STAT 311: Introductory Probability
Spring 2016
MWF 8:30 -9:20 UNIV 019

Instructor: Dr. Leonore Findsen
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Office Hours:TR: TBA (determined in class on Monday)
Textbook: Mark Daniel Ward, Ellen Gundlach, A Student-Friendly Introduction to Probability,
   1st Edition, 2016, ISBN: 978-0-7167-7109-8 **Required.** (I do not know what the differences
   are between the preliminary version which was used last semester and the 1st edition.)
      We will cover most of the material in Parts I – VI.
Web page: http://www.stat.purdue.edu/~lfindsen/stat311/stat311_sp16.html
   This site will be continually updated. Please refer back to this often. This link is also on
   Blackboard. The schedule and worksheets will be posted here.

Course Description: An introductory course in probability theory. Requires a year of calculus at
   the MATH 161-162 level. Intended primarily for mathematics education majors. Does not
   cover statistical methods.

Course Goals:
1. Determine appropriate methods for determining probabilities and conditional probabilities.
2. Use of distribution functions involving mass functions and cumulative distribution functions.
3. Use of specific distribution functions for both discrete and continuous random variables
   including means and variances.
4. Use of distribution functions involving more than one variable.

Grading Policy:
   Final course grades are determined by the following weights:

Category	Flipped
Participation	9%
Course Evaluation	1%
Homework	10%
Project	10%
MIDTERM Exams	20% x 2
Final Exam	30%
TOTAL	100%

   The letter-grade cutoffs for this course are approximately:
      ≥ 90 : A   80 – 90-: B   70 – 80-: C   60 – 70-: D   <60: F

   +/- grades are only given in special circumstances.

   I reserve the right to change the grading scheme should unusual circumstances demand it.

Blackboard (https://mycourses.purdue.edu/)
- All announcements will be posted on Blackboard including changes in due dates and the schedule. Also posted in Blackboard will be when the online quizzes are available (see below). Important announcements will also be sent directly to your Purdue e-mail account. It is your responsibility to read the e-mails and keep track of the announcements.
- Your grades will also be posted online on Blackboard. It is your responsibility to make sure the grades recorded on Blackboard are correct. All grades on Blackboard (other than the final exam) are final before the last day of the semester unless explicitly stated otherwise. If there is a mistake in a grade, you must inform your instructor in a timely manner (see below for details).

Discussion Groups: (https://piazza.com/purdue/fall2015/stat350findsenspring2016/home)
- This link is also on Blackboard. We will use Piazza (a free online discussion board) for questions and online discussions. This forum is in addition to asking questions in class and/or office hours, especially if you are confused about the material in the book or the Videos/readings. The discussion board will be carefully and frequently monitored. Most questions will be answered within 24 business hours. Please use piazza Q&A for all worksheet and general questions.

Lectures:
- This semester, the course is taught as a flipped class, that is, you will be doing group worksheets in class with only a few lectures. Attendance in these sessions is required and roll will be taken.
- In addition, we will have PSO days. The day of the week that is PSO will vary and are indicated on the schedule. Attendance on these days are optional. I will have material prepared (indicated on the schedule) or you may choose to work on worksheets, ask questions about the reading, etc.
- You are required to be prepared for each required course session by reading the book or the listed readings before class. These will be tested on via online quizzes which are due midnight the night before we will be discussing them in class.

Participation (9%):
- At least 70% of the participation grade will consist of the following.
  1. Completion of the online quizzes with passing scores.
  2. Attendance in class on days that are required.
  3. Group participation on days that are required.
- For up to 30% of the grade, I will consider the following:
  4. The submission of your questionnaire by the due date.
  5. Appropriate activity on piazza.com.
  6. Going to office hours either in my office, the STAT help room or the Wednesday night help session. It is up to you to get the TA to sign the form that is posted on Blackboard and on the misc. web page under 'Passport'
  7. Other ways that I might indicate later.

Course Evaluation (1%):
- During the last two weeks of the semester, you will be provided an opportunity to evaluate this course and your instructor using an online evaluation.
- Your participation in this evaluation is an integral part of this course. Your feedback is vital to improving education at Purdue University. You will need to take a screen shot of the screen that shows that you have completed the survey for STAT 311. Be sure that your screen shot indicates that the completed evaluation is for STAT 311.

Homework (10%):
- Homework will consist of the graded worksheets. In general the worksheets will be due one class period after they were handed out in class. The due dates will be posted on the schedule and on the worksheets.
- I reserve the right to add additional written homework if necessary
- The lowest worksheet score (by percentage) will be dropped at the end of the semester.
- ***No late work will be accepted***.

Project (10%):
- There will be one individual project which is due at the end of the semester, Friday April 24. A late penalty of at least 50% will be applied if it is late. Please contact me (via e-mail) before the due date if an emergency will prevent you from turning in the paper on time.
- Each major will have a different project. Though all of the projects will be worth the same percentage, they differ greatly as to content so each type of project will be graded differently.
- As these projects will take a substantial amount of time to complete, do not wait until the last minute to decide what you are going to do.
- The project may be turned in via Blackboard or as a hardcopy.
- If you have any questions about whether your topic is appropriate or not, please contact the professor.

Exams (two midterm exams – 20% each and one final exam – 30%):
- The exams will be in-class closed book exams no cheat sheets allowed. The tentative dates are Feb. 17 and April 6 but are subject to change.
- Midterms 2 and the final will have an equation sheet provided. The final will have an additional statistical table. All of these materials will be posted on the web site before the exam.
- You need to bring pens, pencils, and calculators. A scientific calculator is required. Graphing calculators are permitted, but not required. If you do bring a graphing calculator, you will need to clear all memory on it before the exam.
- The final exam is comprehensive.
- The final is not returned. Students may look at their finals in my office after the end of the semester.
- Contact me as soon as possible if you are unable to take any of the exam at the scheduled time. After the exam key has been posted on the web site, NO MAKEUPS will be allowed.

Re-grade Request
- All re-grade requests must in writing and handed to the instructor or submitted on Blackboard (online quizzes or project only, pdf only). No other requests will be accepted.
- To request a re-grade, you must submit a re-grade form within **two weeks** from when the assignment is returned. For worksheets and exams and hardcopy projects, the re-grade request must be stapled on top of the assignment with the answer key (or part of the answer key) stapled on the bottom. For online quizzes and the project (submitted via Blackboard), only an electronic request is required.
- Re-grade requests outside the re-grade window will be denied.
- Any rudeness accompanying a re-grade request will result in the assessment of a "technical foul" penalty equal to the total number of points for the disputed question.

General Course Policies:
- If you have questions concerning the class; please come to my office hours, make an appointment, send me an e-mail or post to piazza. I normally look at my e-mail numerous times during the day and evening hours and try to respond promptly, at least within 24 hours.
- The use of cell phones is prohibited in during the exams.

Academic Honesty:
- You are expected to uphold The Honor Code of Purdue University.
- All cheating in the course will be referred to the Office of the Dean of Students.
- Any cheating on exams will result in an "F" in the course. This includes communicating details of an exam to other students who have not yet taken the exam.

Good Collaboration:
- Try all of the homework problems yourself, on your own.
- **After** working on a problem yourself, then discuss the answer with your group who have also worked on every problem themselves.
- Discuss ideas for how to do the more difficult problems.
- Finish the homework problems on your own so that what you turn in truly represents your own understanding of the material.
- Work the review problems individually, and then use the group for discussion.
- If the assignment involves writing a long, worded explanation (like an essay question), you may proofread somebody's completed written work and allow them to proofread your work. Do this only after you have both completed your own assignments, though.
- Discuss concepts or practice problems in the group.
- Explain concepts or practice problems to each other.
- Ask a tutor or TA for help on a problem **related** to a homework problem, but do the actual homework problem yourself. The odd-numbered problems in the book have answers in the back, so they're great for examples.

Academic Misconduct:
- Divide up the problems among a group. (You do #1, I'll do #2, and he'll do #3: then we'll share our work to get the assignment done more quickly.)
- Participate in group work in class without coming to class prepared, allowing your partners to do all of the work while you copy answers down, or allowing an unprepared partner to copy your answers.
- Start the problem yourself but then copy somebody else's solution for the rest of the problem after you got stuck.
- Read someone else's answers before you have completed your work.
- Have a tutor or TA work though all (or some) of your HW problems for you.
- Not keeping your exam covered.

- **Approximate Outline** (including the readings for each section)
  A more complete listing of the assignments is listed on the schedule.

Section of Book	Topic	Reading
Part 1: Randomness	Introduction	Preface
	Sample spaces, set theory	1
	Probability axioms, equally likely outcomes	2
	Conditional probability, Bayes theorem and independence	3, 4, 5
Part IV: Counting	Counting	22, 23 (Note: this section is out of order)
Part II: Discrete Random Variables	Random Variables: mass functions, cumulative distribution function - discrete	7, 8
	Joint random variables - discrete	9
	Expected Values: Mean and Variance - discrete	10, 11, 12
Part III: Named Discrete Random Variables	Random Variables: specific distribution functions - discrete	14 – 21
Part V: Continuous Random Variables	Random Variables: mass functions, cumulative distribution function, joint distributions - continuous	24, 25, 26, 27
	Expected Values: Mean and Variance - continuous	28, 29
Part VI: Named Continuous Random Variables	Random Variables: specific distribution functions - continuous	31 – 35, 38
Part VII: Additional Topics	Covariance, correlation (optional)	39
	Conditional Expectations (optional)	40
	Chebychev inequality, Law of Large Numbers (optional)	41
Part VI: Named Continuous Random Variables	Central Limit Theorem (Normal Distribution) (optional)	36, 37