

ESI 6325 Applied Probability Methods in Engineering (APME)

Location: Online lectures
Academic Term: Fall 2021

Class setting

Hybrid lectures
Location CSE E122
MWF 12:50 PM - 1:40 PM

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.

Instructors

Mostafa Reisi Gahrooei
Email: mreisigahrooei@ufl.edu

Office Hours: MW, 2pm-3pm (or by appointment), Zoom

Teaching Assistants

- Elif Konyar, Email: elif.konyar@ufl.edu, office hours: TBD (or by appointment).

Please contact through the Canvas website.

Course Description and objectives

Applied probability theory and statistics, probability distribution, statistical sampling and estimation, hypothesis testing, regression, forecasting, reliability engineering, Markov processes, and queuing theory.

By the end of this course you should have a solid understanding of the fundamental methods of probability and statistics, as well as the use of these methods in foundational applications areas used in Industrial and Systems Engineering, including reliability, Markov chains, and Queuing theory.

Course Pre-Requisites / Co-Requisites

Calculus, differential equations, undergraduate probability and statistics or consent of instructor

Materials and Supply Fees

Not applicable

Required Textbooks and Software

- Hayter, 2007, Probability and Statistics for Engineers and Scientists, 3rd Edition, Duxbury (Thomson Brooks/Cole), ISBN #0-495-10757-3 (note: the 4th edition is available and is certainly acceptable).
- Sheldon Ross (2014), Introduction to Probability Models, 11th edition, ISBN: 978-0124079489

Course Schedule

The course Schedule is offered as a guide. This means that it is subject to change, depending on the pace of the class. The instructor might choose to cover parts of the curriculum more extensively, or give extensions to deadlines. The dates of the exams might be subject to change depending on the progress of the class.

Week	Topics	Reference
1	General course information and review of prerequisites Random variables	
2	Discrete probability distributions	
3	Continuous probability distributions	
4	Normal distributions	
5	Exam 1 review Exam 1(Honorlock) Descriptive statistics	Exam 1 on Wed Sep 22
6	Statistics estimation and sampling distributions	
7	Statistical inference Project announcement	
8	Regression analysis	
9	Reliability Project team meetings and discussions	
10	Exam 2 review Exam 2 (Honorlock), Markov chains	Exam 2 on Wed Oct 27
11	Markov chains	
12	Markov chains	
13	Queuing theory	
14	Queuing theory	
15	Project presentations	
16	Project presentations	

Holidays: Monday Sep 6, Friday Oct 8 (Homecoming), Nov 24, 26 (Thanksgiving)

Final Exam: Final exam will be on 12/16/2021 @ 12:30 PM - 2:30 PM (Honorlock)

Exams 1 and 2 will be during the class hours on Wed Sep 22 and Wed Oct 27.

Attendance Policy, Class Expectations, and Make-Up Policy

Attendance Policy

Lectures are recorded and the link to the lectures are provided on canvas. The students are responsible to carefully watch the assigned lectures.

Attendance is not required; however, it is strongly recommended for Sunday classes. Students will be responsible for all material covered in the class. Lectures are there to facilitate efficient learning. You should be focused on the course material and the exercises assigned.

HW policy

We will have optional HWs assigned that will not be graded. These HWs are for you to practice and learn the materials.

Exam and quiz policy

There will be no make-up exams or quizzes.

Medical emergencies are of course excluded if accompanied by a doctor's note. A note indicating that you were seen at the health center the day of the exam is not sufficient documentation of a medically excused absence from an exam. The note must say that you were medically unable to take the exam.

If you fail to take the exam on the assigned day(s) and do not have a valid excuse, there will be no make-up exam and you will be given a zero (0) on the exam. Employment interviews, employer events, weddings, vacations, etc. are not excused absences.

Evaluation of Grades

Assignment	Total Points	Percentage of Final Grade
Course Project	100	20%
Exam 1	100	25%
Exam 2	100	25%
Final Exam	100	30%

Exam grade disputes/inquiries must be made to the instructor within one week after grades are posted. Any grade dispute/inquiry after the specified period will not be considered.

Exam grade inquiries must be written, explaining why your grade should be revisited. Verbal discussions are not accepted.

Grading Policy

Percent	Grade	Grade Points
90.0 - 100.0	A	4.00
87.0 - 89.9	A-	3.67
84.0 - 86.9	B+	3.33
80.0 - 83.9	B	3.00
77.0 - 79.9	B-	2.67
74.0 - 76.9	C+	2.33
70.0 - 73.9	C	2.00
68.0 - 69.9	C-	1.67
64.0 - 67.9	D+	1.33
60.0 - 63.9	D	1.00
57.0 - 59.9	D-	0.67
0 - 56.9	E	0.00

More information on UF grading policy may be found at:

<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#grades>

<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 the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluation

Students are expected 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

- *You are expected to wear approved face coverings at all times during class and within buildings even if you are vaccinated.*
- *If you are sick, stay home and self-quarantine. Please visit the UF Health Screen, Test & Protect website about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email covid@shcc.ufl.edu) to be evaluated for testing and to receive further instructions about returning to campus.*
- *If you are withheld from campus by the Department of Health through Screen, Test & Protect, you are not permitted to use any on campus facilities. Students attempting to attend campus activities when withheld from campus will be referred to the Dean of Students Office.*
- *UF Health Screen, Test & Protect offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the UF Health Screen, Test & Protect website for more information.*
- *Please continue to follow healthy habits, including best practices like frequent hand washing. Following these practices is our responsibility as Gators.*

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: <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the 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, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

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>.