



Fall 2015 EAS 305: Applied Probability & Statistics Inference

Time: 11:00-11:50 AM Monday, Wednesday, Friday
Place: Davis 101, North Campus
Web: Please use [UBlearns](#) to assess all course information

INSTRUCTOR

Dr. Jun Zhuang, 317 Bell Hall

E-mail: jzhuang@buffalo.edu (Please put "EAS 305" on the subject of all your emails).

*** The fastest and best way to reach me is by e-mail. ***

Phone: 716.645.4707 (Office)

Office hours: 12:00PM-1:00PM Monday and 9:00AM-10:00AM Wednesday

TEACHING ASSISTANTS

Ms. Fatemeh Aarabi, xxx Bell Hall

E-mail: faarabi@buffalo.edu (Please put "EAS 305" on the subject of all your emails)

Office hours: 12:30 PM-2:30 PM Monday, 3:30PM-5:30PM Tuesday, and 9:00 AM- 11:00 AM Thursday

Mr. Cai Gao, xxx Bell Hall

E-mail: caigao@buffalo.edu (Please put "EAS 305" on the subject of all your emails)

Office hours: 2:00 PM-3:00 PM Monday, 2:00PM-5:00PM Tuesday

Ms. Xiaomei Wang, xxx Bell Hall

E-mail: xiaomeiw@buffalo.edu (Please put "EAS 305" on the subject of all your emails)

Office hours: 3:00 PM-5:00 PM Monday, 11:00AM-12:00PM Tuesday

TEXTBOOKS

- ★ **Required:** *Applied Statistics and Probability for Engineers, 6e*, By Douglas C. Montgomery, George C. Runger, The sixth edition, 2013, John Wiley and Sons.
- ★ **Recommended:** *Probability and Statistics in Engineering*, By William W. Hines, Douglas C. Montgomery, David M. Goldsman, and Connie M. Borror, The fourth edition, 2003, John Wiley and Sons.
- ★ **Recommended:** *Introduction to Probability*, By Dimitri P. Bertsekas and John N. Tsitsiklis, 2002, Athena Scientific.
- ★ **Recommended:** *Introduction to Probabilities and Statistics for Engineers and Scientists*, By Sheldon M. Ross, Third Edition, 2004, Academic Press.

TIME AND PLACES

Lectures are at 11:00-11:50 AM, MWF, in Davis 101, North Campus. We have three recitation sessions, which are also an integral part of the course. You should feel free to attend any of these sessions. You are also welcome to attend more than one recitation sessions. Recitation meetings are:

Day	Time	Place	TA
Wednesday	12:00 PM - 12:50 PM	Cooke 508	Xiaomei
Wednesday	2:00 PM - 2:50 PM	Talbrt 107	Cai
May be cancelled; Friday	12:00 PM - 12:50 PM	Cooke 114	Fatemeh
Friday	2:00 PM - 2:50 PM	Capen 262	Fatemeh

COURSE DESCRIPTION

This course introduces probability and its application to engineering problems, examines sample space, random variables, expected values, limiting theorems, error analysis, and provides introduction to random processes. Students may not receive credit for this course and CIE 308.

STUDENT LEARNING OUTCOMES

Upon successful completion of this course, students should be able to: (a) understand the basics of probability and statistics theory; (b) understand and calculate the expected values, variances, covariance, correlation coefficients, probabilities, marginal/joint/conditional distributions; (c) get familiar with some common random variables and their properties; and (d) construct and explain confidence intervals and hypothesis testing.

Prerequisites: Prerequisite for enrollment is MTH 241 College Calculus III or equivalent.

COURSE GRADING

To qualify for a particular letter grade, the minimum course average shown after that grade will be needed: A (90); A- (86); B+ (82); B (78); B- (74); C+ (70); C (66); C- (62); D+ (58); D (54); and F (less than 54). I reserve the right to lower these cutoffs (i.e., give higher grades than indicated) under some circumstances (e.g., if one of the exams turns out much too difficult). However, I will not raise the cutoffs. I also follow the University's policy on Explanation of Grades, including the incomplete grades; see <http://undergrad-catalog.buffalo.edu/policies/grading/explanation.shtml>.

Item	Percentage
Homework	30%
Quizzes	10%
First mid-term exam	20%
Second mid-term exam	20%
Third mid-term exam	20%

Homework: Homework will be assigned in most weeks. It will generally be handed out on a Wednesday, due the following Wednesday, and returned to you by the Wednesday after that. Homework must be turned in by the end of the class period in which it is due. Provide your full name and student ID number for each of the homework that you submit. Late homework will not be accepted, except in extenuating circumstances (e.g., family emergency, illness), with official documents and instructor/TAs' permission. You are encouraged to join with other students in discussing the course, including homework. This is especially useful if you have first tried to solve the problem on your own, and focus on understanding the reasons for any differences between your answer and someone else's approach, rather than just copying the answer that someone else got. Note, however, that when you write up the work that you hand in, you should do so on your own. You are strongly recommended to turn in a computer-generated (e.g., \LaTeX , MS Word) homework if possible.

Quizzes: Open-book, open-note, open-discussion, easy-question quizzes will be given at the beginning of many lectures and then be collected in the end of those lectures. Provide your full name and student ID number for each of the quizzes that you submit. There will be NO make-up quizzes unless you have

extraneous reasons with official documents. However, when computing the final grade, about 10% of the lowest quiz grades will be dropped. For example, suppose students were given twenty quizzes during the whole semester, the lowest two quiz grades do not count.

Exams: There will be three mid-term exams and no final one. Exams will not be accumulative and will be held during normal lecture time and place. Those exams will be closed book and closed notes. However, you are allowed to bring one double-sided US Letter Size “cheat-sheet (formula sheet)” for each of the exams. Makeup exams will be administered only under extenuating circumstances with official documents, provided that I am notified in advance.

ATTENDANCE

Although positively correlated with your quiz, homework and exam grades, attendance at the lectures and recitations will not be directly included in your grade. However, attendance is fundamental to the course, so if you do not come to class, you are giving yourself a disadvantage. Absenteeism can also be a sign of illness or other serious problems; don't hesitate to email or stop by to discuss the reasons for any absences. If you need help, please let me know, and I will try to connect you with the appropriate campus resources.

PROFESSIONALISM

Students are expected to use professional style throughout the class and in all communications, including emails to faculty and teaching assistants/graders. This includes the use of salutations and closings (including clear identification of the author) and correct grammar. Students are expected to refrain from use of cell phones or other electronic devices unless they are clearly linked to class purposes (e.g., note-taking). Cell phones must remain off or muted. We reserve the rights of increasing the grades by up to 4% for students demonstrating great professionalism.

OFFICE HOURS

To be fair to all of the students and to the colleagues that we work with, please cooperate with us in respecting the office hours of the TAs and the professor. However, individual appointments can be made, if the posted office hours are insufficient or inconvenient. You may email the instructor or TAs at any time to discuss your questions by email, or to set up an appointment. We will respond as soon as possible, but you should be aware that we do not always check emails on the evenings and weekends, or when we are traveling. If you need to reach us on an urgent basis (e.g., before an exam), you can also try leaving a message on our voice mails with information on when and how we can reach you by phone.

UNIVERSITY POLICY ON ACADEMIC INTEGRITY

All work must be your own. Plagiarism is never allowed. If any student is found in violation of maintaining academic integrity, sanctions will be imposed. This can be as severe as receiving an 'F' in the course. Especially flagrant violations will be considered under formal review proceedings, which can call for harsher sanctions including expulsion from the University. All students are expected to be familiar with and abide by the University's academic integrity policies, available in the Undergraduate Catalog: <http://undergrad-catalog.buffalo.edu/policies/course/integrity.shtml> or the Graduate School Policies and Procedures Manual: <http://www.grad.buffalo.edu/policies/academicintegrity.php>. Plagiarism detection software may be used by individual instructors or the institution to aid in determining the originality of student work. If you ever have any questions or concerns regarding the policy, particularly as it related to this course, see the instructor.

ACCESSIBILITY RESOURCES

If you require classroom or testing accommodations due to a disability, please contact the University's Accessibility Resources Office <http://www.student-affairs.buffalo.edu/ods/>, located at 25 Capen Hall. AR can be reached by phone at (716) 645-2608 or by email at stu-accessibility@buffalo.edu. Please inform me as soon as possible about your needs so that we can coordinate your accommodations.

COURSE OUTLINE ****This outline is subject to change****

Week	Date	Course Material	Note
No. 1	08/31	Introduction to the class and the syllabus	First day of class
	09/02	Chapter 1.1–1.2	
	09/04	Chapter 1.3–1.4	
No. 2	09/07	No Class	Labor Day
	09/09	Chapter 2.1	
	09/11	Chapter 2.2–2.3	
No. 3	09/14	Chapter 2.4–2.5	
	09/16	Chapter 2.6–2.8	
	09/18	Chapter 3.1–3.3	
No. 4	09/21	Chapter 3.4–3.5	
	09/23	Chapter 3.6–3.7	
	09/25	Chapter 3.8–3.9	
No. 5	09/28	Chapter 4.1–4.3	
	09/30	Chapter 4.4–4.6	
	10/02	Chapter 4.7–4.9	
No. 6	10/05	Chapter 4.10–4.12	
	10/07	Chapter 5.1	
	10/09	Chapter 5.2–5.3	
No. 7	10/12	Chapter 5.4–5.6	
	10/14	Review for Mid-term Exam 1	Review for Mid-term Exam 1
	10/16	Mid-term Exam 1	Mid-term Exam 1
No. 8	10/19	Chapter 6.1–6.2	
	10/21	Chapter 6.3–6.5	
	10/23	Chapter 6.6–6.7	
No. 9	10/26	Chapter 7.1–7.2	
	10/28	Chapter 7.3	
	10/30	Chapter 7.4	
No. 10	11/02	Chapter 8.1	
	11/04	Chapter 8.2–8.3	
	11/06	Chapter 8.4–8.5	
No. 11	11/09	Chapter 8.6–8.7	
	11/11	Chapter 10.1–10.3	
	11/13	Chapter 10.1–10.7	
No. 12	11/16	Review for Mid-term Exam 2	Review for Mid-term Exam 2
	11/18	Mid-term Exam 2	Mid-term Exam 2
	11/20	Chapter 9.1–9.2	
No. 13	11/23	Chapter 9.3–9.4	
	11/25	No Class	
	11/27	No Class	Fall Recess
No. 14	11/30	Chapter 9.5–9.6	Fall Recess
	12/02	Chapter 9.7–9.8	
	12/04	Chapter 9.9–9.11	
No. 15	12/07	Review for Mid-term Exam 3	Review for Mid-term Exam 3
	12/09	Mid-term Exam 3	Mid-term Exam 3
	12/11	Conclusion	Last day of class