance the safety of our in-classroom interactions.

- You are required to wear approved face coverings at all times during class and within buildings. Following and enforcing these policies and requirements are all of our responsibility. Failure to do so will lead to a report to the Office of Student Conduct and Conflict Resolution.
- This course has been assigned a physical classroom with enough capacity to maintain physical

distancing (6 feet between individuals) requirements. Please utilize designated seats and maintain appropriate spacing between students. Please do not move desks or stations.

- Sanitizing supplies are available in the classroom if you wish to wipe down your desks prior to sitting down and at the end of the class.
- Follow your instructor's guidance on how to enter and exit the classroom. Practice physical distancing to the extent possible when entering and exiting the classroom.
- If you are experiencing COVID-19 symptoms:

<https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>

please use the UF Health screening system and follow the instructions on whether you are able to attend class.

<https://coronavirus.ufhealth.org/screen-test-protect/>

[covid-19-exposure-and-symptoms-who-do-i-call-if/](https://coronavirus.ufhealth.org/covid-19-exposure-and-symptoms-who-do-i-call-if/)

Required COVID Statement for All Sections

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.

Decorum for Zoom Meetings/Synchronous Classes (Excluding Synchronous Exams)

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

- This will likely be a small class, so I will usually verbally confirm with all participants that two-way communication is working. Those of you who opt out of turning your microphone on may respond via the chat. Please don't turn Zoom on and then walk away – I don't require attendance and this will just confuse.
- 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.
- You should mute yourself unless actively speaking/conversing.

Homework and Projects

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

Homework and projects (including mini-projects) must be submitted electronically (via Canvas). 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 Mini-Projects and Project 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 multiple students in a Mini-Project or Project group independently submit electronically, the submission by the student whose name is listed first 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.)

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.*

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.

The onus is on you to submit the solutions in the documents or files presented. No credit will be granted if the wrong document is handed in or the wrong file uploaded. In the case of EES files, the instructor 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 & provide the instructor a list of instructions to complete a scavenger hunt for the remaining problems.

All projects, including mini-projects, must be written using word processing or typesetting software. Professional document and figure standards will be enforced on projects, including mini-projects. *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 fall on deaf ears.

For those who wish to work more problems (not for credit, but for practice), the Fall 2019 homework assignments are available on Canvas.

Collaboration

Projects, including mini-projects, are to be done in groups. I will assign the groups. A peer review system is in place to assure equitable workload. In the event the workload is not equitable, 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 and in forming an equitable compromise (essentially, 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 teams on projects, including mini-projects.

Examinations

For 4134 and 6135-Synch: all exams will be online, synchronous, and un-proctored (as they are worth 12.5%, below the 15% mandatory proctoring threshold).

For 6135-Synch80: Exam 1 will be held face-to-face; all other exams will be online, synchronous, and un-proctored.

For 6135-ASynch: the exams will be online and proctored. Proctoring policies will be disseminated in the first two weeks of class.

For those who wish to work more problems (not for credit, but for practice), the Fall 2016-2019 exams and solutions are available on Canvas. Note: EES has changed the method for evaluation of properties of water between 2017 and 2018 – the 2016 and 2017 exams all use the old properties. To access the old properties in EES, you must use `steam_NBS` instead of `water` as your substance name.

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.

Examinations 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. Note that conflicts in my proposed make-up times with your personal business will not, in general, be accommodated.

For 4134, 6135-Synch, and 6135-Synch80: UF policy restricts make-up finals to Friday, December 18, 1500-1700, barring a conflict at that time with another make-up in a course of higher number. This rule applies regardless of your personal business, such as travel times. I strongly discourage you from making hard-to-change travel plans such as flight reservations before Friday evening.

In the unlikely event you (1) are unable to complete the exam at the time originally scheduled for allowed reasons, (2) are unable to make the UF-appointed make-up exam time for allowed reasons, (3) do not make-up the exam at some other time prior to the finalization of grades on December 16, and (4) are on pace to pass the course, you will receive a grade of I (Incomplete). In the (also unlikely) case that the first three of these conditions apply but you were 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.

Exams will be different between 4134 and 6135.

If the enrollment of 6135-ASynch is zero, examinations consist of two stages: a closed-note conceptual and open-note problem solving.

If the enrollment of 6135-ASynch is non-zero, 6135-ASynch exams will consist of a single, open-note section only due to limitations in the instructions that can be given to proctors. The exam formats for 4134, 6135-Synch, and 6135-Synch80 may differ from those for 6135-ASynch for some or all exams, will be determined at a later date, and will be disseminated to you via the exam preview.

Finally, note that if UF changes the proctoring threshold to require proctoring of 4134, 6135-Synch, and 6135-Synch80 sessions, *all exam policies* are subject to change to accommodate that new constraint.

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 reproduce 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.)

Course Website (Canvas)

The primary use of the Canvas website is for file storage, as all assignments, lecture notes, etc. will be provided there. I take no responsibility for downtime of this service, nor for actions of University of Florida staff that affect the website (including Canvas upgrades).

Deadline Flexibility

I am well-aware (1) that undergraduate seniors have extremely busy fall semesters and (2) that graduate school often includes “crunch-time” that is not conveniently scheduled around coursework. Reasonable accommodations on homework and projects will be made for professional commitments (conference attendance, taking the GRE, grad school visits, etc.) and, potentially, to minimize conflicts among senior year courses. However, I do not have an efficient means to make myself

aware of all student conflicts and commitments. Therefore, it is up to you to make me aware of issues, for which some accommodations/extensions/flexibility *may* be offered. The more notice you provide, the more likely a favorable outcome becomes.

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>.

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.

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 documentation. 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>