

Nuclear and Radiological Engineering Design
ENU 4192, Section 3249, Spring 2017
W 1500-1800, UF “Periods” 8-10
BLK 0315
Final Exam: None

Instructor

DuWayne Schubring, Assistant Professor
205 Nuclear Sciences Building
352-392-0852
dlschubring@ufl.edu

Office hours: MWF 1230-1330, MF 1500-1600, by e-mail, and appointment. Beginning times of office hours will be enforced strictly. The end time of 1330 will also be enforced strictly. Those in line at 1600 will be served until (at least) 1630. There is no open door policy.

Course Description

Continuation of ENU 4191. Nuclear reactor theory and engineering as applied to design synthesis of reactors. Nuclear, material, thermo-fluid and/or mechanical design considerations of nuclear reactors with particular emphasis on design characteristics. Analytical methods and application of computer codes for design analysis and evaluation. Individual and/or group design involving integration of reactor neutronics, dynamics and control, thermal hydraulics, transient analysis and safety, power production, instrumentation, control, radiation shielding and protection, fuel cycle, fuel behavior and/or cost.

Prerequisites

ENU 4134, ENU 4191 with a minimum grade of C, ENU 4612, and ENU 4630. Co-requisite: ENU 4641.

Course Objectives

This Senior Capstone course will train students in a large team-based project (design of a reactor for a medium HDI country), including all technical areas within the NE undergraduate program. Written and oral communication through five reports will be emphasized, along with weekly progress updates through informal discussions.

Professional Component (ABET)

1. Provide students with the ability to apply advanced mathematics, computational skills, science and engineering science, including atomic and nuclear physics, to identify, formulate, analyze, and solve nuclear and radiological engineering problems.

4. Provide students with the skills needed to communicate effectively, work collaboratively, and understand their professional and ethical responsibilities and the impact of engineering solutions in a societal and economic context so they can pursue successful, productive careers in nuclear and radiological engineering.

Program Outcomes Supported by Course

- (a) An ability to apply knowledge of mathematics, science and engineering for problem solving in engineering;
- (c) An ability to develop an engineering design to meet specific technical requirements within realistic constraints such as economic, environmental, health and safety and reliability;
- (d) An ability to function effectively on multi-disciplinary skills teams;
- (e) An ability to identify, formulate and solve engineering problems;
- (f) An understanding of professional, ethical and regulatory responsibility in engineering practice;
- (g) An ability to communicate effectively, using both oral and written presentations, in engineering practice;
- (h) The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context;
- (i) A recognition of the need for life-long learning and the ability to adapt this to engineering practice;
- (j) A knowledge of contemporary issues as they relate to professional engineering practice;
- (k) An ability to use the techniques, skills and modern engineering tools, including modern computational skills and tools, necessary for nuclear and radiological engineering practice;
- (l) An ability to apply advanced mathematics, science, atomic and nuclear physics and engineering to nuclear and radiological systems and processes;
- (n) An ability to work professionally in one or more of the areas of: nuclear power reactors, nuclear instrumentation and measurement, radiation protection and shielding and radiation sources and applications.

Textbook

None

Reference Materials

Useful references for ENU 419x include, but are not limited to:

1. FE Reference Handbook from NCEES:
<http://ncees.org/exams/study-materials/download-fe-supplied-reference-handbook/>
2. Handbook of Nuclear Reactors Calculations, Vol. I, Ed. Y. Ronen, CRC Press, 1986.
3. A Guide to Nuclear Power Technology, F.J. Rahn, et al., J. Wiley & Sons, 1984.
4. Structural Materials in Nuclear Power Systems, J.T.A. Roberts, Plenum Press, 1981.
5. Principles of Design Improvement for Light Water Reactors, L.S. Tong, Hemisphere Publishing, 1988.
6. Thermal Design of Nuclear Reactors, R.H.S. Winterton, Pergamon Press, 1981.
7. Nuclear Power Plant Design Analysis, Alexander Sesonske, NTIS TID 26241, 1973.
8. Nuclear Reactor Analysis, J.J. Duderstadt & L.J. Hamilton, J. Wiley & Sons, 1976.
9. Nuclear Systems I & II, N.E. Todreas & M.S. Kazimi, HPC, 1990.
10. Heat Transfer and Fluid Flow in Nuclear Systems, Henri Fenech, Pergamon Press Inc, 1981, ISBN 0-08-027 181-2.

11. Nuclear Power Plant Engineering, James H. Rust, Haralson Publishing Company, 1979, ISBN 0-934534-00-4.
12. Nuclear Heat Transport, M.M. El-Wakil, Intl Textbook Co (and ANS), 1971, ISBN 0-7002-2309-6.
13. Nuclear Power Plant's FSARs
14. Nuclear Fuel Cycle: Analysis and Management, Robert Cochran and N. Tsoufanadis, 1993.
15. Nuclear Power Reactor Instrumentation Systems Handbook, Vol. I & II, J. M. Harrer and G.Beckerely, USAEC, 1973.
16. PE Review Manual
17. Nuclear Reactor Kinetics, 2nd Edition, M.S. Ash, 1979.
18. Radiation Detection and Measurement, 2nd Edition, G. F. Knoll, 1979.
19. Radiation Shielding, J. K. Shultis and R. E. Faw, 2000.
20. Nuclear Reactor Theory, Bell and Glasstone, VanNostrand Reinhold Company, New York, 1970.

+ any other textbooks you've accumulated along the way.

Course Schedule

Reports: 45 minute presentations for each group (1500, 1545, 1630, 1715 start times), except on March 1 and April 19 (schedule TBD, may run long).

Informal Discussion

- No other activities: 45 minutes per group (1500, 1545, 1630, 1715 start times).
- All-class sessions (topic as indicated): class session, followed by equal-length meetings for each group (start times as indicated.)

Beginning with the informal discussion on January 11, assume “no other activities” will be held unless otherwise announced by 2359 on the preceding Monday.

Unlike in previous years, the final report will be due at the same time as the final presentation, due to UF final exam policies and the schedule for other ENU courses of higher number.

Week	Day	Date	Material
1	W	4 Jan	Syllabus, Informal Discussions (A,B,C,D – 4:00, 4:30, 5:00, 5:30)
2	W	11 Jan	Informal Discussions (A,B,C,D)
3	W	18 Jan	Report 1 (A,B,C,D)
4	W	25 Jan	Informal Discussions (A,B,C,D)
5	W	1 Feb	Informal Discussions (A,B,C,D)
6	W	8 Feb	Report 2 (A,B,C,D)
7	W	15 Feb	Informal Discussions (A,B,C,D)
8	W	22 Feb	Informal Discussions (A,B,C,D)
9	W	1 Mar	Report 3 [1.5x value] (order TBD)
10	W	8 Mar	NO CLASS (UF HOLIDAY)
11	W	15 Mar	Informal Discussions (A,B,C,D)
12	W	22 Mar	Informal Discussions (A,B,C,D)
13	W	29 Mar	Report 4 (A,B,C,D)
14	W	5 Apr	Informal Discussions (A,B,C,D)
15	W	12 Apr	Informal Discussions (A,B,C,D)
16	W	19 Apr	Report 5 (Final Report) [2.5x value] (order TBD)

Attendance Policy, Class Expectations, and Make-Up Policy

By this point in your college career, it is assumed that you have developed communication and team skills, assimilated a large volume of technical information, and begun to develop engineering judgment. As a capstone course, ENU 4192 will test the degree to which you have achieved these goals. It is a *sink or swim* experience – if you complete this course, you’ll likely get your degree and be allowed to do engineering out in the real world. Passing grades will not be granted to those unable to do so safely and effectively.

This course is meant as a transition to employment from the typical ENU course. Throughout your college experience (and before), instructors expended considerable effort to organize the material for your rapid consumption, but in ENU 4192 *you will not be led step-by-step* through the design project. It is *your job* to formulate design questions, *your job* to break them into manageable chunks, *your job* to acquire and use the tools needed to do the analysis, and *your job* to communicate the results and/or ask for assistance when necessary.

Interaction with Instructor, Other Faculty

Please review my office hours, above. *There is no open door policy for this course.* Barring genuinely exceptionally circumstances, appointments are not available on Tuesday. (A group falling behind and wanting a “bail-out” just before a deadline does not qualify.)

A list of other faculty, their areas of expertise, and office hours will be made available on the course website. Please note that all faculty have significant other responsibilities and most frequently travel. Further, with the exclusion of the lead instructor, assisting ENU 4192 students is not a particularly high priority for the faculty, who must focus on their own teaching, research, chasing money, mentoring graduate students, committee work, etc. before helping you all on this course.

In short: poor planning on your part does not constitute an emergency on our part.

Collaboration

The project will 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 student retains the individual right to privacy and to maintain good mental and physical health. To this end, no student 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.

The following collaborations between groups are allowed, though not required:

- Sending links to files/resources or the resources themselves, provided they were written by someone not in the course. For example, you may send web links, PDFs, online calculation tools, etc.
- Assisting one another with debugging code input files.

The following collaborations between groups are not allowed:

- Exchange of any files, including code input files, code output files, calculation files, reports (including in PDF format), and homework that you prepared yourself.
- Providing information known to be wrong or any other form of sabotage.
- Any collaboration on HW 1 or HW 2.

No collaboration is permitted on HW 3 and HW 4.

Attendance and Late Work

Attendance is required at all-class meetings and at informal discussions and will be taken, starting January 4. You will receive a score of zero for any informal discussion or presentation you miss during an unexcused absence.

Absences and late-work excuses 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. Requests to miss informal discussions will be granted based on the same standards as I applied in ENU 4134/6135. *Requests*

to miss presentations will only be granted in exceptional circumstances, particularly on March 1 and April 19.

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 absences 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 strictly 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 policies, contact me in advance.

All requests for excused absence or extension must be submitted in writing, preferably via e-mail.

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.

For the purposes of this course, in the above-referenced list of approved absence 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 (cousins, *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.*

Note that a group extension is only available if 3 members of your group or 2 members of your group that are the lead and (only) associate engineer in some technical area have an excuse for an extension. If just 1 member of your group has an interview, gets ill, has a religious holiday, *etc.*, the remainder of the group must turn in the report on time.

Further, be advised that any approved absence does 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.

To mitigate the issues with unexpected absences (illness, *etc.*), *keep your associate engineers up to date with your activities in your lead technical areas.*

Class Conduct

There is no tolerance for mobile phones or other electronic disruptions. Such disruptions will lead to the student being told to leave the room for the duration of the class period *and penalized for being absent.* During office hours or appointments: if your phone rings, you will be told to leave the room for the duration of that day’s office hours (or your appointment considered over).

Homework

Homework will be collected at the beginning of your group’s informal discussion or presentation as hard copy. No type of paper or writing utensil is preferred over others (within reason). You must

include the full first and last name of all participating members on group homework assignments as well as on all five reports.

Computers, Printers, Software

ENU 4192 is often quite taxing on student computers, particularly for those involved with the neutronics and shielding efforts. Further, many students' computers are nearing end-of-life status, as befits many students' final undergraduate semesters. It is important that you develop a plan for how to move forward if your computer fails and requires either replacement or a long repair time. While I will help mediate issues within your group, there are no program-level resources available to help with personal computer issues. Similarly, you need to have a robust plan for printing the lengthy report documents and copies of the slides, as extensions are not available if your personal printer fails or if some UF-owned printing resource fails (or even if both happen).

Please contact me if you wish to order additional RSICC codes, preferably as early in the semester as possible. I will not open e-mailed files from students in the following formats: .ppt, .pptx, .doc, .docx. Presentation and word processing documents are best converted to .pdf. I will open spreadsheets in .csv, .xls, or .xlsx format.

Informal Discussions

I will evaluate your performance at informal discussions. These are individual grades, though they will likely be highly correlated to those of your group members. The grades will be assigned based on your preparation for the meeting (being ready to discuss progress, having visuals if needed), with an emphasis on completion of "action items" from the previous meeting.

The informal discussion grades are not intended to evaluate the *quality* of your design work as much as your consistent *process*. Therefore, informal discussion grades tend to not strongly correlate with report grades. Since 86% will earn a grade of A in this course, scores above 26/30 are reserved for demonstration of unusual initiative.

In the event that one or more informal discussions are cancelled, or you are excused from an informal discussion, the only available accommodation is to exclude the score(s). If all 10 are held and you miss none, each is worth 2%. If, for example, one is cancelled due to my (unexpected) travel and you miss another one for the ANS student conference or a religious holiday, each of the remaining 8 are worth 2.5% for you.

Reports

You will receive formal assignments for each of these, a minimum of one week before the due date, including grade information and expected milestones by technical area. Each student will be given an individual score for each report (including presentation), in which areas in which the student focused are weighted more heavily. Details are provided on the assignment for each report. Students who miss the presentation for approved reasons will be evaluated on the report alone; students who miss the presentation without excuse will receive a grade of zero in the relevant categories.

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.

You must write your reports in either Microsoft Word or L^AT_EX and turn in each report in *three different ways*:

1. Electronically, as a single .pdf. This means that at least one of your group members will need to be capable of saving files as .pdf and of combining .pdf files.
2. Electronically, as .doc, .docx, or .zip. A single-file approach is not required. Before selecting any cloud-based collaborative environment, make sure that it is compatible with this requirement.
3. As a single-sided hard copy, placed in a two-pocket portfolio folder or paper-clipped (no staples or other bindings).

The details of electronic submission will be provided on each assignment.

Certain professional document and figure standards will be enforced on 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 fall on deaf ears. The same principle applies to “upgrades” to your writing environment that break formatting.

Each year, ANS has a design competition to which only one group per university may submit. The selection criteria for this group will be based entirely on the final report/presentation score and specified on that assignment, with additional weight (relative to course grade) on novelty and integration of post-Generation II technologies. Runner(s)-up will be invited if their work is also of sufficient quality and the first-place group declines the invitation.

Feedback

You will receive feedback live at all of the above meetings and in written form for everything you turn in. It is vital that you respond to feedback by improving your work *promptly*. Do not wait for the grade to come in before responding to the live feedback in the presentation and any early written feedback. You should have already made progress by the next week’s informal discussion. Issues brought up in one presentation that are not addressed by the next will lead to *major* reductions in your grade.

Consider: if you were working in a real reactor vendor design group, would your supervisor tolerate a 3-4 week turnaround time for response?

Two Key Success Strategies

1. Particularly in the first 6-8 weeks of the course, focus on the longest sequential process in the course – selection of core materials (excluding enrichment/fissile fraction and/or burnable poison), geometric design of core, basic thermal analysis (in-core), determination of enrichment and burnable poison, detailed thermal analysis (in-core) including coupling to reactor physics, [optimization/iteration, if needed], heat exchanger design, power cycle design, detailed economic analysis. No more than 2 of your group members should be focused on other areas, like instrumentation and controls or shielding, at this time. *If you do not have a near-final core by Report 3, you will find it nearly impossible to get an A in this course or to be invited to submit to the ANS design competition.*

2. Be clear what your time frame is when asking me questions such as, “Is this enough work on instrumentation/economics/licensing?” I answer these questions as presented, which has often been in the present tense, leading to student frustration when time passes and their stagnated work falls back below expectations. A level of work that is adequate (for example) for the informal discussion on February 1 may not meet the requirements for Report 2 and will be woefully short for Report 3.

Late Work

No late work is accepted, unless an extension is offered as per the attendance policy above.

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. I will announce this via e-mail if needed.)

Grade appeals must be provided in the following format:

- Include your entire assignment *unmodified*.
- Attach (paper clip preferred) a written summary of which problem(s) or part(s) you believe were graded inaccurately. Be as specific as possible.
- Turn in your appeal to me at class time or during office hours.
- I will review your grade appeal, contact you via your ufl.edu e-mail address, and return the assignment in class. Fairly simple appeals provided to me during office hours may be decided upon while you wait, at my discretion.

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.

Denied appeals may be deemed “frivolous”, if I believe the student is not acting in a good faith belief that more points are deserved. 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.

E-mail

The primary means of communication with the class outside of class time will be e-mail listserv. These 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.

Letters of Recommendation/Evaluation Policy

To request a letter of recommendation/evaluation (for graduate school or otherwise), you must provide:

- A hard copy of your UF transcript.
- A hard copy of a résumé (or CV).
- A hard copy of the following form: <http://www.registrar.ufl.edu/pdf/ferparelease.pdf>. You *must* check all four circles.

Letters are typically filed once per week. For students 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 per student during the term, for any student currently enrolled in a class with me. (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 any student and am not obligated to provide a reason for such refusal.

Evaluation of Grades

- 10% – homework (4 assignments, including 2 at 35 points each and 2 at 40 points each)
- 20% – informal discussions (10, 30 points each)
- 10% – Report 1 (150 points)
- 10% – Report 2 (150 points)
- 15% – Report 3 (225 points)
- 10% – Report 4 (150 points)
- 25% – Report 5 (Final Report) (375 points)

Excluding cases in which informal discussions are missed, this means that there are 1500 equally-valuable points in the course. Each score – all 5 reports, all 4 homework assignments, all 10 informal discussions – will be independently rounded to a whole number of points. Report scores include the corresponding presentation.

Instant fail rule – if your score on the Final Report is 249 points or fewer (less than two-thirds of possible), you will receive a grade of E in the class regardless of your scores on other items.

Otherwise, final grades will be assigned based on percentages as follows:

- A: > 86%
- A-: 84-85.99%
- B+: 82-83.99%
- B: 75-81.99%
- C: 67-74.99%
- E: < 67%

Canvas is used to enable you to look up grades quickly. Note that the Canvas gradebook is *not* official. I reserves the right to correct errors, including transcription errors, from the official

(spreadsheet) gradebook, to which he alone has access, until finalization of grades with the registrar. This includes implementation of the instant fail rule, which is not directly supported in Canvas.

I reserve the right to grant higher grades at the end of the course at my sole discretion, including plus or minus grades, and to round assignment grades to full points. Under no circumstances will grades of C- or any flavor of D be used (they are insufficient for the major, besides).

More information on UF grading policy may be found at:

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

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.

Please note that UF policy, clarified to faculty during the Fall 2016 term, states that no retroactive accommodations are available.

Course Evaluations

UF expects students to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu/evals>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at

<https://evaluations.ufl.edu/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.

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:

<http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html>

Campus Resources

Health and Wellness

U Matter, We Care: If you or a friend is in distress, please contact umatter@ufl.edu or 352-392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center (392-1575) and

<http://www.counseling.ufl.edu/cwc>

University Police Department: 392-1111 or 9-1-1 for emergencies.

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>

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.